Appendix M

Biodiversity Development Assessment Report





McPhillamys Gold Project

Amendment Report - Biodiversity Development Assessment Report

Prepared for LFB Resources NL September 2020

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McPhillamys Gold Project

4 September 2020

Amendment Report - Biodiversity Development Assessment Report

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Executive Summary

ES1 The project

LFB Resources NL is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis), and is seeking development consent for the construction and operation of the McPhillamys Gold Project, a greenfield open-cut gold mine and associated water supply pipeline in the Central West region of New South Wales (NSW).

The project for which development consent is sought comprises two key components; the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the mine development), and an associated water pipeline which will enable the supply of water from near Lithgow to the mine site (the pipeline development). The mine project area is approximately 8 kilometres (km) north-east of Blayney, within the Blayney and Cabonne local government areas, and within the Orange IBRA sub-region of the former Lachlan Catchment Management Authority (CMA). The pipeline development traverses four IBRA subregions, comprising Orange, Bathurst, Hill End and Capertee Uplands.

In accordance with the requirements of the EP&A Act, the NSW *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) and the Secretary's Environmental Assessment Requirements (SEARs) for the project, an Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project. Accordingly, an Amendment Report has been prepared by EMM Consulting Pty Ltd (EMM 2020a) to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the amended project, compared to those that were presented in the EIS. This report forms part of the Amendment Report and presents an assessment of the biodiversity impacts of the amended project.

ES2 Purpose of this report

In the EIS, biodiversity impacts of the gold mine development were assessed in accordance with the former NSW Framework for Biodiversity Assessment (FBA), while the pipeline development was assessed in accordance with the current Biodiversity Assessment Method (BAM) as per the Secretary's Environmental Assessment Requirements (SEARs) for the project. Regis has subsequently however received legal advice that such a hybrid approach of use of the FBA and BAM for a single project application may expose Regis to the risk of a legal challenge.

Accordingly, to address this risk created by the "hybrid" biodiversity assessment approach, the legal advice obtained recommended re-assessing the mine development component of the project in accordance with the BAM. Due to the need to update the mine and pipeline biodiversity assessments to account for amendments to the mine footprint and pipeline corridor (refer above) and respond to Biodiversity Conservation Division's submission on the existing pipeline biodiversity assessment (OzArk 2019; see Section 1.4), Regis has decided to prepare a combined biodiversity development assessment report (BDAR) for the project, inclusive of both the mine and pipeline development components.

This report has been prepared to assess the potential biodiversity impacts of the amended project into a combined assessment for the mine and pipeline developments. The assessment considers and outlines the differences in impacts compared to the original project as presented in the EIS. Accordingly, this BDAR supersedes the following reports presented in the EIS:

- McPhillamys Gold Project Mine Development Biodiversity Assessment Report (EMM 2019, Appendix N of the McPhillamys Gold Project EIS); and
- McPhillamys Gold Project Pipeline Development Biodiversity Development Assessment Report (OzArk Environmental & Heritage Management Pty Ltd (OzArk) 2019, Appendix Y of the McPhillamys Gold Project EIS).

ES3 Ecological values

ES3.1 Mine development

Field surveys revealed that vegetation within the mine site, which has experienced historic pastural use, mainly comprises open paddocks with some fragmented patches of timbered natural vegetation scattered throughout. Field surveys also recorded four native plant community types (PCT), comprising:

- Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330);
- Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727);
- Mountain Gum Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951); and
- Carex sedgeland of the slopes and tablelands (PCT 766).

All native plant community types recorded varied from higher condition patches to poor condition patches.

One PCT, Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, represents White Box Yellow Box Blakely's Red Gum Woodland, is listed as a critically endangered ecological community (CEEC) under the NSW *Biodiversity Conservation Act 2016*. Patches of this PCT in moderate/good (high) and moderate/good (medium) condition also represent White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands (Box Gum Woodland), also listed as a CEEC under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Several ecosystem credit species were predicted to be associated with the PCTs in the mine project area by the Biodiversity Assessment Method Calculator (BAMC). Two candidate species, comprising the Koala (*Phascolarctos cinereus*) and Squirrel Glider (*Petaurus norfolcensis*) were also recorded in the mine project area. The Koala is associated with three PCTs across the site, namely PCT 727 (medium and high condition vegetation zones only), PCT 951 and PCT 1330. PCT 727 contains Broad-leaved Peppermint (*E. dives*), Bundy (*E. goniocalyx*), Apple Box (*E. bridgesiana*) and sparse areas of Brittle Gum (*E. mannifera*). PCT 951 contains Manna Gum (*E. viminalis*). PCT 1330 contains Apple Box (*E. bridgesiana*; and Yellow Box (*E. melliodora*). The aforementioned tree species have been identified by *State Environmental Planning Policy* (*Koala Habitat Protection*) *2019* as koala feed trees in the central and southern tablelands koala management area, in which the mine is located. The Squirrel Glider has been associated with all woody communities on site. Approximately 116.95 ha of Koala habitat and 127.35 ha of Squirrel Glider habitat occurs in the mine disturbance footprint and will be directly impacted.

Four species listed under the EPBC Act were recorded in the mine project area. These comprised two species listed as vulnerable (Koala and Superb Parrot *Polytelis swainsonii*) and two migratory species (Latham's Snipe (*Gallinago hardwickii*) and Rainbow Bee-eater (*Merops ornatus*)). PCTs 727, 951 and 1330 in the mine project area were assessed against the Koala habitat assessment tool in the EPBC Act referral guidelines for the vulnerable Koala (DoE 2014). With a total score of seven, vegetation in the mine project area represents Koala habitat, in accordance with the referral guidelines (ie a score greater than five).

One Superb Parrot was recorded directly south of the mine project area. The breeding range is concentrated on the NSW South Western Slopes and Riverina Bioregions; however, the mine project area does not occur within any of the three main breeding areas identified by the species recovery plan. The species may occasionally forage in the mine project area; however, the mine project area does not comprise habitat critical to the species survival as it does not contain the required vegetation types stated in the species recovery plan and is not considered core breeding habitat.

Latham's Snipe was recorded directly adjacent to the mine project area. This species breeds in Japan and in far eastern Russia during the northern summer and then migrates to Australia, where it remains for the duration of the northern winter. Latham's Snipe is a non-breeding visitor to south-eastern Australia, that migrates through northern Australia to reach non-breeding areas located further south. Only one site in Australia, Seaford Swamp in Victoria, is recognised as an internationally important wetland for the species (Bamford et al 2008). The internationally important habitat occurs outside the mine project area.

A single Rainbow Bee-eater was recorded in the mine project area. The Rainbow Bee-eater is widely distributed throughout Australia, Asia, Papua New Guinea and Solomon Islands. The majority of the global population breeds in Australia (including on Rottnest Island and islands in the south-west Torres Strait). Breeding has also been recorded in eastern Papua New Guinea (around Port Moresby and the Ramu Valley) and may possibly occur in the Lesser Sundas. The species important breeding habitat occurs outside the mine project area.

ES3.2 Pipeline development

Field surveys revealed that the pipeline development predominantly traverses areas of non-native vegetation, comprising cleared grasslands and pine forests. The western part of the pipeline also traverses fragmented patches of timbered natural vegetation scattered throughout, while fragmented and some intact patches are intersected in the east. Field surveys recorded six native plant community types (PCT), comprising:

- Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330);
- Blakely's Red Gum Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277);
- Red Stringybark Brittle Gum Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion (PCT 1093);
- Snow Gum Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion (PCT 1191);
- Snow Gum Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion (PCT 1197);
 and
- Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727).

All native plant community types recorded varied from intact patches to derived native grasslands (DNG).

Two PCTs, namely Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, represent White Box Yellow Box Blakely's Red Gum Woodland and Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion, listed as a critically endangered ecological community (CEEC) under the NSW *Biodiversity Conservation Act 2016* (BC Act). Up to 0.81 ha of this PCT in the southern option and 1.34 ha in the northern option also represent White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands, which is listed as a critically endangered ecological community (CEEC) under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

All vegetation zones within two PCTs, namely Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion and Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion, represent Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions, listed as a CEEC under the BC Act. The ecological community is not listed under the EPBC Act.

Several ecosystem credit species were predicted to be associated with the PCTs in the pipeline development by the BAMC. Two candidate species, comprising Black Gum (Eucalyptus aggregata) and Clandulla Geebung (Persoonia marginata) were recorded in the pipeline corridor. Potential host plants for the Bathurst Copper Butterfly (Paralucia spinifera) were also recorded. Several fauna species have been assumed as present in limited parts of the pipeline development where suitable habitat occurs, comprising Pink-tailed Worm Lizard (Aprasia parapulchella), Basalt Peppercress (Lepidium hyssopifolium), Booroolong Frog (Litoria booroolongensis), Small Purple-pea (Swainsona recta), Silky Swainson-pea (Swainsona sericea), Tarengo Leek Orchid (Prasophyllum petilum), Austral Toadflax (Thesium australe), Squirrel Glider (Petaurus norfolcensis), Koala (Phascolarctos cinereus), Bush Stone-curlew (Burhinus grallarius), Eastern Pygmy Possum (Cercartetus nanus), Masked Owl (Tyto novaehollandiae), Gang-gang Cockatoo (Callocephalon fimbriatum), Barking Owl (Ninox connivens), Powerful Owl (Ninox strenua). Potential denning/roosting habitat exists east of the pipeline development for the Brush-tailed Phascogale (Phascogale tapoatafa) and Large-eared Pied Bat (Chalinolobus dwyeri) and Brush-tailed Rock-Wallaby (Petrogale penicillata), and therefore an assessment of potential foraging habitat in the pipeline development proximal to these areas has been conducted.

Of the species listed above that have been recorded or have potential to occur in the pipeline development, Austral Toadflax, Basalt Peppercress, Black Gum, Small Purple-pea, Tarengo Leek Orchid, Bathurst Copper Butterfly, Koala and Pink-tailed Worm Lizard are also listed under the EPBC Act. In addition, potential foraging habitat occurs for the Superb Parrot (*Polytelis swainsonii*) and potential habitat for Hoary Sunray (*Leucochrysum albicans var. tricolor*) and Greater Glider (*Petaurus volans*), also listed under the EPBC Act.

ES4 Impact avoidance, minimisation and mitigation

ES4.1 Mine development

Numerous alternative designs have been prepared and evaluated for the mine development. This process has facilitated the development of a considered project design which will efficiently recover a highly valuable resource, while minimising environmental impacts and potential land use conflicts and delivering socio-economic benefits to the local and broader communities. The mine disturbance footprint was minimised to avoid and minimise biodiversity impacts, particularly impacts to White Box Yellow Box Blakely's Red Gum Woodland CEEC and threatened species habitat.

Key avoidance measures implemented by Regis into the project design comprise:

- avoidance of all areas of PCT 1330 Moderate/Good (High) condition within the mine project area, apart from a small area in the direct footprint of the open cut mine. This area was impossible to avoid due to this being the location of the gold deposit targeted by the project;
- minimisation of impacts to PCT 1330_Medium condition wherever feasible;
- development of a tailings storage facility (TSF) which avoids almost all Box Gum Woodland identified within the TSF investigation area identified in the Preliminary Environmental Assessment (PEA) of the project, resulting in a clearing reduction to that originally proposed of 5.1 ha.

ES4.2 Pipeline development

The pipeline has been designed, where possible, to avoid sensitive biodiversity areas. Regis has invested significant time and expense in revising vegetation mapping, conducting targeted surveys and assessing habitat for threatened species in response the BCD's concerns with the EIS pipeline biodiversity assessment.

The additional surveys and assessments have been carried out in parallel with, and have informed the evolution of, the pipeline corridor design. This process has ensured the avoidance of environmental constraints, including impacts on Box Gum Woodland and threatened species habitat, as far as practicable.

Key avoidance measures that have been implemented by Regis comprise:

- selection of a pipeline route that maximises use of existing roads and non-native vegetation and minimises disturbance to native vegetation;
- reducing the pipeline disturbance footprint to 8 m width, with a further restriction to 6 m width where the pipeline intersects EPBC Act-listed Box Gum Woodland;
- underboring large waterways including the Macquarie River to avoid impacts on aquatic habitats and species;
- avoiding direct impacts on Bathurst Copper Butterfly host plants; and
- avoiding direct and indirect impacts on potential Tarengo Leek Orchid habitat (to be informed by the outcomes of a targeted survey in November 2020).

ES5 Biodiversity impacts

ES5.1 Comparison of EIS impacts with amended project

ES5.1.1 Mine development

Impacts on biodiversity have changed for the mine development due to a revision of the mine disturbance footprint. Changes to the mine disturbance footprint have resulted in no change for some PCTS, decreased impacts for some PCTs and small increases for others. Overall, the amended project will reduce the direct impact on PCTs by 1.97 ha, reducing from 132.36 for the EIS mine disturbance footprint to 130.39 in the amended project mine disturbance footprint. Of this area of native vegetation impacted, the amended project will increase the direct impacts on Box Gum Woodland as listed under the BC Act and EPBC Act by 1.93 ha.

Koala habitat impacts were calculated in the EIS based on the repealed SEPP 44 and the feed tree species for the central and southern tablelands koala management area in the Koala Recovery Plan (DECC 2008). Koala impacts were estimated to be 75.77 ha in the EIS, which would increase to 78.57 ha for the amended project based on use of the same method, representing a 2.8 ha increase.

The method for calculating Koala impacts has changed since the EIS, with the introduction of State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2019. Koala impacts have been re-calculated in this BDAR in accordance with the feed tree species for the central and southern tablelands koala management area in SEPP (Koala Habitat Protection) 2019. Using SEPP (Koala Habitat Protection) 2019, the EIS mine disturbance footprint would have directly impacted 115.06 ha, increasing by 1.89 ha to 116.95 ha for the amended project.

In the EIS, direct impacts on the Squirrel Glider were 129.32 ha. The amended mine development would reduce direct impacts to Squirrel Glider habitat by 1.97 ha to 127.35 ha.

ES5.1.2 Pipeline development

Impacts on biodiversity have changed for the pipeline development, partly relating to a change in the project disturbance footprint and addition of two pipeline options in the Bathurst IBRA subregion. The impacts on biodiversity have mainly changed due to the revision of PCT mapping, additional targeted survey and habitat assessment results. The direct impacts on PCTs have increased by 10.22 ha for the southern option and 7.54 ha for the northern option. Overall, direct impacts to species have increased by 13.57 ha for the southern option and 12.50 ha for the northern option. It should be noted that some of these impacts are combined, as multiple species can occupy the same area of habitat.

ES5.2 Potential biodiversity impacts

ES5.3 Mine development

Following the implementation of avoidance and minimisation measures, the project will remove 130.39 ha of native vegetation. The project will remove 45.84 ha of vegetation (PCT 1330) that represents White Box Yellow Box Blakely's Red Gum Woodland CEEC listed under the NSW BC Act; 20.43 ha of which also represents Box Gum Woodland CEEC listed under the Commonwealth EPBC Act. These impacts will be compensated through the implementation of the project's biodiversity offset strategy.

Three PCTs, comprising retained patches of PCT 727, 951 and 1330 surrounding the mine disturbance footprint overlie shallow groundwater ranging from 0 to 20 metres below ground level. A high proportion of the distribution of two PCTs (951 and 1330) had access to groundwater. Accordingly, these PCTs were identified as opportunistic users of groundwater. The predicted watertable levels at the end of mining and 100 years following mining were compared with existing levels. No negative groundwater access impacts are expected to occur for GDEs.

A conservative approach was used in the groundwater assessment (Appendix K of the EIS) to simulate seepage from the TSF and assess any changes in groundwater quality. The Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report) identified the potential for groundwater quality changes because of:

- seepage from the TSF to the watertable and the Belubula River;
- seepage from stockpiles to the watertable;
- seepage from water storage ponds to the watertable; and
- introduction of varying water quality via the pipeline.

Potential impacts related to the last three hazard items have been assessed in the Groundwater Assessment (Appendix K of the EIS) and assessed to present minimal to no impacts on the water environment from a water quality perspective. The potential impacts of seepage from the TSF was also assessed in the Groundwater Assessment (Appendix K of the EIS), however as the TSF schedule has been adjusted for the amended project, this assessment has been revisited and is included in Groundwater Assessment Addendum (Appendix H of the Amendment Report).

ES5.4 Pipeline development

Following the implementation of avoidance and minimisation measures, the southern option would remove 18.51 ha of native vegetation, while the northern option would remove 15.84 ha. Of these areas of native vegetation, 12.16 ha in the southern option and 9.49 ha in the northern option represents White Box Yellow Box Blakely's Red Gum Woodland CEEC listed under the NSW BC Act, 0.81 ha in the southern option and 1.34 ha in the northern option of which also represents Box Gum Woodland CEEC listed under the Commonwealth EPBC Act.

In addition, 3.06 ha for both the northern and southern options represents Werriwa Tablelands Cool Temperate Grassy Woodland, listed as a CEEC under the BC Act. The above impacts will be compensated through the implementation of the project's biodiversity offset strategy.

ES6 Biodiversity credits required

ES6.1 Mine development

The mine development requires 2,541 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the project also requires 2,431 species credits for the Koala and 2,651 species credits for the Squirrel Glider. Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

ES6.2 Pipeline development

The pipeline development requires 331 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species (northern option) and 363 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species (southern option). In addition to ecosystem credits, the project also requires 833 species credits to offset the residual impacts of the pipeline development (northern option) and 968 to offset the pipeline development (southern option). Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

ES7 Biodiversity offset strategy

Under the NSW Biodiversity Offsets Scheme, proponents can meet their offset requirements through one, or a combination of the following actions:

- 1. establishment of a biodiversity stewardship site containing the required ecosystem and species credits;
- 2. purchase and retirement of the required ecosystem and species credits from the biodiversity credit market;
- 3. payment into the Biodiversity Conservation Fund; and
- 4. fund a management action that directly benefits the species and/or ecological communities impacted.

For the pipeline, a corridor has been identified, representing the area in which the pipeline disturbance footprint may sit. Impacts and associated offset requirements have been calculated based on the disturbance footprint, which is based on the concept design. The disturbance footprint may shift within the construction envelope. This is designed to allow Regis with some degree of flexibility to microsite the pipeline to avoid impacts and address construction issues (eg areas of shallow rock) during construction. Following detailed design and construction Regis proposes to recalculate the ecosystem and species credit requirements for the pipeline development to ensure impacts are within the limits in this BDAR and EIS. If impacts are greater additional offsets will be provided.

The proponent has purchased and conducted detailed studies to assess native PCTs and threatened species at a future stewardship site in Blayney (ie option 1, above). The property is approximately 388 ha and contains some of the required ecosystem and species credits (PCT 951, PCT 1330 and Koala). It is the proponent's intention to secure the property under a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust. The proponent will assess the residual ecosystem and species credits and secure these under one, or a combination of options 2 to 4.

ES8 Conclusion

This BDAR has been prepared in accordance with the BAM, biodiversity-related Environmental Assessment Requirements issued by the Department of Planning and Environment and agency-specific assessment requirements. Regis has carried out annual biodiversity surveys within the mine project area since acquiring Exploration Licence 5760 in 2012 and biodiversity surveys between 2018 and 2020 in the pipeline corridor. These surveys have been carried out in parallel with, and have informed the evolution of, the mine and pipeline design. This process has ensured the avoidance and minimisation of biodiversity constraints as far as practicable.

The mine development requires 2,541 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the project also requires 2,431 species credits for the Koala and 2,651 species credits for the Squirrel Glider. The pipeline development requires 331 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species (northern option) and 363 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species (southern option). In addition to ecosystem credits, the project also requires 833 species credits to offset the residual impacts of the pipeline development (northern option) and 968 to offset the pipeline development (southern option). Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

The BDAR has also considered impacts on species and ecological communities listed under the EPBC Act. The mine development is expected to result in significant impacts on Box Gum Woodland and the Koala, while the pipeline development is not. As the McPhillamys Gold Project is being assessed in accordance with the bilateral agreement made between the NSW and the Commonwealth under Section 45 of the EPBC Act, impacts on this listed ecological community and species will be compensated through the implementation of the biodiversity offset strategy.

Table of Contents

Exe	cutive	Summary		ES.1
1	Intro	Introduction		
	1.1	Backgro	und	1
	1.2	Project	amendment overview	1
	1.3	Purpose	e of this report	3
	1.4	Submiss	sions on the EIS	4
	1.5	Termino	ology	9
	1.6	Site description		14
		1.6.1	Mine development	14
		1.6.2	Pipeline development	14
	1.7	Informa	tion sources	15
		1.7.1	Previous studies	15
		1.7.2	Publications and databases	15
		1.7.3	Spatial data	16
	1.8	Certifica	ation	16
2	Legis	Legislative context		
	2.1	2.1 Commonwealth		17
		2.1.1	Environmental Protection and Biodiversity Conservation Act 1999	17
	2.2 State Legislation		gislation	18
		2.2.1	Environmental Planning and Assessment Act 1979	18
		2.2.2	State Environmental Planning Policy (Koala Habitat Protection) 2019	19
		2.2.3	Biodiversity Conservation Act 2016	19
		2.2.4	Biosecurity Act 2015	19
Sta	ge 1 – I	Biodiversi	ty assessment	20
3	Landscape features			21
	3.1	Landsca	pe features	21
		3.1.1	Bioregions and landscapes	21
		3.1.2	Rivers, streams and estuaries	21
		3.1.3	Wetlands	23
		3.1.4	Connectivity	23

		3.1.5	Areas of geological significance and soil hazard features	23
		3.1.6	Areas of outstanding biodiversity value	24
	3.2	Assessme	ent of site context	36
4	Native	e vegetatio	on	37
	4.1	Backgrou	and review	37
		4.1.1	Mine development	37
		4.1.2	Pipeline development	37
	4.2	Methods		39
		4.2.1	Detailed vegetation mapping and habitat assessment	39
		4.2.2	Vegetation integrity assessment	41
		4.2.3	Management zones	42
	4.3	Results		44
		4.3.1	Flora and plant community types	44
5	Threatened species			107
	5.1 Methods		107	
		5.1.1	Identification of threatened species for assessment	107
		5.1.2	Habitat assessment	107
		5.1.3	Targeted candidate species surveys	109
	5.2	Results		167
		5.2.1	Habitat assessment	167
		5.2.2	Predicted species assessment	167
		5.2.3	Candidate species assessment	175
Sta	ge 2 – Ir	npact asse	essment	218
6	Impact assessment			219
	6.1	Potential	direct and indirect impacts – mine and pipeline developments	219
	6.2	6.2 Prescribed and uncertain impacts		219
	6.3	Comparis	son of predicted EIS impacts with amended project	223
		6.3.1	Mine development	223
		6.3.2	Pipeline development	224
	6.4	Avoidand	ce, minimisation and management	229
		6.4.1	Avoidance and minimisation strategy for direct and indirect impacts	229
		6.4.2	Impact avoidance and minimisation strategy	231
		6.4.3	Adaptive management strategy for prescribed and uncertain impacts	237

		6.4.4	Biodiversity management plan	238
	6.5	Serious	and irreversible Impacts	238
	6.6	Impacts	not requiring offsets	248
	6.7	Impacts requiring offset		252
		6.7.1	Mine development	252
		6.7.2	Pipeline development	256
	6.8	Biodiver	sity offset strategy	289
7	Key legislation assessment		290	
	7.1	Environr	ment Protection and Biodiversity Conservation Act 1999	290
		7.1.1	Likelihood of occurrence	290
		7.1.2	Significant impact assessment	304
	7.2	Environr	mental Planning and Assessment Act 1979	334
		7.2.1	State Environmental Planning Policy (Koala Habitat Protection) 2019	334
	7.3	Biosecur	rity Act 2015	336
		7.3.1	Mine development	336
		7.3.2	Pipeline development	336
8	Groui	ndwater d	dependent ecosystem assessment	338
	8.1	Backgro	und	338
	8.2	Method		338
		8.2.1	Study area	338
		8.2.2	Spatial data review	338
		8.2.3	Groundwater model	338
		8.2.4	Groundwater interaction assessment	339
		8.2.5	GDE identification	340
		8.2.6	Risk assessment	341
	8.3	Results		343
		8.3.1	Impact assessment	344
	8.4	8.4 Required mitigation		350
9	Concl	usion		351
Ref	references			352

Appendices

Appendix A V	egetation integrity assessment field datasheets	A.1
Appendix B Vegetation integrity plot data		B.1
Appendix C P	rotected Matters Search Results	C.1
Appendix D E	Biodiversity credit report	D.1
Appendix E E	xpert reports	E.1
Appendix F B	iodiversity Assessment Report in accordance with the Framework for Biodiversity Assessment	F.1
Tables		
Table 1.1	Key comments received in BCD's submissions relating to Mine Development BAR and Pi Development BDAR, and how they have been addressed	ipeline 4
Table 3.1	Landscape features	21
Table 3.2	Streams in the pipeline buffer area	22
Table 3.3	Percentage of native vegetation cover by IBRA subregion	36
Table 4.1	Preliminary vegetation zones in mine project area (EnviroKey 2017)	37
Table 4.2	Vegetation zones in the pipeline corridor	38
Table 4.4	Vegetation zones 1-4 description	45
Table 4.5	Vegetation zones 5-7 description	48
Table 4.6	Vegetation zone 8 description	50
Table 4.7	Vegetation zone 9 description	53
Table 4.8	Exotic grassland description	55
Table 4.9	Vegetation zone summary – mine development	57
Table 4.11	PCT 1330 vegetation zones 1-5 description	61
Table 4.12	PCT 277 vegetation zones 1-3 description	66
Table 4.13	PCT 1093 vegetation zones 1-4 description	69
Table 4.14	PCT 1191 vegetation zones 1-5 description	72
Table 4.15	PCT 1197 vegetation zones 1-4 description	76
Table 4.16	PCT 727 vegetation zones 1- 2 description	79
Table 4.17	Non-native vegetation description	81
Table 4.18	Vegetation zone summary – pipeline development	83
Table 5.1	Stratification units and mine project area – diurnal birds	114
Table 5.2	Methods and survey effort – diurnal birds	114
Table 5.3	Stratification units and mine project area – small terrestrial mammals	115

Table 5.4	Methods and survey effort – small terrestrial mammals	115
Table 5.5	Stratification units and mine project area – arboreal mammals	116
Table 5.6	Methods and survey effort – arboreal mammals	116
Table 5.7	Targeted flora surveys	119
Table 5.8	OzArk threatened fauna species survey methodology – pipeline	121
Table 5.9	Predicted species assessment – mine development	168
Table 5.10	Predicted species assessment- pipeline development	171
Table 5.12	Candidate threatened species assessment – pipeline development	182
Table 6.1	Assessment of prescribed and uncertain impacts	220
Table 6.2	Comparison of mine development PCT impacts	223
Table 6.3	Comparison of direct mine development species impacts	224
Table 6.4	Comparison of pipeline development PCT impacts	225
Table 6.5	Comparison of pipeline species impacts	227
Table 6.6	Impact avoidance and minimisation strategy – mine and pipeline development	232
Table 6.7	Adaptive management strategy for prescribed and uncertain biodiversity impacts	237
Table 6.8	SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Grasslands	Native 240
Table 6.9	SAII assessment for Werriwa Tablelands Cool Temperate Grassy Woodland in the South E Highlands and South East Corner Bioregions	astern 245
Table 6.10	Summary of native vegetation impacts not requiring offsets – pipeline development	249
Table 6.11	Summary of threatened species impacts not requiring offsets – pipeline development	250
Table 6.12	Summary of ecosystem credits required for all vegetation zones – mine development	253
Table 6.13	Summary of threatened species credits – mine development	255
Table 6.14	Summary of ecosystem credits required for all vegetation zones – pipeline development	257
Table 6.15	Summary of threatened species credit required for threatened species – pipeline development	nt261
Table 7.2	Likelihood of occurrence for threatened species	293
Table 7.3	Likelihood of occurrence for migratory species	302
Table 7.4	Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodlar Derived Native Grassland in the mine project area	nd and 306
Table 7.5	Koala habitat assessment tool (DoE 2014) for the in the mine project area	308
Table 7.6	Assessment of significance for the Koala for the mine project area	309
Table 7.7	Assessment of significance for the Superb Parrot for the mine project area	311
Table 7.8	Assessment of significance for Latham's Snipe in the mine project area	313
Table 7.9	Assessment of significance for Rainbow Bee-eater in the mine project area	314

Table 7.10	Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodlar Derived Native Grassland in the pipeline corridor	nd and 315
Table 7.11	Koala habitat assessment tool (DoE 2014) in the pipeline corridor	319
Table 7.12	Assessment of significance for the Koala in the pipeline corridor	320
Table 7.13	Assessment of significance for Tarengo Leek Orchid and Small Purple-pea in the pipeline co	orridor 322
Table 7.14	Assessment of significance for the Black Gum, Clandulla Geebung and Austral Toadflax pipeline corridor	in the 324
Table 7.15	Assessment of significance for Basalt Peppercress and Hoary Sunray	326
Table 7.16	Assessment of significance for the Superb Parrot for the pipeline corridor	327
Table 7.17	Assessment of significance for Booroolong Frog in the pipeline corridor	328
Table 7.18	Assessment of significance for the Greater Glider in the pipeline corridor	330
Table 7.19	Assessment of significance for the Pink-tailed Worm Lizard in the pipeline corridor	331
Table 7.20	Assessment of significance for Bathurst Copper Butterfly in the pipeline corridor	333
Table 7.21	Koala feed tree species for the central and southern tablelands KMA	334
Table 8.1	Groundwater dependence categories	341
Table 8.2	GDE risk assessment matrix	341
Table 8.3	Ecological value definitions	342
Table 8.4	Ecological values of and risks to GDEs	343
Table 8.5	Changes in access to shallow groundwater	345
Table 8.6	Concentrations in groundwater following mixing with TSF seepage	349
Figures Figure 1.1	Project application area – regional setting	11
Figure 1.2	Mine project area	12
Figure 1.3	Pipeline corridor	13
Figure 3.1	Site map – mine development	25
Figure 3.2	Site map – pipeline development	26
Figure 3.3	Location map – mine development	34
Figure 3.4	Location map – pipeline development	35
Figure 4.1	Plant community types – mine development	56
Figure 4.1	Plant community types – pipeline development	85
Figure 4.2	Flora survey effort – mine development	112
Figure 5.1	Fauna survey effort – mine development	113
iguie J.Z	rauna survey errort – mine development	113

Figure 5.3	Flora survey effort – pipeline development	123
Figure 5.4	Fauna survey effort – pipeline development	145
Figure 5.5	Candidate species polygons – mine development	180
Figure 5.6	Species polygons – pipeline development	196
Figure 6.1	Evolution of the mine development	230
Figure 6.2	Impacts requiring offsets, impacts not requiring offsets and areas not requiring as development	ssessment – mine 266
Figure 6.3	Impacts requiring offsets, impacts not requiring offsets and areas not requiring pipeline development	ing assessment – 267
Figure 7.1	Distribution of EPBC Act-listed White Box Yellow Box Blakely's Red Gum Wood Native Grasslands in the mine and pipeline developments	land and Derived 318
Figure 8.1	Potential impacts on groundwater availability for terrestrial vegetation	346
Photographs		
Photograph 1.	1 The mine development, comprising cleared low hills with scattered p vegetation	patches of native 14
Photograph 1.	2 The pipeline development, typically traversing fragmented patches of nativ	e vegetation 15
Photograph 4.	Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South I Bioregion within the mine project area (high condition – plot ID EMM8Zone)	_
Photograph 4.	Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open for Eastern Highlands Bioregion (high – plot ID EMM3Zone5)	rest of the South 50
Photograph 4.	Mountain Gum – Manna Gum open forest of the South Eastern Highlands plot ID 103_WL_2_E).	Bioregion (poor – 52
Photograph 4.	Wet tussock grasslands of cold air drainage areas of the tablelands (poor of EMM5Zone9)	condition - plot ID 54
Photograph 4.	Photograph of PCT - 1330 Yellow Box - Blakely's Red Gum grassy woodland of South Eastern Highlands Bioregion in a fragmented condition	on the tablelands, 65
Photograph 4.	PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSV Slopes Bioregion in a derived native grassland condition	W South Western 69
Photograph 4.	PCT 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry op tablelands; South Eastern Highlands Bioregion in an intact confition	oen forest of the 72
Photograph 4.	PCT 1191 - Snow Gum - Candle Bark woodland on broad valley flats of the slopes, South Eastern Highlands Bioregion in a sparse condition	ne tablelands and 75
Photograph 4.	PCT 1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the Highlands Bioregion in a shrubland condition	he South Eastern 78
Photograph 4.	PCT 727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry of South Eastern Highlands Bioregion in an intact condition	pen forest on the 80
Photograph 4.	.11 Photograph of non-native vegetation	82

J180395 | 13 | v1 vii

Plates

Plate 4.1	Mine and pipeline development management zones	43
Plate 7.1	Flowchart to determine presence of the listed community (or otherwise)	305
Plate 8.1	GDE categories	340
Plate 8.2	TSF multi-barrier approach	347

J180395 | 13 | v1 viii

1 Introduction

1.1 Background

LFB Resources NL is seeking State significant development (SSD) consent under Division 4.7 of Part 4 of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act) to develop and operate a greenfield open cut gold mine, associated mine infrastructure and a water supply pipeline in Central West NSW. The mine development project area and pipeline corridor (the project application area) are illustrated at a regional scale in Figure 1.1. LFB Resources NL is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis).

As shown in Figure 1.1, the McPhillamys Gold Project (the project) is comprised of two key components; the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the mine development), and an associated water supply pipeline which will enable the supply of water from approximately 90 kilometres (km) away near Lithgow to the mine site (the pipeline development). The mine project area is around 8 km north-east of Blayney, within the Blayney and Cabonne local government areas (LGAs). The pipeline is an approximately 90 km long pipeline alignment from Centennial's Angus Place and Springvale Coal Services Operations (SCSO) and Energy Australia's Mount Piper Power Station (MPPS), near Lithgow, to the mine development area. The pipeline development runs through the LGAs of Bathurst and Lithgow.

Up to 8.5 Million tonnes per annum (Mtpa) of ore will be extracted from the McPhillamys gold deposit over a total project life of 15 years. The mine development will include a conventional carbon-in-leach processing facility, waste rock emplacement, an engineered tailings storage facility (TSF) and associated mine infrastructure including workshops, administration buildings, roads, water management infrastructure, laydown and hardstand areas, and soil stockpiles.

In accordance with the requirements of the EP&A Act, the NSW *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) and the Secretary's Environmental Assessment Requirements (SEARs) for the project, an Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project. Accordingly, an Amendment Report has been prepared by EMM Consulting Pty Ltd (EMM) (2020a) to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the amended project, compared to those that were presented in the EIS. This report forms part of the Amendment Report and presents an assessment of the biodiversity impacts of the amended project.

1.2 Project amendment overview

A summary of the key amendments to the project since the exhibition of the EIS are summarised below and described in detail in Chapter 2 of the Amendment Report (EMM 2020a):

• Site access – a new location for the site access intersection off the Mid Western Highway is proposed, approximately 1 km east of the original location assessed in the EIS, in response to feedback from Transport for NSW (TfNSW, former Roads and Maritime Services) and the community. A new alignment is subsequently proposed for the site access road to the mine administration and infrastructure area.

- Mine and waste rock emplacement schedule revision of the mine schedule and the subsequent construction sequence of the waste rock emplacement has been undertaken, in particular consideration of predicted noise levels in Kings Plains. This achieved a reduction in predicted noise levels at nearby residences while extending the construction timeframe for the southern amenity bund.
- **Pit amenity bund** the size of the pit amenity bund has been reduced as a result of optimisation of the open cut pit design and the improved location of exit ramps for haul trucks.
- **Tailings Storage Facility (TSF)** amendments to the design include changes to the embankment design and construction timing, the TSF footprint, and the TSF post closure landform.
- Water management system the secondary water management facility (WMF) has been removed from the
 water management system resulting in an avoidance of impacts to a potential item of historic heritage (MGP
 23 Hallwood Farm Complex (Hallwood)). The size of the WMFs has also been revised to achieve a reduced
 likelihood of discharge from the storages within the operational water management system as part of a
 revised nil discharge design.
- Mine administration and infrastructure area the layout of this area has been revised and optimised.
- Mine development project area a very small change has been made to the mine development project area along the eastern boundary (an additional 1 ha, or 0.04% change), to accommodate the required clean water management system. The change takes the project area from 2,513 ha to 2,514 ha.

Some amendments to the pipeline development have also been made, as follows:

- **Pipeline route** the route has been amended for approximately 11 km of the 90 km pipeline corridor west of Bathurst, primarily in consideration of land access. Two options for the amended pipeline route have been included and assessed in the amended project, referred to as the northern pipeline option and southern pipeline option.
- **Pipeline corridor/disturbance footprint** the pipeline corridor has been differentiated from the disturbance footprint with small changes to the pipeline corridor disturbance footprint made in consideration of biodiversity impacts. While the alignment of pipeline sections outside the realigned options hasn't changed, there have been minor variations in the width of the corridor to provide flexibility in the detailed design and subsequent construction phases of the project.
- **Pumping station facilities** pumping station facility No.3 has been relocated from the vicinity of Energy Australia's Mount Piper Power Station (MPPS), to approximately 4.3 km to the west and located on Pipers Flat Road.

No amendments have been made to other key aspects of the project as presented in the EIS for which approval is sought, such as the proposed mining method, operating hours, maximum annual ore extraction rate of 8.5 Mtpa, maximum annual ore processing rate of up to 7 Mtpa, employee numbers, and rehabilitation methods and outcomes.

The amended mine development project layout, compared to that assessed in the EIS, is shown in Figure 1.2, while the revised section of the pipeline development route associated with the amended project is shown in Figure 1.3. A comparison of the biodiversity impacts of the amended project with the project assessed in the EIS is provided in Section 6.3 of this report.

1.3 Purpose of this report

The requirements of the SEARs issued for the project in relation to the assessment of biodiversity impacts at the state level under the EP&A Act requested a 'hybrid' biodiversity assessment where:

- the mine development was to be assessed against the Framework for Biodiversity Assessment (FBA) (OEH 2014) and the NSW Biodiversity Offsets Policy for Major Projects (Major Projects Policy) as per the Biodiversity Conservation (Savings and Transitional) Regulation 2017 (BC Transitional Regulation); and
- a separate biodiversity assessment was required for the pipeline development under the *Biodiversity Conservation Act 2016* (BC Act), in accordance with the Biodiversity Assessment Method (BAM; OEH 2017).

In accordance with the SEARs, two biodiversity assessments were prepared for the project and included in the EIS; one for the mine development in accordance with the FBA (EMM 2019), and one for the pipeline development in accordance with the requirements of the BC Act using the BAM (OzArk 2019).

While the EIS was prepared strictly in accordance with the SEARs issued by DPIE, this BDAR has been prepared in accordance with the BAM to assess the potential biodiversity impacts of the amended project, considering both the mine development and pipeline development components together. The assessment considers and outlines the differences in impacts associated with the amended project compared to the original project as presented in the EIS.

Accordingly, this BDAR supersedes the following reports presented in the EIS:

- McPhillamys Gold Project Mine Development Biodiversity Assessment Report (EMM 2019, Appendix N of the McPhillamys Gold Project EIS); and
- McPhillamys Gold Project Pipeline Development Biodiversity Development Assessment Report (OzArk Environmental & Heritage Management Pty Ltd (OzArk) 2019, Appendix Y of the McPhillamys Gold Project EIS).

The specific objectives of this assessment are to:

- describe biodiversity values of the project application area associated with the amended project;
- assess the likelihood that threatened species and communities (threatened biodiversity) listed under relevant the NSW Biodiversity Conservation Act 2016 (BC Act) and Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) could occur in the project application area associated with the amended project;
- document the strategies implemented to avoid and/or minimise impacts of the amended project on threatened biodiversity;
- assess residual threatened biodiversity impacts potentially associated with the amended project, after avoidance and minimisation strategies have been implemented;
- provide environmental safeguards to mitigate threatened biodiversity impacts during construction and operation of the amended project; and
- provide a strategy to offset residual threatened biodiversity impacts associated with the amended project.

1.4 Submissions on the EIS

Several minor issues were raised relating to the Mine Development BAR (EMM 2019) and several relating to the Pipeline Development BDAR (OzArk 2019) in the BCD's submission on the EIS. These issues have been considered and incorporated into this revised assessment.

Detailed responses to all the submissions received are provided in the Submissions Report prepared for the project (EMM 2020b), which has been prepared in conjunction with the Amendment Report (EMM 2020a). A summary of the key issues relevant to this assessment are provided in Table 1.1, together with how each matter has been addressed within this report.

Table 1.1 Key comments received in BCD's submissions relating to Mine Development BAR and Pipeline Development BDAR, and how they have been addressed

Issue Where addressed

Mine development

- 1. Further assessment of Silky Swainson-pea (*Swainsona sericea*) is required. Targeted surveys were conducted in 2013 for Small Purple-pea (*Swainsona recta*). The 2013 surveys were conducted in Spring, with adequate coverage of two plant community types:
- - PCT 654 Apple Box Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion.
- - PCT 727 Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest on the South Eastern Highlands Bioregion.

In a letter to the consultants (DOC19/182640) BCD noted that no transects were conducted in the northernmost part of the proposed disturbance footprint. This area contains PCT 1298 – Wet tussock grasslands of cold air drainage areas of the tablelands. As PCT 1298 is potential habitat for Silky Swainson-pea the exclusion of species within this PCT will need to be fully justified.

The BAR states that the Silky Swainson-pea is not identified as a threatened species requiring consideration by the BBAM calculator and therefore requires no further assessment. Section 6.5.1.2 of the FBA states that a threatened species is identified as a candidate species for the development site if the geographic distribution of the species is known or predicted to include the IBRA subregion in which the development site is located. As Silky Swainson-pea is predicted to occur in the Orange IBRA subregion it should be assessed and, as no targeted surveys were conducted in PCT 1298, it should either be assumed to be present or an expert report should be obtained.

Recommendation 1

Justification for the exclusion of Silky Swainson-pea should be provided, or conduct targeted surveys, assume presence or obtain an expert report.

2. A species polygon is required for the Squirrel Glider. Section 7.3 of the BAR concludes that there will be a residual impact of 129.3 ha of habitat for the Squirrel Glider and 75.77 ha of habitat for the Koala. However, Figure 7.3 of the BAR depicts a species credit polygon that is labelled for both Koala and Squirrel Glider totalling 75.76 ha.

The species polygons for Koala and Squirrel Glider have been revised to account for changes in the mine footprint and the revised list of feed

It is a requirement of the FBA that species polygons for species credit species be provided in the BAR. The species polygon provided reflects the area of habitat likely to be used by the koala (75.77 ha). An additional species polygon is required for the Squirrel Glider (129.3 ha). *Recommendation 2*

A figure showing the species polygon for the Squirrel Glider is required.

PCT 1298 (since revised to PCT 766) for Silky Swainson-pea. The methods for the targeted surveys are described in Section 5.1.3i. The survey did not record any Silky Swainson-pea.

Targeted surveys were conducted in

The species polygons for Koala and Squirrel Glider have been revised to account for changes in the mine footprint and the revised list of feed tree species in the central and southern tablelands koala management area defined in *State Environmental Planning Policy (Koala Habitat Protection) 2019*. These are discussed in Section 6.7 and shown on Figure 5.5.

Issue Where addressed

3. Relocation of koala will require consultation with BCD.

Section 7.2 of the BAR includes a mitigation measure to "develop specific procedures for koala pre-clearance inspections and safe relocations outside the clearing area". Any planned relocation of koalas should be consistent with the Office of Environment and Heritage (OEH) Translocation Operational Policy (OEH 2019).

The proponent should demonstrate how they will maximise and report on animal welfare outcomes at each stage of the translocation process. Procedures for the potential relocation of koalas, including the selection of nearby habitat suitable for release and monitoring of translocation success, should be developed in consultation with BCD.

Recommendation 3

Any planned relocation of Koalas should be consistent with the OEH Translocation Operational Policy (OEH 2019) and be developed in consultation with BCD.

It is not the intention to formally translocate Koalas from the project application area.

Rather, the intention is to conduct a pre-clearance inspection to determine if Koalas are present in areas of native vegetation prior to clearing and follow good-practice methods to allow any Koalas to move into adjacent retained vegetation. Such measures are outlined in Section 6.4.1 and will be detailed in the Biodiversity Management Plan that would be prepared if project approval is granted.

Pipeline development

4. PCT identification cannot be verified.

The field data sheets for each plot should be provided with the BDAR. Appendix 2 of the BDAR contains a full species list for the entire project area but the plots in which the species were present is not specified. Table 4-1 of the BDAR includes the BioNet Vegetation Classification's description of the chosen PCT's but no description of the PCT's characteristics that are present on site.

The BDAR does not provide adequate justification for the PCT identification and without field data sheets BCD is unable to assess whether the PCT conclusions are appropriate. As per section 5.2 of the BAM, the identification of PCT's must be in accordance with NSW PCT classification as described in the BioNet Vegetation Classification. As such the BDAR must justify each PCT identification by describing how the sites attributes recorded on the field data sheets meet the chosen PCT's NSW PCT classification.

Recommendation 4

The field data sheets for each plot should be provided in the BDAR.

Recommendation 5

Provide further justification for all PCT identifications.

5. The BDAR should be certified as BAM compliant within 14 days of the submission date.

It is unclear whether or not the exhibited BDAR is final or draft, the document control page of the BDAR indicates that the document status is draft, and it has not been certified as BAM compliant.

Section 6.15 of the BC Act states 'a biodiversity assessment report cannot be submitted in connection with a relevant application unless the accredited person certifies in the report that the report has been prepared on the basis of the requirements of (and information provided under) the biodiversity assessment method as at a specified date and that date is within 14 days of the date the report is so submitted'

The BDAR that has been submitted has not been certified in accordance with section 6.15 of the BC Act.

Recommendation 6

The assessor should certify the BDAR in accordance with section 6.15 of the BC Act.

Vegetation mapping for the pipeline has been revised in response to BCD's submission, refinements to the pipeline route and the pipeline biodiversity assessment.

Justification for all PCTs selected is provided in Section 4.3.1. Raw vegetation integrity plot data sheets are provided in Appendix A, while the data is summarised in Appendix B.

This BDAR has been certified in Section 1.8 of this report.

Issue Where addressed

6. Separate habitat suitability assessments must be completed for each IBRA subregion.

BCD have reviewed both the BDAR and the BAM credit calculator and note that although the project footprint spans across four IBRA subregions the assessor has only carried out an assessment for the IBRA subregion where most of the project occurs. This is not the correct method for linear shaped developments. As per section 6.4.1.7 of the BAM for linear shaped developments, the assessor must carry out a separate habitat suitability assessment for each IBRA subregion. This requires the accredited assessor to submit four separate cases in the BAM credit calculator.

As separate assessments are required for each IBRA subregion the minimum number of plots and transects required per vegetation zone area may differ from the number that were required for the single assessment that was completed. The assessor must meet the minimum plots and transects required by the BAM for each vegetation zone in each assessment that is carried out. This may also impact the species lists generated for each subregion by adding new species that would require habitat suitability assessments in accordance with section 6 of the BAM.

Recommendation 7

Separate habitat suitability assessments must be completed for each IBRA subregion. This requires the accredited assessor to submit four separate cases in the BAM credit calculator.

Recommendation 8

The assessor must meet the minimum plots and transects required by the BAM.

Wileie addressed

Separate habitat suitability assessments have been completed in this BDAR for the Orange, Bathurst, Hill End and Capertee Uplands IBRA bioregions. A master case has been created (parent case 0020208) in the BAM calculator, with five associated child cases (one for each IBRA subregion, with two relating to the Bathurst IBRA subregion that covers the two pipeline options currently being considered).

Following a meeting with BCD representatives on 19 March 2020, EMM has treated vegetation zones as continuous throughout the four different IBRA subregions assessed and has completed the required number of plots in accordance with the BAM on that basis.

EMM has then completed separate candidate species assessments for each of the four IBRA subregions (Section 5.2.3).

7. There are inconsistencies between the plot data in the BDAR and the data entered into the BAM calculator.

There are inconsistencies between the plot data provided on page 194 of the BDAR and the data that has been entered into the calculator. BCD has reviewed a number of plots at random against the data in the calculator and found inconsistencies, one example is provided below. The data provided in the report must be consistent with the data entered into the calculator, any errors in the calculator can have an impact on the final credit liability for the project. BCD is unable to clarify which data is correct as the field data sheets have not been provided. The assessor should ensure that the correct data is entered while addressing recommendations 7 and 8 above

Plot MAC05: Data / BDAR / Calculator Structure Condition – Tree / 75.0 / 70.0

Function – Stem Class – 5-9 / Not Present / Present

Function – Stem Class – 50-79 / Present / Not Present

Recommendation 9

Ensure that the correct data set is entered into the BAM calculator and that it reflects the data in the BDAR.

All plot data was entered into the BAM import template and quality assurance checks undertaken. The BAM import template was uploaded into the BAM calculator to avoid manual data entry errors.

Raw plot data sheets have been provided in Appendix A while a summary of plot data is provided in Appendix B.

Issue Where addressed

8. The native vegetation extent mapping is inconsistent with PCT mapping and aerial imagery

The native vegetation extent layer is inconsistent with the PCT vegetation mapping for the project. There are areas within the pipeline that have been mapped as a native PCT by the assessor however these areas have not been included in the native vegetation extent layer and calculation. Additionally, there are areas within the buffer area that appear to be native vegetation on the aerial imagery however they not been mapped on the native vegetation extent layer. Examples below.

Example 1 – Inconsistencies between the assessors PCT mapping and native vegetation extent mapping - The blue shading is an area identified as PCT 731 by the assessor, the yellow hatching is the native vegetation extent identified by the assessor.

Example 2 – Areas of vegetation within the linear buffer that have not been included in the native vegetation extent.

Recommendation 10

Any vegetation that has been mapped as native vegetation by the assessor within the project area and the buffer should be included in the native vegetation extent mapping.

Recommendation 11

All native woody and non-woody vegetation on the subject land and within the buffer should be mapped.

The revised PCT mapping within the study area has been merged with the regional vegetation map beyond the study area to provide the native vegetation extent mapping to calculate the percentage of native vegetation extent in each IBRA

Native vegetation extent is shown on the site map (Figure 3.2) and location map (Figure 3.4).

subregion.

Issue Where addressed

9. Species cannot be removed from the predicted list where the TBDC does not list habitat The predicted species list for the **constraints.** pipeline has been revised due to

BCD note that the assessor has removed a number of species from the predicted list generated from the BAM calculator. The removal of these species is not consistent with the assessment requirements set out in steps 2 and 3 of chapter 6 of the BAM. A species can only be removed from the list if the species:

a) has habitat constraints listed in the TBDC and none of these constraints are present on the site. Documentation in the BDAR should reflect the TBDC information and evidence that the features are not present (field data); or

BCD, have determined that peer

b) is vagrant to the area. Vagrancy is taken as the record being well outside the species range or natural distribution. The suspect record will need to be reviewed against the species known distribution and the assessor will need to confirm with species experts that it is likely to be a vagrant. If agreed by experts the assessor should contact DPIE to have the record quarantined from BioNet Atlas and re-labelled as vagrant. The BDAR will need to contain supporting information such as who was contacted, when, their credentials and the resultant response from DPIE.

The following species do not have habitat constraints listed in the TBDC and are not considered vagrant and therefore cannot be removed from the predicted list for any associated PCT regardless of the vegetation zone condition;

- Regent Honeyeater (Anthochaera Phrygia)
- Brown Treecreeper eastern subspecies (Climacteris picumnus victoriae)
- Varied Sittella (Daphoenositta chrysoptera)
- Little Lorikeet (Glossopsitta pusilla)
- Swift Parrot (Lathamus discolor)
- Black-chinned Honeyeater eastern subspecies (Melithreptus gularis gularis)

The following species do have habitat constraints listed in the TBDC and therefore could be removed from the predicted list if the assessment requirements set out in steps 2 and 3 of chapter 6 of the BAM have been met:

- Glossy Black-cockatoo foraging (Calyptorhynchus lathami)
- Painted Honeyeater (Grantiella picta)

For the above two species BCD is unable to verify whether or not the habitat constraints are absent from the vegetation zones as no field data sheets have been provided.

Recommendation 12

Any species that does not have habitat constraints listed in the TBDC must be retained in the calculator for all associated PCT's regardless of the vegetation zone condition.

Recommendation 13

All field vegetation plot and transect, and fauna survey data sheets should be provided.

The predicted species list for the pipeline has been revised due to the revision of PCT mapping and the creation of separate child cases for each IBRA subregion the pipeline intersects.

Discussions with John Seidel Acting Manager, Ecosystem Assessment at BCD, have determined that peer reviewed literature including recovery plans can be used in addition to the habitat constraints in the TBDC to undertake the candidate species assessment.

Only species with habitat constraints absent from the site have been removed from the predicted species list, shown in Table 5.10.

Raw data sheets have been provided in Appendix A while a summary of plot data is provided in Appendix B.

Issue Where addressed

10. PCT mapping is not consistent with plot data.

There appears to be a number of locations within the pipeline footprint where areas of vegetation have been identified as a PCT by the plot data however only partly mapped as the identified PCT.

The PCT mapping dataset has been revised. PCT mapping and plot locations for the pipeline are shown on Figure 4.2.

Example – The two green points below are plot locations that were identified as PCT 1330, however the mapping within the pipeline footprint only maps two small areas as PCT 1330.

For the example shown above if the area between the two mapped areas of PCT 1330 is not PCT 1330, in this case it has been mapped as non-native, the assessor must provide evidence of this.

Recommendation 14

PCT mapping must align with the plot data collected by the assessor. Where the vegetation type varies the assessor must stratify the areas into separate vegetation zones and provide justification of the identified vegetation zones and PCTs.

1.5 Terminology

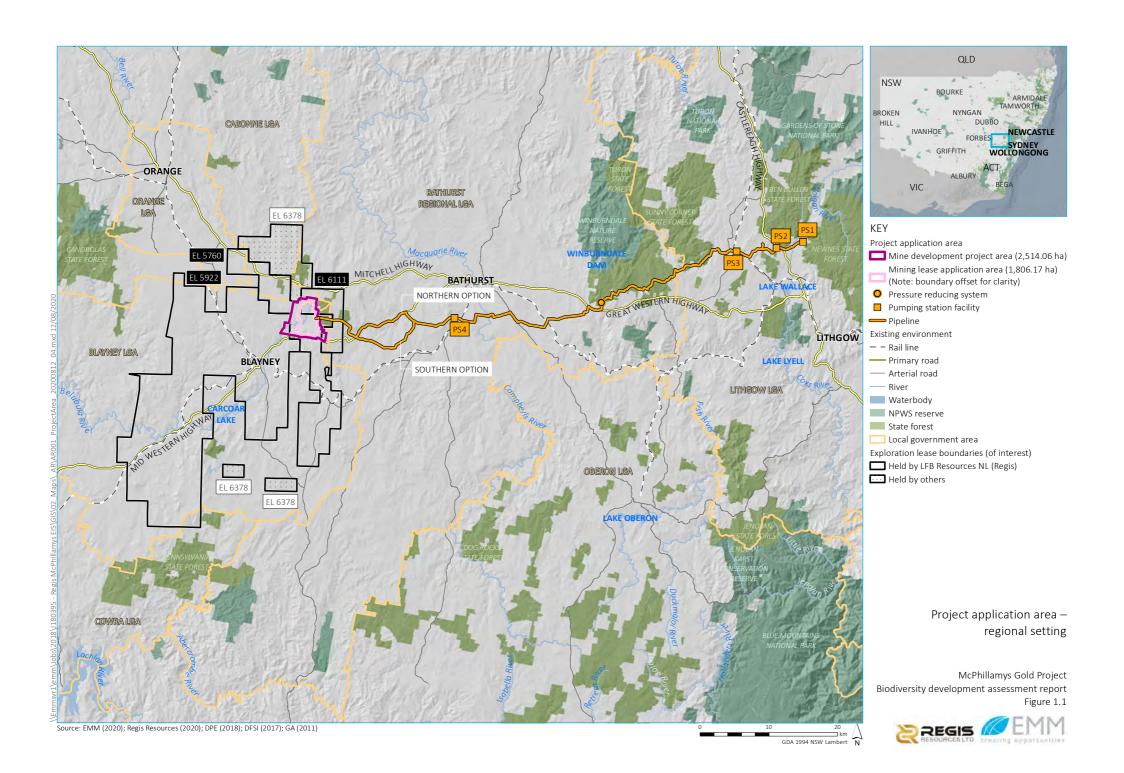
The following terms were used throughout the EIS to describe the project, and remain relevant for this assessment and the amended project:

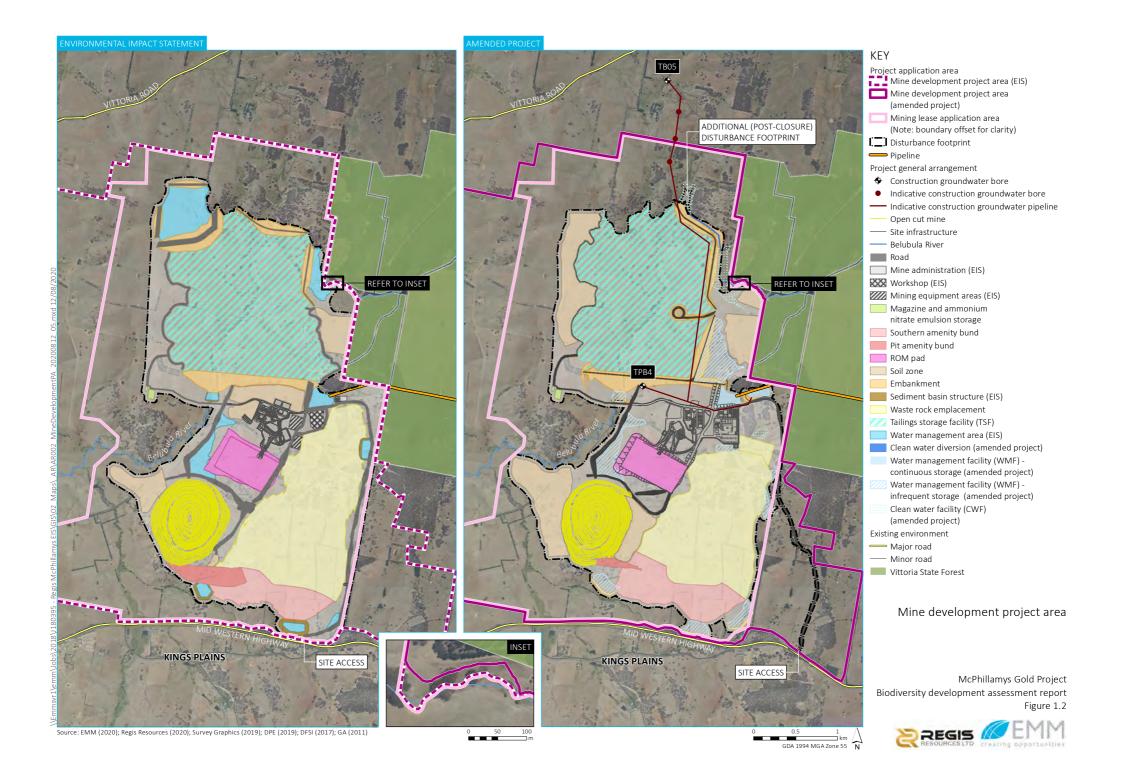
- **the project** the project in its entirety; encompassing the mine development and the pipeline development. In this report, the term 'the project' refers to the amended project for which approval is now sought. Where the original project design as presented in the EIS is being discussed, this will be clarified;
- **project application area** the area in its entirety to which the development application (SSD 9505) relates; comprising the mine development project area and the pipeline corridor as illustrated in Figure 1.1. In this report, the term 'the project application area' refers to the amended area that relates to the development for which approval is now sought. Where the original project application area, as presented in the EIS, is being discussed, this will be clarified;
- mine project area refers to the mine development project area as illustrated in Figure 1.1;
- **pipeline corridor** an approximately 90 km long pipeline alignment from Centennial's Angus Place and Springvale Coal Services Operations (SCSO) and Energy Australia's Mount Piper Power Station (MPPS), near Lithgow, to the mine project area, as illustrated in Figure 1.1;
- **mine development** construction and operation of the mine and associated mine infrastructure within the mine project area; and
- **pipeline development** construction and operation of the pipeline and associated infrastructure to transfer water to the mine development within the pipeline corridor.

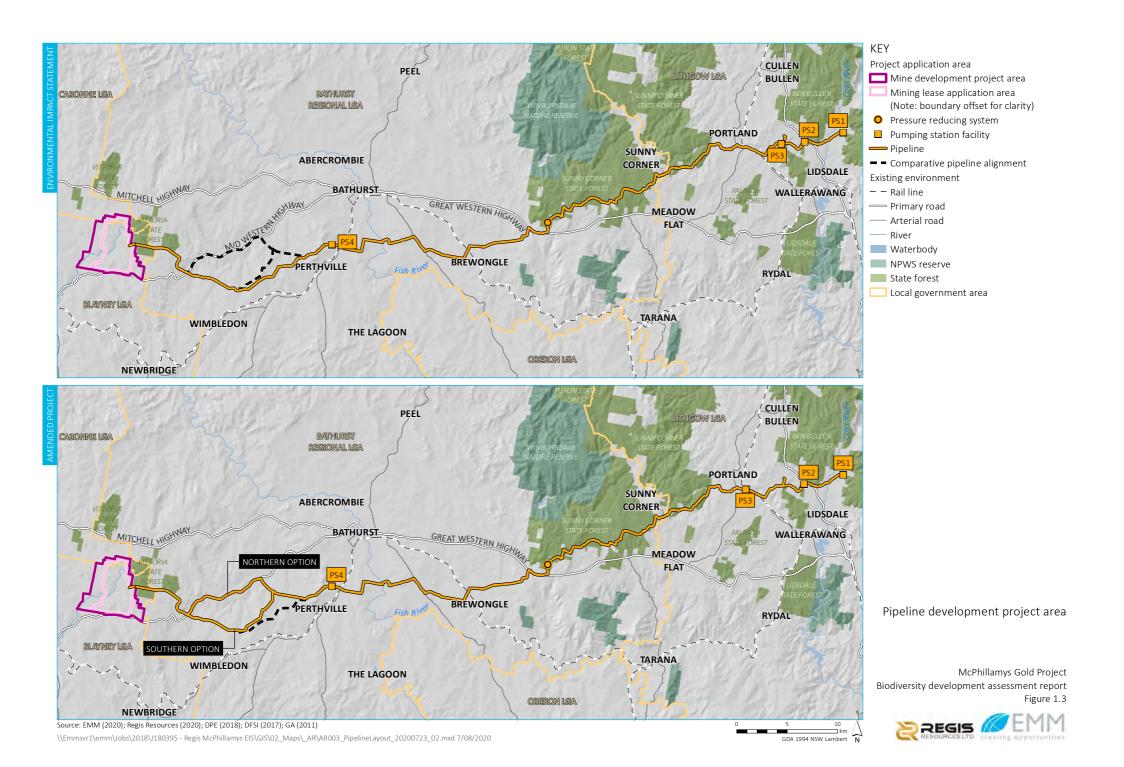
Additional terms relevant to this BDAR for the amended project comprise:

• **mine disturbance footprint** - refers to the mine development disturbance footprint as illustrated in Figure 1.2.

- pipeline disturbance footprint refers to the pipeline development disturbance footprint.
- southern option refers to the pipeline corridor (Southern option) as illustrated in Figure 1.3.
- **northern option** refers to the pipeline corridor (Northern option) as illustrated in Figure 1.3.
- **mine buffer area** refers to the 1,500 m buffer placed around the mine disturbance footprint for the purpose of defining landscape features in accordance with the BAM.
- **pipeline buffer area** refers to the 500 m buffer placed either side of the pipeline disturbance footprint for the purpose of defining landscape features in accordance with the BAM.







1.6 Site description

1.6.1 Mine development

The amended mine project area is 2,514.06 ha. It lies approximately 8 km north-east of Blayney within the Blayney and Cabonne LGAs and the South Eastern Highlands Interim Biogeographic Regionalization of Australia (IBRA) region and Orange IBRA sub-region. Landform elements within the mine project area consist of low hills, small plains and gullies which is consistent with the broader locality. Vegetation within the site has experienced historical pastural use and is therefore mainly open paddock with some fragmented patches of timbered natural vegetation scattered throughout (Photograph 1.1). The upper reaches of the Belubula River catchment lie within the mine project area, and several small unnamed tributaries run through the site with some feeding into dams scattered throughout.



Photograph 1.1 The mine development, comprising cleared low hills with scattered patches of native vegetation

1.6.2 Pipeline development

The amended water supply pipeline corridor will be approximately 90 km in length starting at the Angus Place Colliery and terminating in the mine project area. The pipeline corridor will pass through the South Eastern Highlands and Sydney Basin IBRA regions and Bathurst, Hill End, Orange and Capertee Uplands IBRA subregions.

The pipeline corridor will cross several different landform elements along it 90 km length, as well as a number of state forest and reserves, including Vittoria, Sunny Corner, Ben Bullen and Newnes State Forests and Winburndale Nature Reserve. The pipeline corridor predominantly follows existing roads and tracks with non-native vegetation and native vegetation of varying condition. The pipeline corridor also traverses open paddocks, containing cleared low hills and gullies with fragmented patches of native vegetation that have experienced historical pastural use. There are some fragmented patches of timbered natural vegetation throughout, with larger vegetated corridors between Sunny Corner and Blackman's Flat, in the east of the pipeline corridor (Photograph 1.2).



Photograph 1.2 The pipeline development, typically traversing fragmented patches of native vegetation

1.7 Information sources

1.7.1 Previous studies

In addition to the Mine Development BAR (EMM 2019) and the Pipeline Development BDAR (OzArk 2019) prepared for the EIS, the following studies and reports were also reviewed and considered:

- Local setting and biodiversity constraints analysis (EnviroKey 2017), prepared for the mine project area.
- A regional assessment (EnviroKey 2013), also prepared for the mine project area.

Detailed site-based studies (EnviroKey 2013 and 2017) were completed for the mine development to inform preparation of this BDAR. Threatened biodiversity was then verified as present/absent in the mine project area during site-based studies (Envirokey 2013; 2017; EMM 2019 and this report).

Field surveys were also undertaken as a component of the pipeline development BDAR (OzArk 2019). Vegetation mapping was undertaken in 2018 and 2019 and included delineation of plant community types (PCTs) and stratification of PCTs into vegetation zones. Plot/transect surveys were also undertaken using the methods outlined in the BAM (OEH 2017). Targeted surveys were competed for several threatened flora and fauna species and were conducted in August, September, October and December 2018 and January and May 2019.

A detailed description of the above survey methods and subsequent surveys undertaken to inform this BDAR are provided in Section 4.2 and 5.1.

1.7.2 Publications and databases

To provide a context for the project, information about flora and fauna within 15 km of the mine development was obtained from relevant public databases. The centre point of the mine project area was taken as Latitude -33.46, Longitude 149.33. A 15 km buffer was also placed on the pipeline centreline. Records from the following databases were collated and reviewed:

- Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool for matters protected by the EPBC Act;
- NSW BioNet the database for the Atlas of NSW Wildlife for threatened species listed under the EPBC Act and BC Act;
- PlantNET NSW Flora online (Royal Botanic Gardens and Domain Trust 2020);

- Other sources of biodiversity information:
 - NSW Plant Community Types, as held within the Vegetation Information System (VIS) Classification 2.1 database;
 - State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS ID 4778 (OEH 2018);
 - Groundwater Dependent Ecosystems Atlas (BOM 2013); and
 - Areas of Outstanding Biodiversity Value register (DPIE 2020).

1.7.3 Spatial data

Mapping was conducted using hand-held (uncorrected) GPS units (GDA94), mobile tablet computers running Collector for ArcGIS™ and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the GPS units (generally ± 7 metres) and dependent on the limitations of aerial photo rectification and registration. Site plans for the Amended Project were supplied by Regis in June 2020. Mapping has been produced using a Geographic Information System (GIS). Spatial data relevant to this BDAR will be provided to BCD upon submission of this report.

1.8 Certification

This BDAR is a supplementary assessment to the biodiversity assessments prepared in the EIS. The BDAR has been prepared to assess the impacts of the amended project on biodiversity and to identify measures to avoid, mitigate and/or offset any potential impacts.

In accordance with Section 6.15 of the BC Act, this BDAR has been prepared on the basis of the requirements of (and information provided under) the BAM (OEH 2017), as at 31 August 2020. It follows the required format prescribed by Table 25 and 26 of the BAM and includes the calculation of credit requirements to compensate for the amended project's impacts that cannot be avoided or minimised.

The BDAR has been prepared by Katie Diver, accredited assessor number BAAS17013, and reviewed by Nathan Garvey, accredited assessor number BAAS17037.

2 Legislative context

This chapter provides a brief outline of the key biodiversity legislation and government policy considered in this assessment.

2.1 Commonwealth

2.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's key piece of environmental legislation. The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (MNES) protected under the EPBC Act (DoE 2013a).

Nine MNES are identified under the EPBC Act:

- world heritage properties;
- national heritage places;
- wetlands of international importance (also known as 'Ramsar' wetlands);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, activities that have potential to result in significant impacts on MNES must be referred to the Commonwealth Minister for the Environment for assessment.

A proposed action was referred to the Commonwealth Minister in April 2019 under the EPBC Act. The referred action included the mine development but excluded the pipeline on the basis that the pipeline was considered unlikely to result in a significant impact on MNES.

The EPBC Act referral decision concluded the referred mine development (the action) was a controlled action on 28 May 2019 requiring assessment under the EPBC Act as the Commonwealth Department of Agriculture, Water and the Environment (DAWE) considered that the action would be likely to have a significant impact on the following MNES:

- listed threatened species and communities;
 - White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered; and
 - Koala (QLD, NSW, ACT) Vulnerable.

The decision also stated that the assessment process for the listed threatened species and communities (ss 18 and 18A of the EPBC Act) impacted by the action was to be completed by the NSW Government pursuant to the accredited bilateral agreement, which commenced on 26 February 2015. Supplementary SEARs for the MNES relevant to the project were provided on 30 May 2019.

The amended project involves a change in the layout and disturbance footprint of the mine development, which has resulted in a small change to the predicted impacts on MNES; particularly the area of Box Gum Woodland to be cleared. Approximately 20.43 ha of the EPBC Act listed White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland will be removed because of the amended project. This is compared to 18.5 ha which would have removed because of the layout proposed in the EIS.

Due to the amendments made to the project since the submission of the EPBC Act referral, an application to vary the action to reflect the amended project under section 156A of the EPBC Act will be submitted to to DAWE. The purpose of the variation will be to provide a revised assessment for the threatened species and ecological communities listed under the EPBC Act, following amendments to the mine development and pipeline development footprints and the additional biodiversity assessments undertaken. The variation application will also provide additional strategies to avoid, minimise, mitigate, and offset biodiversity impacts relating to the amended project.

As described above, a revised biodiversity assessment of the amended project has been prepared to assess the amended project (comprising both the mine development and the pipeline development) in accordance with the BC Act using the BAM to address requirements at a State level. At a Commonwealth level, since the time that the mine development was declared to be a controlled action and following the commencement of the BC Act, an amending bilateral agreement has been executed between the Commonwealth and NSW (in March 2020). However, while an assessment is presented with this Amendment Report of biodiversity impacts in accordance with the NSW BC Act requirements, the varied action needs to be assessed under the FBA and Major Projects Policy in order to be compliant with the 2015 bilateral agreement.

Therefore, an assessment of potential impacts to MNES because of the amended project has been prepared in accordance with the FBA, for the purposes of DAWE's assessment (Appendix F).

2.2 State Legislation

2.2.1 Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) was enacted to encourage the proper consideration and management of impacts of proposed development or land-use changes on the environment (both natural and built) and the community. The EP&A Act is administered by DPIE.

As described in Section 1.2, the project is SSD pursuant to Schedule 1 of the *State Environmental Planning Policy* (State and Regional Development) 2011 (State and Regional Development SEPP). Accordingly, approval is required under Part 4, Division 4.7 of the EP&A Act for the project.

As described above, SEARs were issued by the DPIE on 24 August 2018 and revised on 19 December 2018. The SEARs required that biodiversity impacts related to the project were to be assessed and documented in accordance with the FBA (OEH 2014) by an appropriately accredited person. The report was prepared by Accredited Assessors Katie Diver and Nathan Garvey. Following the declaration of the project as a controlled action, supplementary SEARs relating to MNES were issued by DPIE on 30 May 2019.

The SEARs and supplementary SEARs were satisfied following lodgement of the McPhillamys Gold Project Mine Development Biodiversity Assessment Report (EMM 2019) and McPhillamys Gold Project Pipeline Development Biodiversity Development Assessment Report (OzArk 2019).

2.2.2 State Environmental Planning Policy (Koala Habitat Protection) 2019

State Environmental Planning Policy (Koala Habitat Protection) 2019 (the Koala SEPP) aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline. It triggers consideration of a Development Application Map and if areas are mapped as Koala habitat, the subject lots are greater than 1 ha size, and within local government areas listed in Schedule 1 of the Koala SEPP, then a Koala assessment report is required for development.

Assessment of the Koala SEPP is required for development applications under Part 4 of the EP&A Act, which includes SSD projects. The Koala SEPP does not strictly apply to this BDAR in accordance with the savings and transitional provision in Clause 15 as the development application was made upon lodgement of the EIS but has not yet been determined. Notwithstanding, consideration has been given to the potential occurrence and impacts upon the Koala within this report and has been provided in Section 7.2.1.

2.2.3 Biodiversity Conservation Act 2016

The BC Act aims to maintain a healthy, productive, and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Threatened species, populations and communities that were formerly listed under the TSC Act are now listed in Schedule 1 and 2 of the BC Act.

The BC Act, together with the Biodiversity Conservation Regulation 2017 (BC Regulation), establish the Biodiversity Offsets Scheme (BOS). The BOS includes establishment of the BAM (OEH 2017) for use by accredited persons in biodiversity assessment under the scheme. The purpose of the BAM is to assess the impact of actions on threatened species and threatened ecological communities, and their habitats and determine offset requirements. For major projects, use of the BAM is mandatory, unless a BDAR waiver is granted.

The BAM sets out the requirements for a repeatable and transparent assessment of terrestrial biodiversity values on land to:

- identify the biodiversity values on land subject to proposed development area;
- determine the impacts of a proposed development; and
- quantify and describe the biodiversity credits required to offset the residual impacts of proposed development on biodiversity values.

Biodiversity impacts of the amended project have been assessed in accordance with the Biodiversity Assessment Method (OEH 2017) and the BC Act (as described above).

2.2.4 Biosecurity Act 2015

The *Biosecurity Act 2015* (Biosecurity Act) replaced the *Noxious Weeds Act 1993*. The Biosecurity Act aims, broadly, to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, carriers and other activities. The Act is administered by the NSW Department of Primary Industries.

Stage 1 – Biodiversity assessment

3 Landscape features

3.1 Landscape features

The landscape features described in the following sections are shown on Figure 3.1 and Figure 3.2 (a to h) and Figure 3.3 and Figure 3.4. A general site description is provided in Section 1.6 above.

3.1.1 Bioregions and landscapes

Bioregions and landscapes relevant to the mine and pipeline developments are listed in Table 3.1.

Table 3.1 Landscape features

Landscape feature	Mine development	Pipeline development
IBRA Bioregion/s	South Eastern Highlands	South Eastern Highlands
		Sydney Basin*
IBRA subregion/s	Orange	Bathurst
		Capertee Uplands
		Hill End
		Orange
		Wollemi*
NSW Landscape Regions	Byng Ultramafics	Bathurst Granites
	Mandurama Slopes	Capertee Plateau
	Mullion Slopes	Macquarie Valley Basalts
	Rockley Plains	Mount Horrible Plateau
	Upper Lachlan Channels and Floodplains	Mullion Slopes
		Newnes Plateau
		Rockley Plains
		Upper Macquarie Channels and Floodplains

Notes: *Although the pipeline buffer area traverses the Sydney Basin IBRA Bioregion and Wollemi IBRA subregion, the pipeline corridor does not intersect these areas. Accordingly, assessments have been provided based on the IBRA Bioregions and subregions the pipeline intersects.

3.1.2 Rivers, streams and estuaries

i Mine development

The mine development project area is located within the Lachlan catchment, in eastern NSW. One mapped watercourse, the Belubula River, and several smaller tributaries intersect the mine project area (Figure 3.1). The headwaters of the Belubula River form to the north-east of the mine project area, before flowing through the mine project area and then south-west towards Blayney and, beyond that, Carcoar Dam. In the mine project area, the Belubula River forms a 3rd, 4th and 5th order stream. A 5th order unnamed tributary of the Belubula River occurs within the mine project area to the south-west of the mine disturbance footprint. Where these two waterways meet, within the mine project area but south-west of the mine disturbance footprint, they become a 6th order stream.

ii Pipeline development

The pipeline buffer area (incorporating southern and northern pipeline options) intersects 25 named and several unnamed watercourses ranging from Strahler order 1 to 6 and 8, shown in Table 3.2. Larger streams (ie 4th order and above) in the pipeline buffer area of the southern and northern pipeline options include Dick's Creek, Evans Plains Creek, Kirkconnell Creek, Macquarie River, McLean's Creek, Queen Charlotte's Creek, Salt Water Creek and Coxs River.

Table 3.2 Streams in the pipeline buffer area

Watercourse	Strahler stream order							
	1	2	3	4	5	6	7	8
Unnamed waterway	Х	Χ	Χ	Χ	Χ			
Bobs Creek		Χ	Χ					
Coxs River					Χ			
Diamond Swamp Creek		Χ						
Dicks Creek			Χ	Χ	Χ			
Dulhuntys Creek		Χ						
Evans Plains Creek					Χ	Χ		
Grassy Gully	Х	Χ	Χ					
Gulf Stream	Х	Χ						
Kirkconnell Creek			Χ	Χ			Χ	
Macquarie River								Χ
Marys Lane Gully			Χ					
McLeans Creek				Χ				
Pipers Flat Creek				Χ				
Queen Charlottes Creek						Χ		
Roundbody Gully	Х	Χ						
Saint Anthonys Creek			Χ	Χ				
Salt Water Creek				Χ	Χ			
Spring Creek			Χ	Χ				
Stonestreets Creek	Х	Χ	Χ	Χ				
Sugarloaf Creek	Х	Х	Х	Х				
Tindales Flat Creek		Х						
Toms Flat Gully		Х	Х	Х				
Wangcol Creek				Х				
Williwa Creek				Х				
Winters Creek			Х					

3.1.3 Wetlands

i Mine development

The mine buffer area does not contain any nationally important wetlands, local wetlands or important wetlands listed on the NSW Wetlands layer (SEED 2020).

ii Pipeline development

The pipeline buffer area does not contain any nationally important wetlands, local wetlands or important wetlands listed on the NSW Wetlands layer (SEED 2020).

3.1.4 Connectivity

i Mine development

The locality of the mine project area is considered highly fragmented with native vegetation often occurring in isolated patches surrounded by a matrix of agricultural land. This is also consistent with the remaining vegetation within and adjoining the mine project area.

The mine project area is located within the riparian buffer of a 5th order stream. A riparian buffer 40 m either side of a 4th order stream will be removed for the project, as shown on Figure 3.1. These riparian buffers occur in a highly disturbed state due to past agricultural practices.

ii Pipeline development

The pipeline corridor intersects areas of agricultural land, pine forests, state forests and four patches of native vegetation. The landscape is highly fragmented, with native vegetation often occurring in isolated patches surrounded by a matrix of agricultural land. In the western extent, the pipeline dissects Vittoria State Forest and moves in an eastward direction through cleared agricultural land. The eastern extent of the pipeline dissects Pine forests, agricultural land, and areas of natural vegetation. The pipeline corridor intersects riparian buffers ranging from 10 to 50 m, which are occur predominantly in a highly disturbed state due to agricultural practices.

3.1.5 Areas of geological significance and soil hazard features

i Mine development

No areas of geological significance occur in the mine project area.

A soil and land capability assessment was completed for the mine development (Sustainable Soils Management 2019) that described soil hazard features in the mine project area. The assessment investigated soil associations and soil hazards defined by OEH (2012a), comprising water logging, acidification, structure decline, wind erosion, water erosion, shallow soils and rockiness, mass movement and salinity. Land and soil capability (LSC) was also rated for each soil association.

Eight soil associations were identified across the mine project area, comprising alluvium, red soil, manganic west, manganic east, upland centre, upland east, upland east aluminic and sodic discharge. Ratings across the mine project area ranged from LSC 4 to 6. Structure decline was a limiting hazard for all soil associations, while the upland associations were susceptible to wind and water erosion with frequent cultivation.

ii Pipeline development

No areas of geological significance occur in the pipeline corridor.

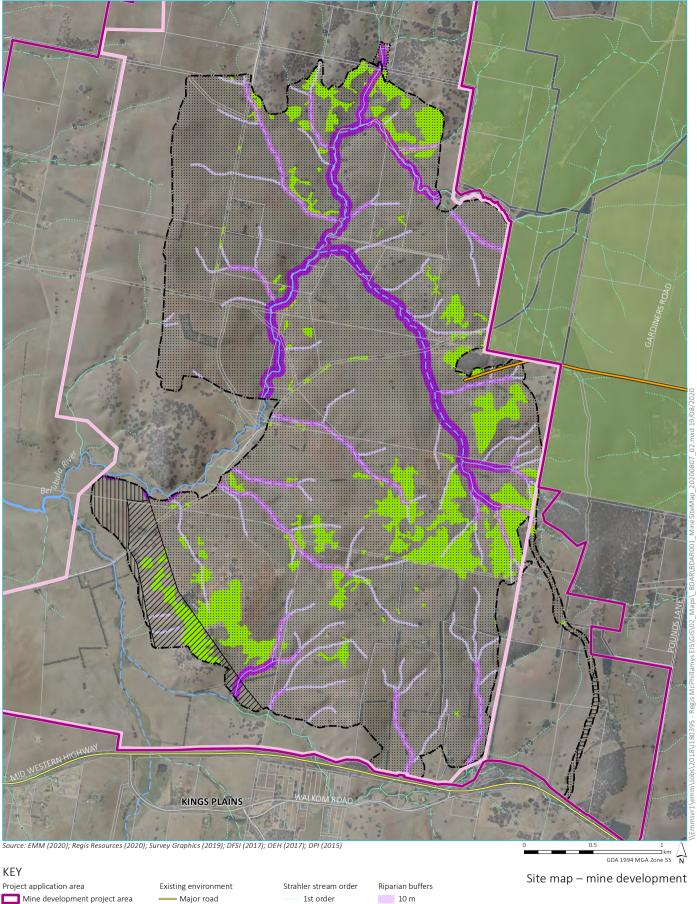
Soil hazards were assessed in Appendix W of the EIS (EMM 2019b) and Chapter 6 of the McPhillamys Gold Project Amendment Report (EMM 2020a. The EIS considered the potential impacts on soil and land resources associated with the construction and operation of the pipeline development through a desktop assessment of available information. Chapter 6 of the McPhillamys Gold Project Amendment Report assessed the potential impacts on soil and land resources of the amended section of the pipeline alignment west of Bathurst, including both the northern and southern options for which approval is sought.

Appendix W of the EIS identified that 52% of the pipeline route may have soils that are prone to tunnel and gully erosion due to their sodic and/or magnesic properties. These soils are likely to require amelioration with calcium sulfate to reduce their potential for dispersion. Regis will undertake soil sampling in each soil landscape along the corridor prior to construction works commencing, focusing on the Kurosols and Sodosols (Cullen Bullen, Lithgow, Capertee, Sunny Corner, Yetholme, Mookerawa, Mullion Creek, Raglan and Rocks Soil Landscapes) to refine the boundaries of reactive soils and determine erosion and agronomic amelioration requirements.

Ridge lines associated with the Great Dividing Range fall within the pipeline buffer in its far eastern extent; however, there will be no direct impacts. There are no important areas of geological significance within the pipeline corridor.

3.1.6 Areas of outstanding biodiversity value

No areas of outstanding biodiversity value exist within the project application area.



Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

Pipeline

Note: IBRA7 region: South Eastern Highlands IBRA7 sub-region: Orange

Minor road Cadastral boundary

Vittoria State Forest Native vegetation Mitchell landscapes

Byng Ultramafics Mullion Slopes

Rockley Plains Upper Lachlan Channels and Floodplains

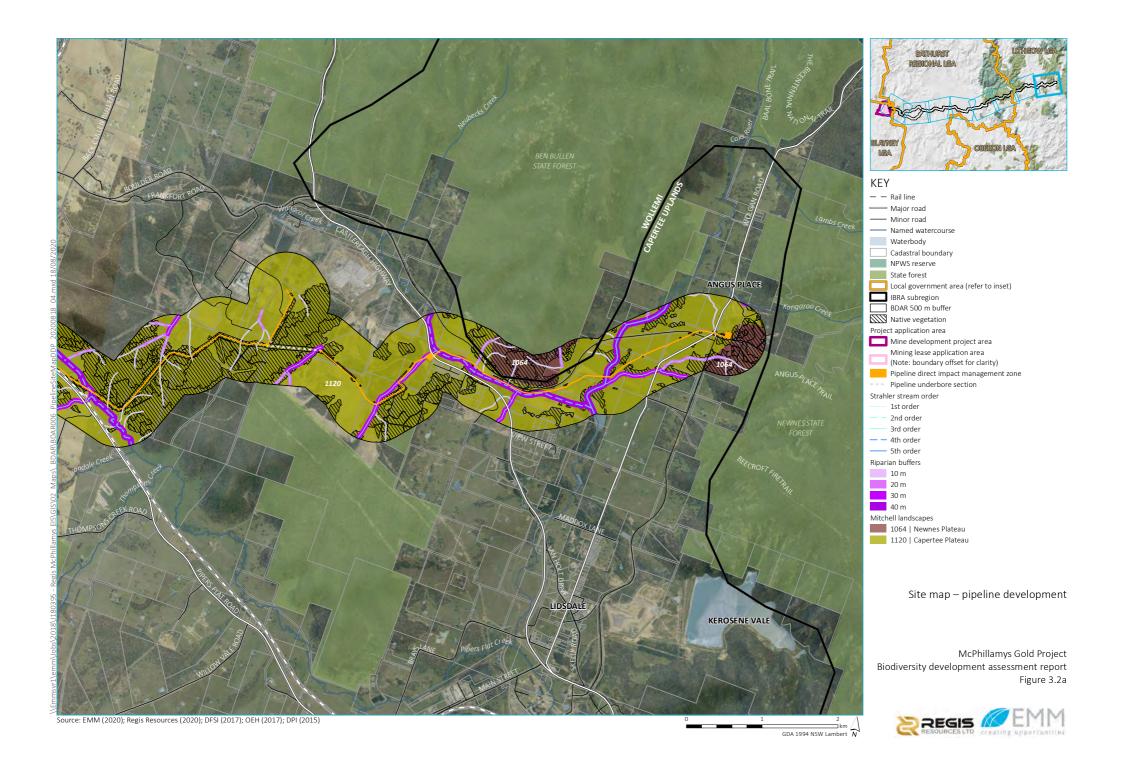
2nd order 3rd order 4th order - 5th order 6th order

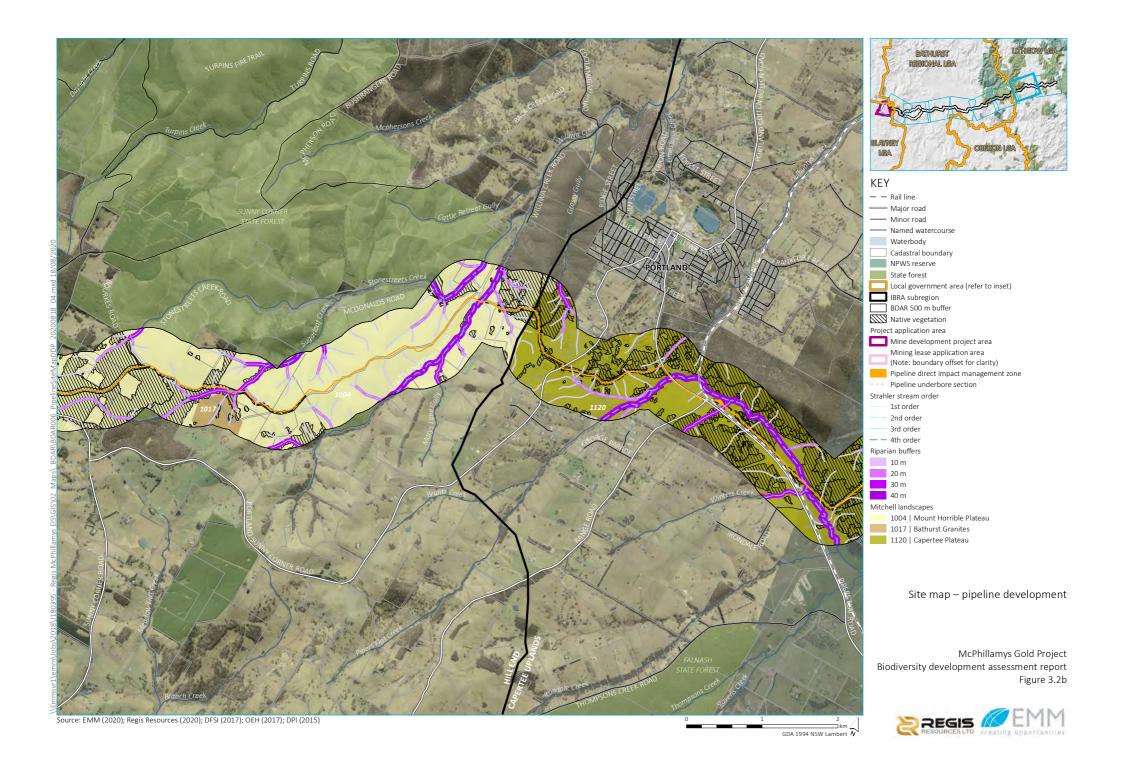
20 m 30 m 40 m

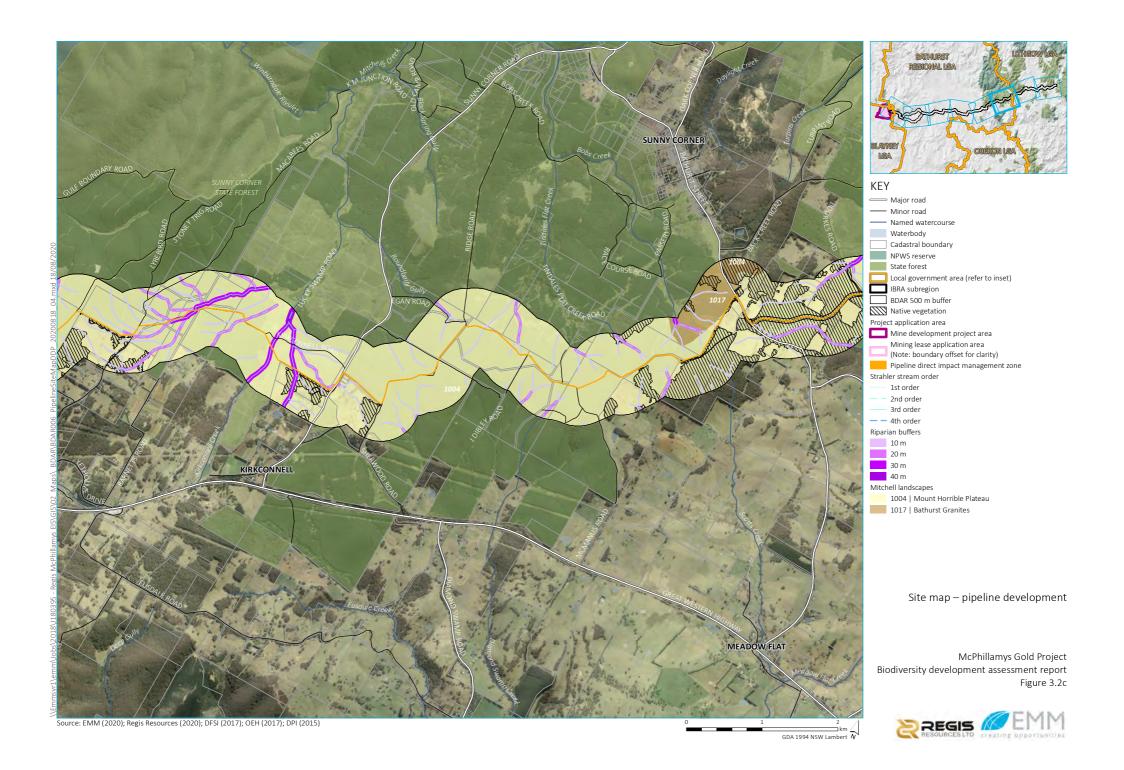
McPhillamys Gold Project Biodiversity development assessment report Figure 3.1

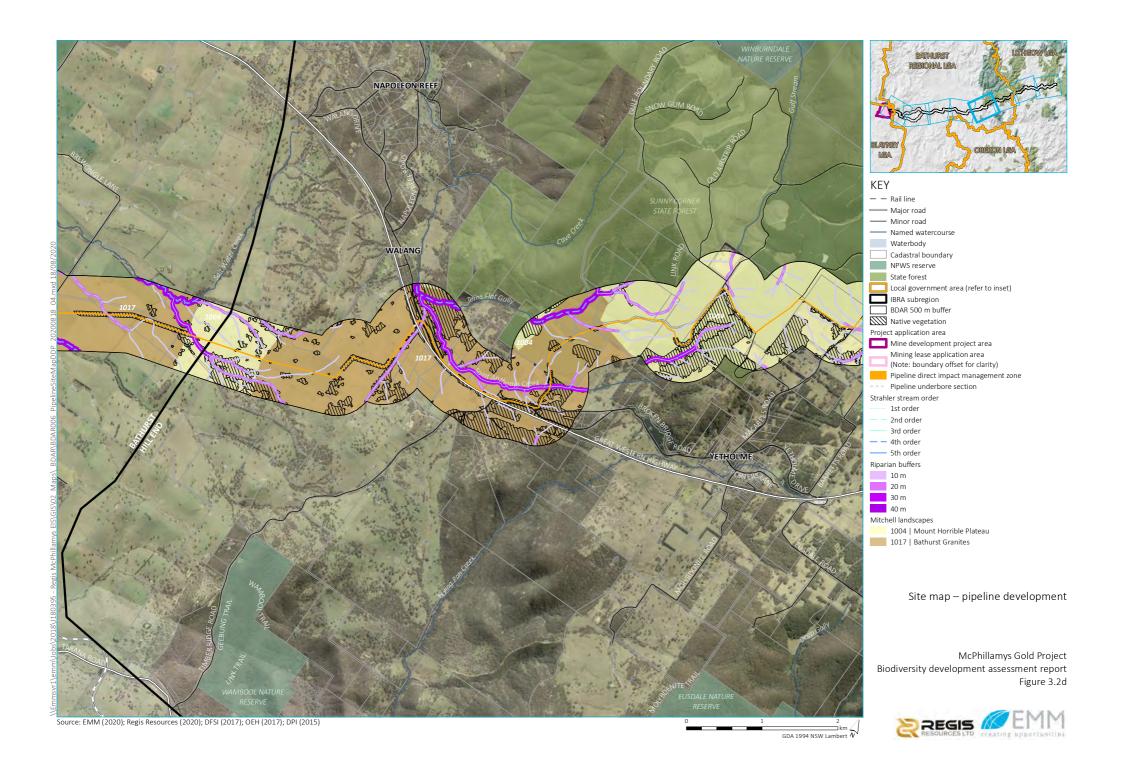


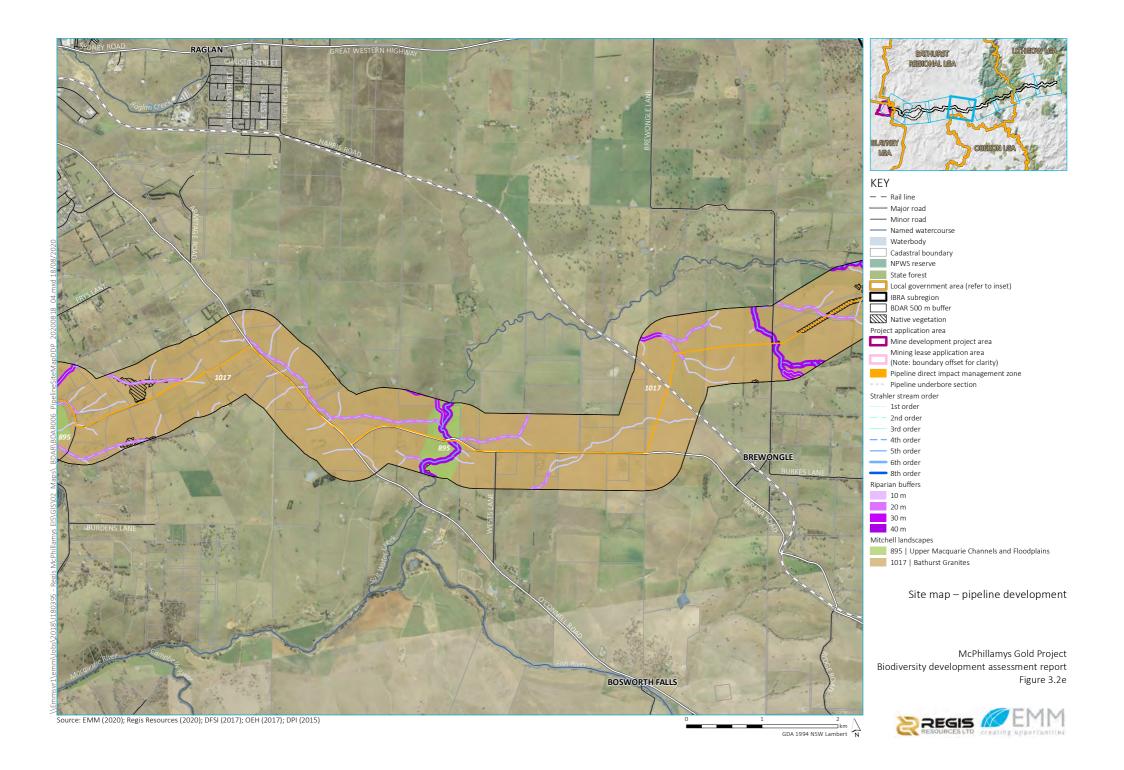


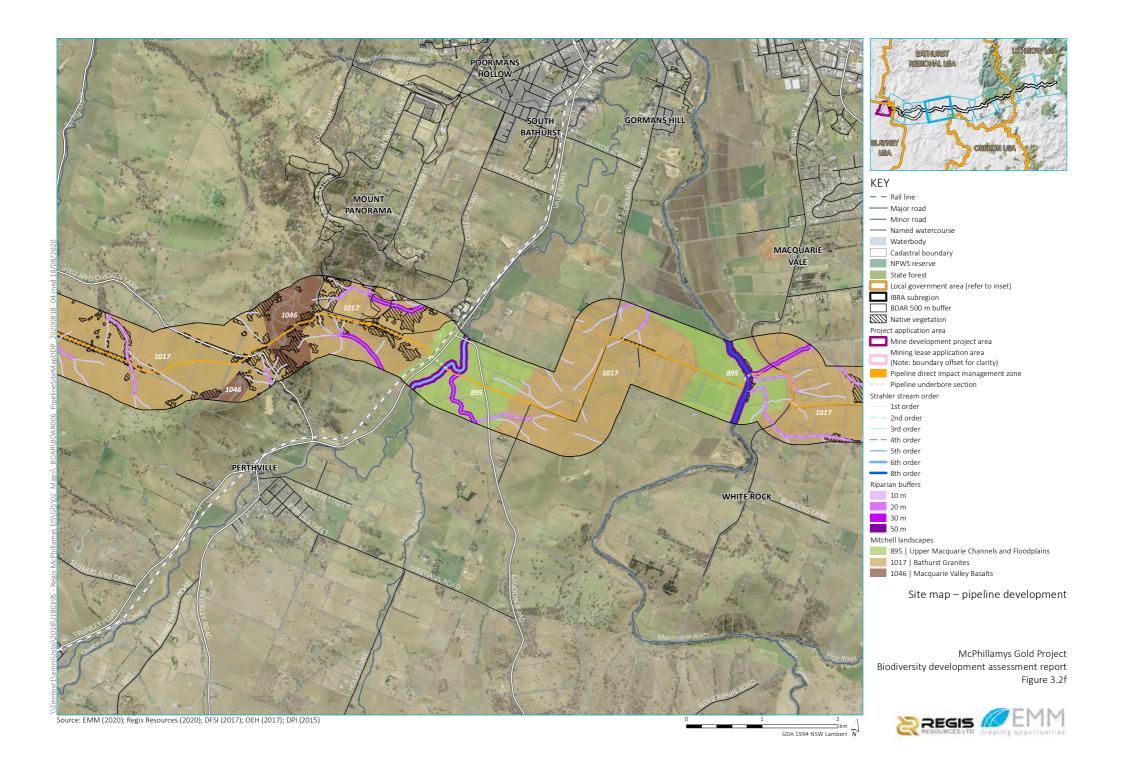


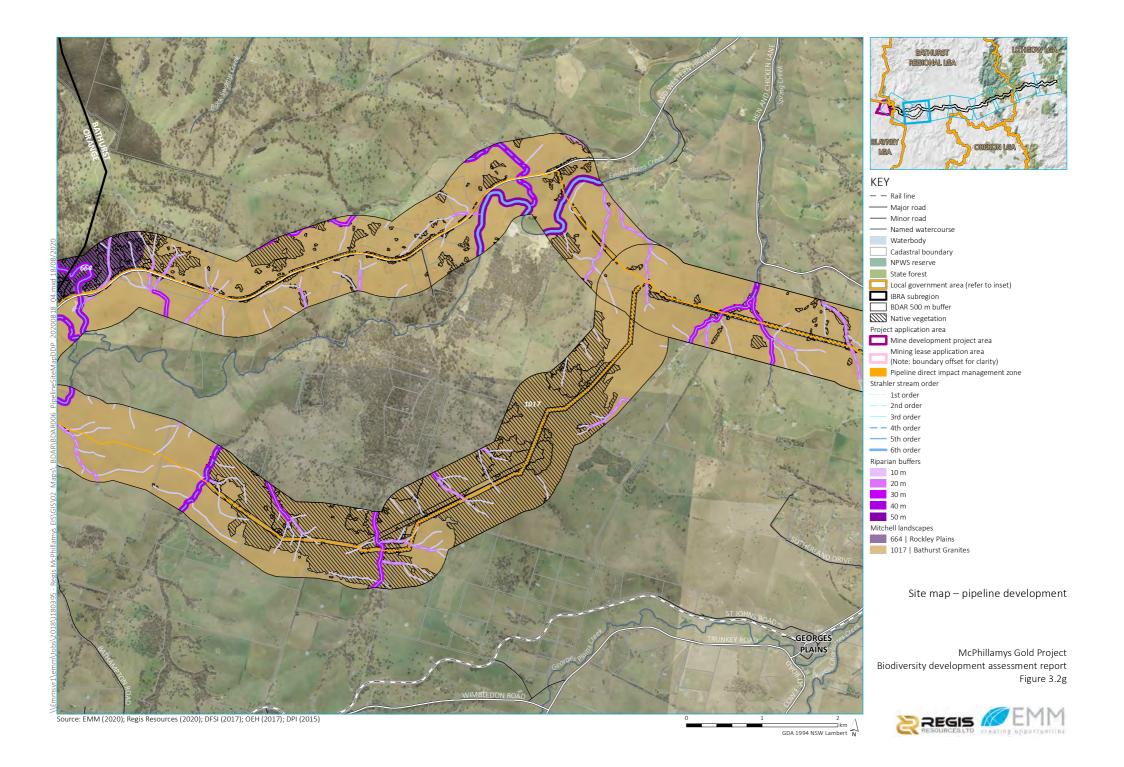


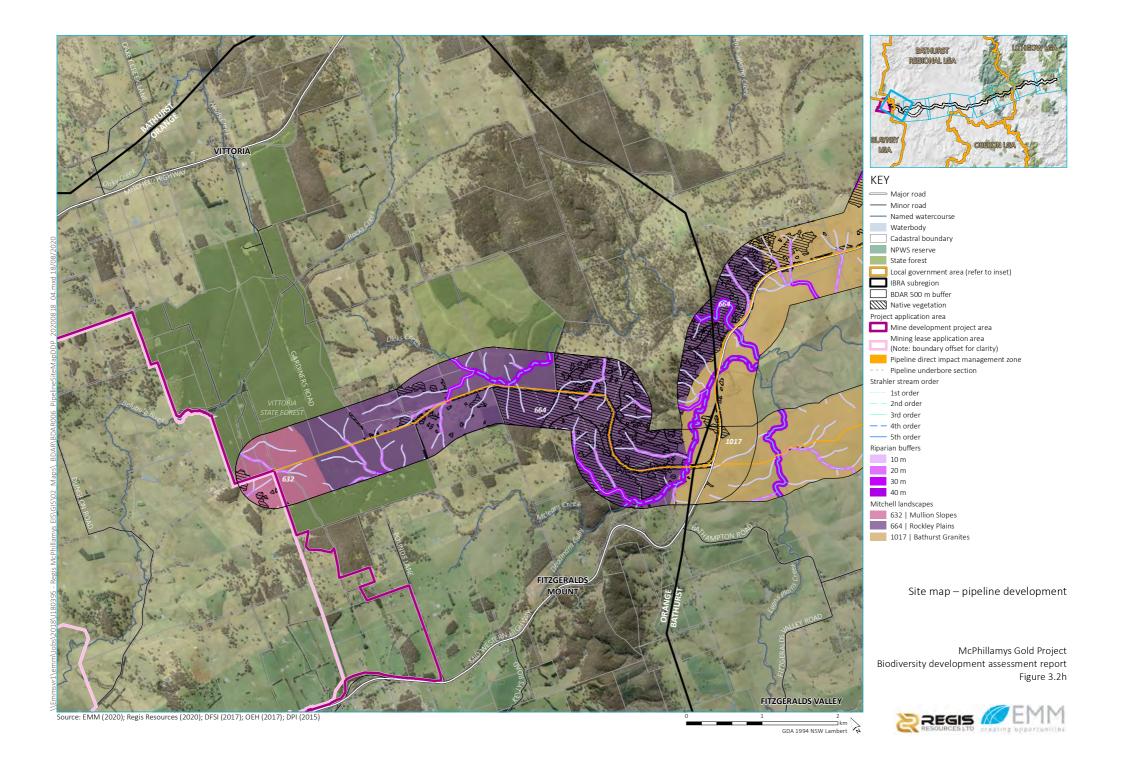


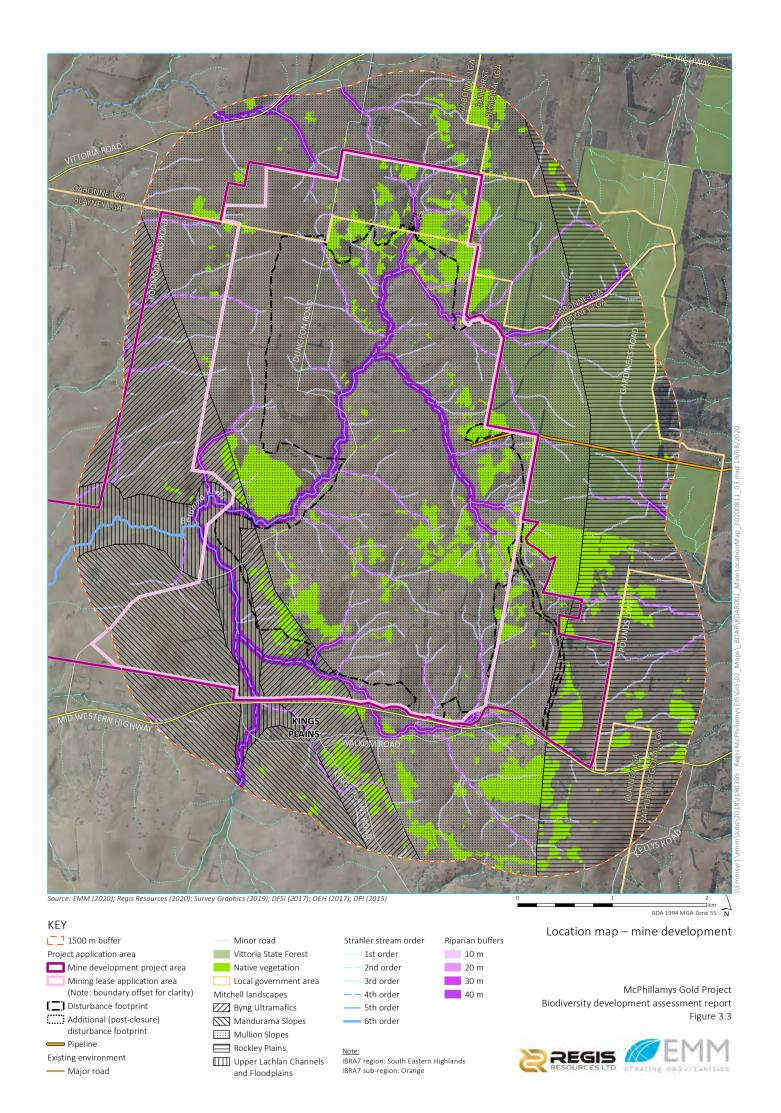


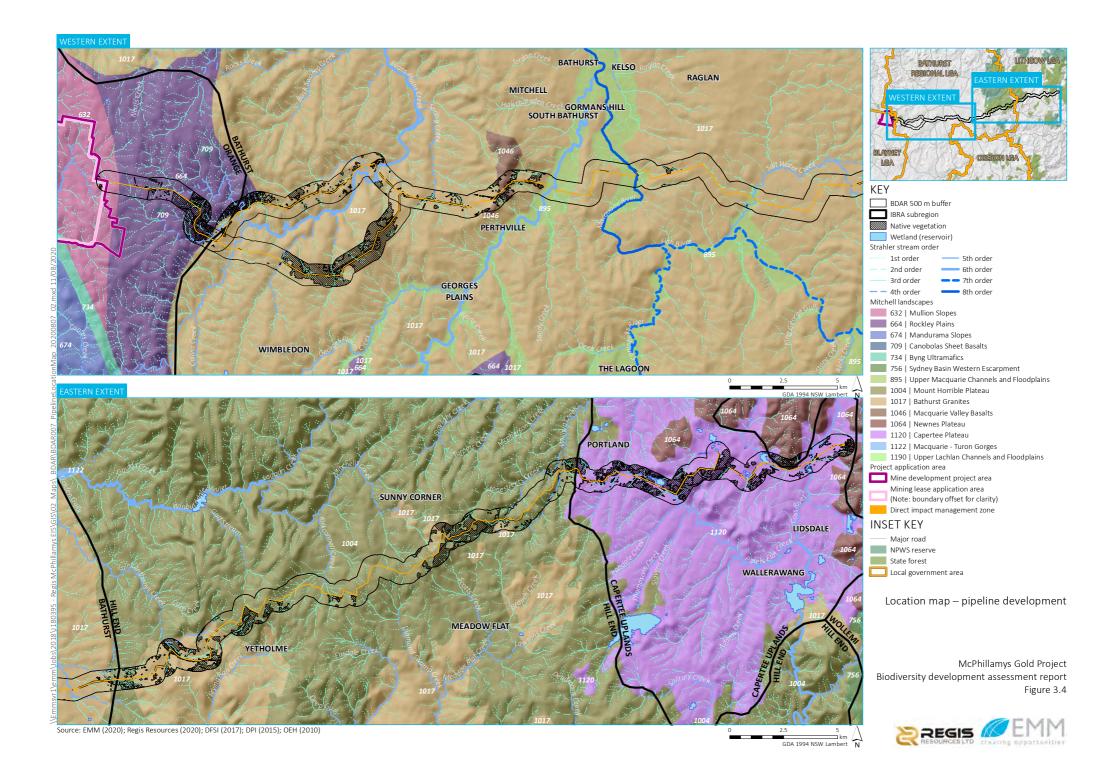












3.2 Assessment of site context

Vegetation mapping across the project application area and locality (OEH 2018) identifies a range of vegetation communities. The extent of native vegetation cover based on these data sources is shown in Figure 3.1 to Figure 3.4. To calculate the native vegetation cover and patch size, the following buffer areas were applied consistent with the requirements of the BAM (OEH 2017):

- Mine development a 1,500 m buffer was placed around the mine disturbance footprint. The area of native vegetation within the buffer and the percent native vegetation was then calculated.
- Pipeline development a 500 m buffer was placed on either side of the pipeline centreline. The area of native vegetation within the buffer and the percent native vegetation was then calculated.

Vegetation proximal to the mine and pipeline developments are highly fragmented, with native vegetation often occurring in isolated patches surrounded by a matrix of agricultural land. This is also consistent with the remaining vegetation within and adjoining the project application area. Native vegetation cover for the mine development and pipeline development is provided in Table 3.3 by IBRA subregion. Separate landscape information has been provided for the southern and northern pipeline options in the Bathurst IBRA subregion.

 Table 3.3
 Percentage of native vegetation cover by IBRA subregion

IBRA subregion	Native vegetation in buffer area (ha)	Buffer area (ha)	Approximate percentage of native vegetation in buffer area
Mine development			
Orange	522.2	4,358.9	12%
Pipeline development			
Orange	323.06	764.65	42%
Bathurst (southern option)	703.42	3,792.58	19%
Bathurst (northern option)	304.63	3,678.51	8%
Hill End	634.30	2,874.69	22%
Capertee Uplands	597.77	1,505.30	40%

4 Native vegetation

4.1 Background review

4.1.1 Mine development

Preliminary biodiversity surveys were conducted by EnviroKey between 2013 and 2017 to identify biodiversity to be considered during project planning (EnviroKey 2017). Surveys included the mine project area as well as the surrounding lands.

Preliminary vegetation mapping was undertaken by EnviroKey between May 2013 and April 2017. Vegetation mapping across the mine project area included delineation of biometric vegetation types (BVTs – hereafter referred to as plant community types (PCTs) to align with current requirements) and stratification of PCTs into vegetation zones "based on presence/absence of the over-storey canopy and the condition of the groundcover layer . . . " (EnviroKey 2017, p.3-39). Plot/transect surveys were also undertaken using the methods outlined in the FBA (OEH 2014).

Preliminary surveys identified four PCTs and seven vegetation zones across the mine project area (Table 4.1). Vegetation zones were delineated by the presence/absence of canopy and condition of derived grasslands.

Table 4.1 Preliminary vegetation zones in mine project area (EnviroKey 2017)

PCT name	Vegetation zone ³
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open	Canopy present
forest on the South Eastern Highlands Bioregion (LA124)	Derived grassland (Mod-good cond.)
Mountain Gum - Manna Gum open forest of the South Eastern	Canopy present
Highlands Bioregion (LA164)	Derived grassland (Low cond.)
Apple Box - Yellow Box dry grassy woodland of the South Eastern	Canopy present
Highlands Bioregion (LA103) ¹	Derived grassland (Low cond.)
Wet tussock grasslands of cold air drainage areas of the tablelands (LA213) ²	-
	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124) Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164) Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion (LA103) ¹ Wet tussock grasslands of cold air drainage areas of the tablelands

^{1.} Envirokey (2017) mapped this community as PCT 654; however, in this report and the BAM Calculator the community it is mapped as PCT 1330. Further discussion and justification is provided in Section 4.3.1.

4.1.2 Pipeline development

Vegetation mapping was undertaken by OzArk in 2018 and 2019 as part of the pipeline development BDAR (OzArk 2019) prepared for the EIS. Vegetation mapping in the pipeline corridor included delineation of PCTs and stratification of PCTs into vegetation zones. Plot/transect surveys were also undertaken using the methods outlined in the BAM (OEH 2017).

Surveys identified 12 PCTs and 20 vegetation zones across the EIS pipeline corridor (Table 4.2).

^{2.} Envirokey (2017) mapped this community as PCT 1375; however, in this report and the BAM Calculator the community it is mapped as PCT 766. PCT 1375 was not available in the BAM calculator.

^{3.} In accordance with the FBA and BAM, a vegetation zone comprises areas of a PCT in the same or similar broad condition state.

Table 4.2 Vegetation zones in the pipeline corridor

PCT ID	PCT name	Vegetation zone
85	River Oak forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands ${\sf Bioregion^1}$	Poor
287	Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion $^{\!2}\!$	Good
654	Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion ³	Moderate
		Poor
679	Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion	Good
	and Australian Alps Bioregion ⁴	Poor
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Poor
731	Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern	Good
	Highlands Bioregion ⁵	Poor
732	Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South	Good
	Eastern Highlands Bioregion ⁶	Poor
765	Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion ⁷	Moderate
1093	Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South	Good
	Eastern Highlands Bioregion.	Moderate
		Poor
1191	Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	Poor
1197	Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	Good
		Poor
1330	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands	Moderate
	Bioregion	Poor

Notes:

- 1. This report reclassifies areas mapped by OzArk (2019) as PCT 85 into non-native vegetation and/or PCT 1330.
- $2. This \ report \ reclassifies \ areas \ mapped \ by \ OzArk \ (2019) \ as \ PCT \ 287 \ into \ non-native \ vegetation \ and/or \ PCT \ 1093.$
- 3. This report reclassifies areas mapped by OzArk (2019) as PCT 654 into PCT 277 and/or 1330.
- 4. This report reclassifies areas mapped by OzArk (2019) as PCT 679 into PCT 1191 and/or 1197.
- 5. This report reclassifies areas mapped by OzArk (2019) as PCT 731 into PCT 1093.
- $6\,\mbox{This}$ report reclassifies areas mapped by OzArk (2019) as PCT 732 into PCT 1093.
- 7. This report reclassifies areas mapped by OzArk (2019) as PCT 766 into non-native vegetation.

EMM conducted a review of vegetation mapping for the pipeline development and has revised it in accordance with the methods described in 4.2.1ii.

4.2 Methods

4.2.1 Detailed vegetation mapping and habitat assessment

i Mine development

Native vegetation was assessed in the field by EnviroKey on the following dates:

- 22 25 May 2013;
- 10 13 September 2013;
- 23 -24 October 2013;
- 6 -7 November 2013:
- 20 26 November 2013;
- 24 29 March 2014; and
- 27 28 April 2017.

Field surveys were undertaken by stratifying the mine project area using air photo interpretation (API) and onground validation into PCTs. Vegetation mapping involved the mine project area being traversed on foot and by vehicle to maximise the opportunity of detecting significant or sparsely distributed flora species and vegetation communities, using the random meander method (EnviroKey 2017). Vegetation boundaries were mapped on site using the professional mapping software application 'GIS Pro' and an Ipad with internal GPS. Polygons were later checked, and redefined where necessary using ArcGIS software (v10) (Envirokey 2017).

Plot and transects were undertaken in accordance with the methods outlined within the FBA (OEH 2014). At each survey site, a 50 m x 20 m plot combined with a 50 m step point transect was surveyed in accordance with the FBA methodology (EnviroKey 2017). A total of 64 plots were undertaken by EnviroKey across the mine project area, with 39 of these plots located within the mine disturbance footprint (Figure 4.1).

Additional flora surveys were conducted by EMM ecologists on 4-8 February 2019 and 11-15 March 2019. The first survey event comprised verifying and amending mapped vegetation within the mine project area, including further stratification of PCTs into vegetation zones. These surveys were carried out on foot and by vehicle. The purpose of this assessment was to review and, where necessary, refine vegetation mapping and undertake an assessment of vegetation condition of all vegetation in accordance with the requirements of the BAM (OEH 2017).

Detailed mapping of vegetation communities was conducted using hand-held (uncorrected) tablet computers using the Collector for ArcGIS™ application and API. Areas of native vegetation for which a PCT could validly be assigned were identified and delineated in the field, and their condition determined. Where there was some uncertainty about correct PCT alignment, or to justify PCT alignment, a series of rapid vegetation assessments (RVAs) were undertaken, with the three dominant species in the overstorey, midstorey and groundcover recorded.

Identification of PCTs within the mine project area was confirmed with reference to the community profile descriptions (and diagnostic species tests) held within the NSW Vegetation Information System (VIS): Classification Version 2.1.

The second survey event included the collection of BAM plot data and is presented in Section 4.2.2. EMM conducted a total of 27 BAM plots. Sixteen of these locations were shared with EnviroKey's plots, while 11 were in new locations.

ii Pipeline development

Native vegetation was assessed in the field by OzArk during the following periods:

- August, September, October and December 2018; and
- January and May 2019.

Field surveys were undertaken by stratifying the mine project area by API by thorough comparisons with the State Vegetation Type Map: Central Tablelands Region V1.0 (OEH 2018), followed by on-ground validation. The entire pipeline corridor was traversed either by foot, where native vegetation was found to be present, or vehicle. Observations made while traversing the pipeline corridor were used to establish the boundaries of PCTs, using dominant upper layer species as an indicator of changes in community. PCT boundaries were determined using characteristic upper, mid and ground layer species.

Identification of PCTs within the pipeline development project area was confirmed with reference to the community profile descriptions (and diagnostic species tests) held within the NSW Vegetation Information System (VIS): Classification Version 2.1 (OEH 2020a). Plot data was collected using a GPS and hardcopy paper field data sheets (OzArk 2019).

OzArk completed 65 plots, of which 13 plots are located within the pipeline disturbance footprint. All plots were located in the pipeline buffer area. Given the narrow width of the pipeline disturbance footprint, plots were placed in appropriate parts of the buffer area (Figures 4.2a - 4.2v).

Building on OzArk's work, EMM undertook the following additional tasks to inform preparation of this report:

- refinement of vegetation mapping to accurately map PCTs and further stratify PCTs into vegetation zones based on broad condition state, using biometric data derived from plot surveys;
- revise vegetation zone mapping to align with condition thresholds under the EPBC Act;
- collect additional plot/transect data to meet minimum requirements of the BAM; and
- undertake targeted flora surveys in accordance with OEH (2020), including transects spaced at 10 m intervals.

Additional flora surveys were conducted by EMM ecologists over five survey events:

- 10-14 February 2020;
- 16-20 March 2020;
- 25-27 March 2020;
- 13-15 May 2020; and
- 11 June 2020.

Surveys comprised verifying and amending mapped vegetation within the pipeline corridor, including further stratification of PCTs into vegetation zones. These surveys were carried out on foot and by vehicle.

Detailed mapping of vegetation communities was conducted using hand-held (uncorrected) tablet computers using the ArcGIS Collector application and aerial photo interpretation. Areas of native vegetation for which a PCT could validly be assigned were identified and delineated in the field, and their condition determined. Identification of PCTs within the pipeline corridor were confirmed with reference to the community profile descriptions (and diagnostic species tests) held within the NSW Vegetation Information System (VIS): Classification Version 2.1 (OEH 2020a).

iii Limitations

No limitations apply to the mine development.

However, one limitation applies to two areas of the pipeline development. Access was not possible for the portion of the northern option that differs from the southern option in the Bathurst IBRA subregion, which is approximately 900 m in length. In addition, a small part of the southern route changed following the conclusion of ecology surveys to avoid a steep watercourse crossing. In this area, the alignment shifted east (approximately 67 m east for most of the alignment shift) of the original area surveyed by ecologists and represents approximately 2.7 km of the pipeline. For these two areas, vegetation mapping and species polygons have been based on EMM's detailed understanding of PCTs and species habitats directly adjacent to these areas and the remainder of the 90 km pipeline, which has been assessed comprehensively in the field. Further information regarding management of these limitations is provided in Section 6.8.

4.2.2 Vegetation integrity assessment

i Mine development

Native vegetation integrity was assessed using data obtained via a series of plots, as per the methodology outlined in Section 5 of the BAM (OEH 2017). Plot data was collected from the mine project area between 11 and 15 March 2019. All of Envirokey's previous plot locations were revisited to collect BAM-specific data.

At each plot location the following was undertaken:

- one 20 x 20 m plot, for assessment of composition and structure; and
- one 20 x 50 m plots for assessment of function, including a series of five 1 x 1 m plots to assess average leaf litter cover.

The assessment of composition and structure, based on a 20×20 m plot, recorded species name, stratum, growth form, cover and abundance rating for each species present within the plot. Cover (foliage cover) was estimated for all species rooted in or overhanging the plot, and recorded using decimals (if less than 1%, rounded to whole number (1-5%) or estimated to the nearest 5% (5- 100%). Abundance was counted (up to 20) and estimated above 20, and recorded using the following intervals: 1, 2, 3, 4, 5, 10, 20, 50, 100, 500, 1,000, 1,500, 2,000 etc.

The assessment of function recorded the number of large trees, the presence of tree stem size class, tree regeneration, number of trees with hollows and length of fallen logs, as well as leaf litter cover within the 20×50 m plot and five 1×1 m subplots. The minimum number of plots and transects per vegetation zone was determined using Table 4 of the BAM (OEH 2017).

The minimum number of plots/transects per vegetation zone was determined using Table 4 of the BAM (OEH 2017). A total of 27 plots/transects were completed by EMM (2019) across the mine project area, with 23 of the plots/transects located within the mine disturbance footprint (Figure 4.1). Plot data entered into the BAM calculator, along with original datasheets, are provided in Appendix A and Appendix B.

Surveys for flora and vegetation communities were completed under the authority of Scientific License (SL100409). A list of flora species was compiled for each plot and PCT. Records of all flora species will be submitted to BCD for incorporation into the Atlas of NSW Wildlife.

ii Pipeline development

OzArk collected plot data for the pipeline between August 2018 and May 2019. EMM collected plot data for the pipeline between February and June 2020 to address gaps in the minimum plots required based on refined PCT mapping. EMM completed 12 plots in the pipeline corridor, of which 7 plots are located within the pipeline disturbance footprint (Figure 4.1).

Plot and transects were undertaken in accordance with the methods outlined in the BAM (OEH 2017) as outlined above. All plot data collected across each vegetation zone was entered for each subregion; ie plots were not split by subregion.

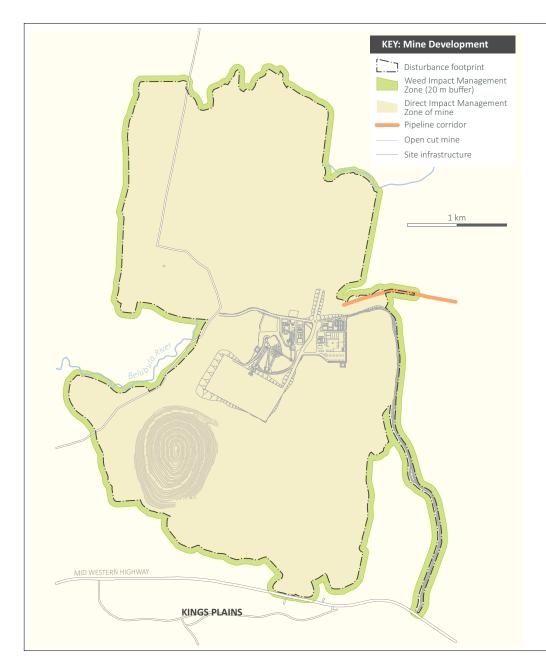
4.2.3 Management zones

Delineation of a proposed development into different management zones allows for direct impacts (ie total loss of native vegetation and fauna habitat in a given area) and indirect impacts (eg decreasing condition in retained native vegetation and fauna habitats adjacent to direct impacts) to be quantified and offset. The following sections describe how management zones have been defined for the mine and pipeline developments to quantify direct and indirect impacts and allow for offsetting. Notwithstanding, measures have been provided in Section 6.4 to manage these indirect impacts.

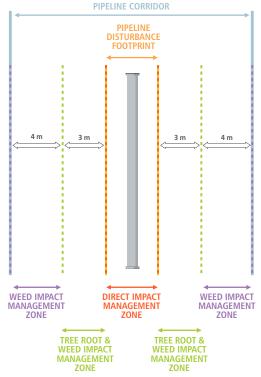
The mine development has been delineated into a direct impact management zone (DIMZ, which equates to the mine disturbance footprint) and weed impact management zone (WIMZ), depicted on Plate 4.1. The WIMZ has been defined as a 20 m buffer around the DIMZ in which indirect impacts, including edge effects and inadvertent transport of weeds in this area, may occur.

The pipeline development has been delineated into a DIMZ (ie the pipeline disturbance footprint), tree root and weed impact management zone (TRWIMZ) and WIMZ, depicted on Plate 4.1. The TRWIMZ has been defined as a 3 m buffer either side of the DIMZ. Its purpose is to account for any damage to the roots of trees within the zone from trenching for the pipeline in the DIMZ, edge effects and inadvertent transport of weeds in this area. The WIMZ extends a further 4 m from the edge of the TRWIMZ to fully account for edge effects and inadvertent transport of weeds in from the 8 m wide (average) DIMZ.

Plate 4.1 delineates the management zones for the mine development and describes the method for amending final vegetation integrity scores in the WIMZ to account for a decrease in vegetation and habitat condition. Plate 4.1 also delineates the management zones for the pipeline development and describes the method for amending final vegetation integrity scores in the TRWIMZ and WIMZ to account for a decrease in vegetation and habitat condition.



PIPELINE DISTURBANCE – impacts, construction zones and offset calculations



KEY: Pipeline Development



PIPELINE DISTURBANCE FOOTPRINT

Total clearance

Temporary construction fencing at boundaries



PIPELINE CORRIDOR ACTIVITIES

Vehicle and plant movement

Lay-down areas in non-native vegetation



DIRECT IMPACT MANAGEMENT

When native vegetation occurs in the DMZ, total clearance will be assumed (ie future VI score = 0)



TREE ROOT & WEED IMPACT MANAGEMENT ZONE

No direct impact for TRWIMZ. Indirect impacts only, including impacts to tree roots and vegetation condition through weed infiltration. Structure values for tree layer reduced by 50% from current scores to account for root damage. Composition and structure values reduced by 10% for grass, forbs, ferns and other growth forms., 5% reduction in functional score for litter cover to account for increased weeds.



WEED IMPACT MANAGEMENT

No direct impact for WIMZ. Indirect impacts only, including impacts to vegetation condition through weed infiltration. Composition and structure values reduced by 10% for grass, forbs, ferns and other growth forms. 5% reduction in functional score for litter cover to account for increased weeds.





4.3 Results

4.3.1 Flora and plant community types

i Mine development

A total of 123 species (72 native and 51 exotic) were recorded across the plots carried out by Envirokey and EMM within the mine development area. Few midstorey species were recorded, the presence of which was likely limited due to cattle and sheep continuing to graze on the property during the surveys.

PCTs were identified through analysis of data collected during the site visits, including RDP data, and were verified using floristic data collected during plot surveys. A total of four PCTs were identified within the mine project area, summarised in Table 4.3, shown in Figure 4.1 and described in the following sections.

Table 4.3 Plant community types mapped within the mine DIMZ and WIMZ

Plant community type	Vegetation formation	Vegetation class	DIMZ (ha)	WIMZ (ha)	Total (ha)
PCT 727 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion	Dry Sclerophyll Forests (shrubby sub-formation)	Southern Tableland Dry Sclerophyll Forests	48.78	3.94	52.72
PCT 766 – Carex sedgeland of the slopes and tablelands	Freshwater Wetlands	Montane Bogs and Fens	3.04	0.00	3.04
PCT 951 – Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	Wet Sclerophyll Forests (shrubby sub-formation)	Southern Tableland Wet Sclerophyll Forests	32.73	0.95	33.68
PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Grassy Woodlands	Southern Tableland Grassy Woodlands	45.84	2.87	48.71
Total			130.39	7.75	138.14

Notes: DIMZ = direct impact management zone, WIMZ = weed impact management zone, as depicted on Plate 4.1.

a PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

PCT 1330 is best described as a dry grassy woodland. PCT 1330 has been heavily grazed across the mine project area. Areas of high to poor quality are distinguished largely by presence or absence of woody debris, and by the species composition. Table 4.4 provides a description of the vegetation zones attributed to this PCT.

Table 4.4 Vegetation zones 1-4 description

Vegetation Zones 1-4 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

PCT ID	1330
Common name	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)
Condition class	Vegetation zone 1 – 1330_high
	Vegetation zone 2 – 1330medium
	Vegetation zone 3 – 1330poor
	Vegetation zone 4 – 1330_other
Extent within mine disturbance	45.84 ha (2.87 ha)
footprint (including indirect	High - 1.47 ha (0.16 ha)
impacts)	Medium - 18.96 ha (2.05 ha)
	Poor - 24.65 ha (0.65 ha)
	Other - 0.76 ha (0.00 ha)
Description	The canopy is co-dominated by Yellow Box (<i>Eucalyptus melliodora</i>) with occasional stands of Apple Box (<i>Eucalyptus bridgesiana</i>).
	The midstorey is largely absent. A single native shrub occurs, being Silver Wattle (<i>Acacia dealbata</i> subsp. <i>dealbata</i>). Two exotic shrub species occur rarely within the PCT, being Blackberry complex (<i>Rubus fruticosis</i> aggregate) and Briar Rose (<i>Rosa rubiginosa</i>).
	The groundlayer is co-dominated by native and exotic grass species. Dominant native grasses are Purplish Wallaby Grass (<i>Rytidosperma tenuius</i>), Short Wallaby Grass (<i>Rytidosperma carphoides</i>), Snow Grass (<i>Poa sieberiana</i>), Common Wheatgrass (<i>Anthosachne scaber</i>) and Weeping Grass (<i>Microlaena stipoides</i>). Dominant exotic grass species recorded include Harding Grass (<i>Phalaris aquatica</i>) and Creeping Bentgrass (<i>Agrostis stolonifera</i>).
Survey effort	Nine plots/transects within the mine disturbance footprint:
	• Vegetation zone 1 –high: 1
	 Vegetation zone 2 –medium: 3
	• Vegetation zone 3 –other: 1
	 Vegetation zone 4 –poor: 4

Table 4.4 Vegetation zones 1-4 description

Vegetation Zones 1-4 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

Bioregion (PCT 1330)	
Condition description	The community is largely in medium to poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. An area of higher condition occurs in the northern and western part of the mine project area, but these have largely been avoided during detailed design.
	The midstorey (shrub layer) is largely absent. An exotic forb and grass species occur within the PCT, being Flatweed (<i>Hypochaeris radicata</i>) and Rhodes grass (<i>Chloris gayana</i>) respectively. Surrounding land use (mostly grazing and forestry) and associated edge impacts contribute even further to the existing condition of this PCT.
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that align with the dominant species listed as characteristic of this PCT include Yellow Box and Apple Box, although Blakely's Red Gum (<i>Eucalyptus blakelyi</i>) was absent in the mine project area but was found to occur immediately adjacent to the east where it was co-dominant. The midstorey of the community on site contains Silver Wattle. However, the midstorey species listed for PCT 1330 under the NSW VIS Classification Version 2.1 are <i>Lissanthe 46trigose</i> and <i>Melichrus urceolatus</i> . These two species were not present at McPhillamys, even in ungrazed areas adjacent to the site.
	Aligning ground layer species include Snow Grass. The description under the NSW VIS Classification Version 2.1 for PCT 1330 is brief and has few identifying ground layer species.
Justification of evidence used to identify the PCT	Revision of vegetation mapping by EnviroKey (2017) considered several closely related PCTs (277, 654 and 1330). This PCT was mapped as PCT 1330 (over PCT 277 or 654). Although the upper stratum species of Yellow Box and Apple Box closely match PCT 654 (as mapped in the preliminary mapping by Envirokey):
	 as the three PCTs under consideration have similar overstorey species, the overstorey composition cannot be used to identify the PCT conclusively on site;
	 in the midstorey, no species are listed for PCT 654, while PCT 277 has Silver Wattle in the shrub storey (which is present on site). The midstorey species listed for PCT 1330 are Lissanthe 46trigose and Melichrus urceolatus. These two species were not present at McPhillamys, even in ungrazed areas adjacent to the site;
	 the description of ground layer species for PCT 1330 is brief and has few identifying ground layer species. This said, analysing the plot data against the key species in the PCT descriptions gives a match of 57% for PCT 1330 versus 37% for PCT 277; and
	 the Statewide Vegetation Map (OEH 2018) maps PCT 1330 across the mine project area. PCT 654 is mapped adjacent, while PCT 277 is not mapped in the vicinity of the site (further than 20 km distance).

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As the PCT on site shares greater alignment with key species (in the ground layer) and the description of landscape and soils could fit any PCT, PCT 1330 was found to be a better fit based on alignment with regional mapping and initial advice of BCD.

Table 4.4 Vegetation zones 1-4 description

Vegetation Zones 1-4 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

Status

PCT 1330 Yellow Box – Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion represents White Box Yellow Box Blakely's Red Gum Woodland listed under the BC Act as it:

- occurs on fertile soils in the western slopes of NSW;
- is dominated by Yellow Box, a representative canopy species;
- has an understorey comprising grasses and herbs; and
- has a sparse shrub layer.

The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2010a) describes the listed community (under the EPBC Act) as a woodland or derived native grassland, characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, that is dominated by White Box, Yellow Box and/or Blakely's Red Gum. To be considered part of the listed community, remnants must also meet the condition thresholds outlined in DEH (2006):

- have a predominantly native understorey (i.e. more than 50% of the perennial ground layer must comprise native species); and
- be part of a patch 0.1 ha or greater in size; and
- contain 12 or more native understorey species (excluding grasses), including one or more identified important species; or
- be 2 ha or greater in size and have either natural regeneration of the overstorey species or an average of 20 or more mature trees per hectare.

Using the above criteria, polygons of PCT 1330 in moderate/good (high) and moderate/good (medium) meet the criteria for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland as listed under the EPBC Act, while polygons in (poor) and (other) condition do not.

Estimate of percent cleared value of PCT across its distribution

95%



Photograph 4.1 Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion within the mine project area (high condition – plot ID EMM8Zone1)

b PCT 727 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion

PCT 727 is best described as dry open forest with a grassy understorey. This PCT has been heavily grazed across the mine project area. Areas of high quality are distinguished largely by presence or absence of woody debris, and by the species composition. Table 4.5 provides a description of the vegetation zones attributed to this PCT.

Table 4.5 Vegetation zones 5-7 description

Vegetation Zones 5-7 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727)

PCT ID	727
Common name	Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (LA124)
Condition class	Vegetation zone 5 –high
	Vegetation zone 6 – medium
	Vegetation zone 7 –poor

Table 4.5Vegetation zones 5-7 description

Vegetation Zones 5-7 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727)

Extent within mine	48.78 ha (3.94 ha)	
disturbance footprint (including indirect impacts)	High - 2.84 ha (1.06 ha)	
	Medium - 35.54 ha (1.20 ha)	
	Poor - 10.40 ha (1.68 ha)	
Description	The canopy is co-dominated by Broad-leaved Peppermint (<i>Eucalyptus dives</i>) and Long-leaved box (<i>Eucalyptus goniocalyx</i>), with occasional stands of Brittle Gum (<i>Eucalyptus mannifera</i>), Yellow Box, and Apple Box. The native midstorey comprises a sparse cover of Hoary Guinea Flower (<i>Hibbertia obtusifolia</i>).	
	About half of the ground layer cover consists of bare ground. The remaining area is dominated by native grasses, comprising of Snow Grass, Purplish Wallaby Grass, Common Wheatgrass, Weeping Grass, Red-anthered Wallaby Grass and Kangaroo Grass (<i>Themeda triandra</i>). All other species recorded occur at covers of less than 1% within the PCT.	
Survey effort	Thirteen plots/transects within the mine disturbance footprint.	
	Vegetation zone 5 –high: 3	
	Vegetation zone 6 – medium: 6	
	Vegetation zone 7 –poor: 4	
Condition description	The community is largely in moderate to poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. Areas of higher condition occur along the eastern boundary of the mine project area and to the east.	
	The midstorey (shrub layer) is largely absent, with a sparse cover of Hoary Guinea Flower present. Half the ground cover consists of bare ground, with the remaining area dominated by native grasses. The community has not been subject to pasture improvement, however numerous exotic grasses and herbs have invaded. Most stands are subject to heavy grazing impacts and native species richness is low.	
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that align with the dominant species listed as characteristic of this PCT include Broad-leaved Peppermint and Brittle Gum. Aligning ground layer species include Snow Grass and Hoary Guinea Flower.	
Justification of evidence used to identify the PCT	The canopy species of Broad-leaved Peppermint and Brittle Gum closely match PCT 727, and the community shares three groundcover species with the NSW VIS Classification Version 2.1. The community occurs on undulating exposed and sheltered footslopes which matches the relief of the site.	
Status	Commonwealth EPBC Act: not listed	
	NSW BC Act: not listed	
Estimate of percent cleared value of PCT across its distribution	50%	



Photograph 4.2 Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (high – plot ID EMM3Zone5)

c PCT 951 – Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion

PCT 951 is characterised by open forest, largely along drainage lines. Vegetation in this PCT is highly fragmented, occurring as small, isolated patches. The midstorey and groundcover have been heavily impacted by grazing. Table 4.6 provides a description of the vegetation zone attributed to this PCT.

Table 4.6 Vegetation zone 8 description

Vegetation Zone 8 - Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951)

PCT ID	951
Common name	Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)
Condition class	Vegetation zone 8 –poor
Extent within mine disturbance footprint (including indirect impacts)	32.73 ha (0.95 ha)

Table 4.6 Vegetation zone 8 description

Vegetation Zone 8 – Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951)

Description	The canopy is dominated by Manna Gum (<i>Eucalyptus viminalis</i>). The midstorey is largely absent. Two native shrubs, Silver Wattle and White Dogwood (<i>Ozothamnus diosmifolius</i>) occur rarely. One high-threat-exotic species, Blackberry complex occurs rarely.
	The groundlayer is co-dominated by native and exotic grass, grass-like and forb species. Dominant native grasses include Wallaby Grass, Weeping Grass, Snow Grass and Kangaroo Grass. Dominant native grass-like plants are Tall Sedge (<i>Carex appressa</i>) and Common Rush (<i>Juncus usitatus</i>). One native forb species is co-dominant, being Slender Knot Weed (<i>Persicaria decipiens</i>).
	Dominant exotic grasses comprise of Harding Grass, Rye Grass (<i>Lolium perenne</i>), Prairie Grass (<i>Bromus catharticus</i>), Tall Fescue (<i>Festuca arundinacea</i>), Soft Brome (<i>Bromus hordeaceus</i>), Windmill Grass and Couch Grass (<i>Cynodon dactylon</i>). Dominant exotic forbs are Burrclover (<i>Medicago</i> spp.), Flatweed (<i>Hypochaeris radicata</i>) and White Clover (<i>Trifolium repens</i>).
Survey effort	Five plots/transects within the mine disturbance footprint:
	Vegetation zone 8 –poor: 5
Condition description	The community is in poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. The midstorey (shrub layer) is largely absent, with two native shrubs occurring rarely. The exotic species Blackberry also occurs rarely in the shrub layer.
	Due to pasture improvement in the vicinity, the grassy understorey is generally dominated by exotic pasture grasses. A number of typical herbaceous weeds found in grazing areas also occur. Many of the canopy trees show signs of stress (eg dead/defoliated branches and a large amount of fallen woody debris). This is typical in grazing land due to soil compaction and excessive nutrients from stock manure.
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that aligns with the dominant species listed as characteristic of this PCT is Manna Gum, which dominates the canopy.
	The shrub layer is sparse, but Silver Wattle occurs which is listed in the NSW VIS Classification Version 2.1 for the PCT. Aligning ground layer species include Snow Grass, Weeping Grass and Tall Sedge.
Justification of evidence used to identify the PCT	PCT 1101 Ribbon Gum – Snow Gum grassy open forest on flats and undulating hills of the eastern tableland, South Eastern Highlands Bioregion, is better aligned for this community, being mapped on the site in the regional mapping by OEH (2018) and being closely aligned in terms of dominant canopy species (Ribbon Gum – also known as Manna Gum) and mid stratum species (Silver Wattle). However, the Calculator does not include this as an option for selection on the site.
	The best available fit is Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951). Although not within the relevant IBRA subregion, according to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that aligns with the dominant species listed as characteristic of this PCT is Manna Gum, which dominates the canopy. The shrub layer is sparse, but Silver Wattle occurs which is listed in the NSW VIS Classification Version 2.1 for the PCT. Aligning ground layer species include Snow Grass, Weeping Grass and Tall Sedge.
Status	Commonwealth EPBC Act: not listed
	NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	80%



Photograph 4.3 Mountain Gum – Manna Gum open forest of the South Eastern Highlands Bioregion (poor – plot ID 103_WL_2_E).

d PCT 766 – Carex sedgeland of the slopes and tablelands

PCT 766 is characterised by wet tussock grassland, dominated by sedges, growing in low lying and infrequently inundated drainage lines. This PCT occurs as a single patch of grassland within the mine project area (Figure 4.1). Table 4.7 provides a description of the vegetation zone attributed to this PCT.

Table 4.7 Vegetation zone 9 description

Vegetation Zone 9 – Carex sedgeland of the slopes and tablelands (PCT 76	6)

PCT ID	766
Common name	Carex sedgeland of the slopes and tablelands (LA130)
Condition class	Vegetation zone 9 –poor
Extent within mine disturbance footprint (including indirect impacts)	3.04 ha (0.00 ha)
Description	The canopy and midstorey are absent, as is typical for this PCT. Over three-quarters of the groundlayer is co-dominated by three species: one native grass-like species, Tall Sedge, one exotic grass, Tall Fescue, and one exotic forb, White Clover. The next most common species is an unidentified grass within the Poaceae family. The remaining area (around 10% of the PCT) is dominated by exotic grasses and forbs, being Spear Thistle (<i>Cirsium vulgare</i>), Harding Grass, Flatweed (<i>Hypochaeris radicata</i>), Prickly Lettuce (<i>Lactuca serriola</i>) and Common Dandelion (<i>Taraxicum officinale</i>). Two native forbs are also common within this remaining area, being Swamp Dock (<i>Rumex brownii</i>) and Common Rush.
Survey effort	Two plots/transects within the mine disturbance footprint:
	Vegetation zone 9 –poor: 2
Condition description	The community is in poor condition with a high cover of exotic pasture grasses and weeds. While Tall Sedge provides significant cover, grazing of these low-lying areas by cattle has resulted in significant trampling and grazing of vegetation and consequent introduction of exotic species.
Characteristic species used for identification of PCT	The canopy and shrub layers are not present, consistent with the NSW VIS Classification Version 2.1 (although the VIS gives <i>Leptospermum</i> spp. as species within the shrub layer, the shrub layer is absent consistent with vegetation across the site). The ground layer is dominated by Tall Sedge, consistent with the NSW VIS Classification Version 2.1.
Justification of evidence used to identify the PCT	The community is described in the NSW VIS Classification Version 2.1 as occurring on valley floors and drainage lines with poor drainage, consistent with its distribution in the mine project area, upstream of a farm dam across a watercourse.
Status	Commonwealth EPBC Act: not listed
	NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	75%



Photograph 4.4 Wet tussock grasslands of cold air drainage areas of the tablelands (poor condition - plot ID EMM5Zone9)

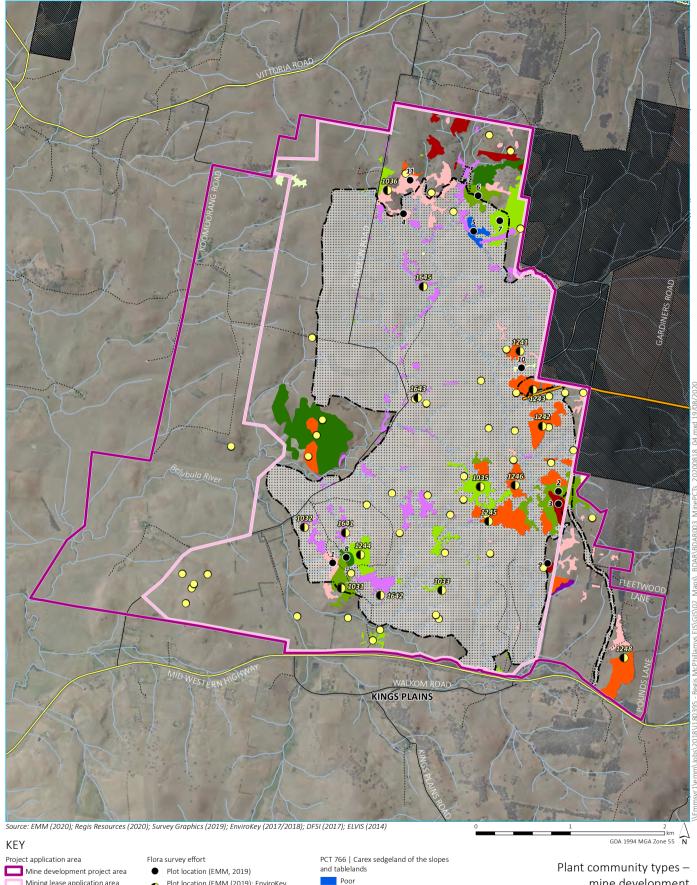
e Exotic grasslands

Exotic grasslands occur within the mine disturbance footprint (Figure 4.1). Exotic grasslands were in a highly disturbed state, meaning that they could not be reliably assigned to a PCT. In the EIS, a conservative approach was taken and the open grasslands were assigned to each potential PCT (ie 727, 951 and 1330), to determine if their site value score exceeded the offset threshold in the BioBanking Calculator, or otherwise. The site values scores fell below the offset threshold, and therefore these have been mapped in this report as exotic grasslands that do not require further assessment. Table 4.8 provides a description of exotic grasslands in the mine project area.

Table 4.8 Exotic grassland description

Open grasslands

PCT ID	N/A
Common name	Open grassland
Condition class	N/A
Extent within mine disturbance footprint	986.79 ha
Description	The overstorey and midstorey in these areas is absent, except for scattered paddock trees. Areas of open grassland are dominated by exotic grasses such as Harding Grass, Creeping Bentgrass, Rye Grass, Prairie Grass, Tall Fescue, Soft Brome, Windmill Grass as well as exotic forbs such as Burrclover, Flatweed and White Clover. In some areas, native grasses such as Kangaroo Grass, Red-anthered Wallaby Grass and Weeping Grass and can be dominant over small areas; however, these areas are highly simplified through past grazing.
Survey effort	16 plots within the mine disturbance footprint.
Condition description	The community is in very poor to poor condition with a high cover of exotic pasture grasses and weeds. Some non-native vegetation contains pine plantation where it intersects state forests.
Characteristic species used for identification of PCT	N/A
Justification of evidence used to identify the PCT	N/A
Status	Commonwealth EPBC Act: not listed NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	N/A



Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

Pipeline

Existing environment

— Major road

- Minor road

Vehicular track

Watercourse/drainage line Vittoria State Forest

Plot location (EMM (2019); EnviroKey (2017/2018))

O Plot location (EnviroKey (2017/2018)) ::::: Exotic grassland (986.79 ha)

Plant community types

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands

High Medium Poor

PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion

Medium Poor

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

High

Medium Poor Other

mine development

McPhillamys Gold Project Biodiversity development assessment report Figure 4.1





f Vegetation integrity scores

Four PCTs occur in the mine disturbance footprint, with 9 native vegetation zones mapped and/or entered into the credit calculator to determine vegetation integrity scores. A summary of the vegetation integrity score for each vegetation zone is provided in Table 4.9.

Vegetation integrity scores for wooded vegetation varied between 26.4 and 55. The vegetation integrity score for PCT 766 was 17.4, reflective of the level of past disturbance to this PCT.

 Table 4.9
 Vegetation zone summary – mine development

PCT ID	PCT name	Condition	Ancillary	Extent in mine disturbance footprint (ha)	Vegetation integrity score
727	Broad-leaved Peppermint - Brittle Gum - Red		High	2.84	41.0
Stringybark dry open forest on the Highlands Bioregion (LA124)	Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124)	Mod- Good	Medium	35.54	45.4
			Poor	10.40	42.0
766	Carex sedgeland of the slopes and tablelands (LA130)	Mod- Good	Poor	3.04	17.4
951	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)	Mod- Good	Poor	32.73	28.3
1330	Yellow Box - Blakely's Red Gum grassy woodland on		High	1.47	39.4
	the tablelands, South Eastern Highlands Bioregion (LA276)	Mod-	Medium	18.96	55.0
	(= = : 0)	Good	Other	0.76	26.4
			Poor	24.65	43.2

ii Pipeline development

A total of 378 species (268 native and 110 exotic) were recorded across the plots carried out by OzArk and EMM. Vegetation in the west of the pipeline corridor traverses agricultural and forestry uses, and therefore is predominantly fragmented and with less species in the midstorey and understorey diversity. The eastern part of the pipeline also traverses agricultural and forestry uses, however intersects larger vegetated corridors with more structurally intact vegetation.

PCTs were identified through analysis of data collected during the site visits and were verified using floristic data collected during plot surveys. A total of six PCTs were identified within the amended pipeline corridor, summarised in Table 4.10, shown in Figure 4.2a - v and described in the following sections.

 Table 4.10
 Plant community types mapped within the amended pipeline disturbance footprint and management zones

Plant community type	Vegetation formation	Vegetation class	Southern option					Norther	n option	
			DIMZ (ha)	TRIMZ (ha)	WIMZ (ha)	Total (ha)	DIMZ (ha)	TRIMZ (ha)	WIMZ (ha)	Total (ha)
PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Grassy Woodlands	Southern Tableland Grassy Woodlands	9.80	7.57	10.24	27.6	7.13	5.80	8.00	20.93
PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Grassy Woodlands	Western Slopes Grassy Woodlands	2.36	1.99	2.65	7.00	2.37	2.00	2.66	7.04
PCT 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion	Dry Sclerophyll Forests (shrubby sub- formation)	Southern Tableland Dry Sclerophyll Forests	3.24	3.12	5.02	11.39	3.24	3.12	5.02	11.39
PCT 1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	Grassy Woodlands	Subalpine Woodlands	2.11	1.90	2.76	6.77	2.11	1.90	2.76	6.77
PCT 1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	Wet Sclerophyll Forests (shrubby sub- formation)	Southern Tableland Wet Sclerophyll Forests	0.96	1.53	2.73	5.22	0.96	1.53	2.73	5.22

 Table 4.10
 Plant community types mapped within the amended pipeline disturbance footprint and management zones

Plant community type Vegetation formation Vegetation o		Vegetation class	Southern option			Northern option				
			DIMZ (ha)	TRIMZ (ha)	WIMZ (ha)	Total (ha)	DIMZ (ha)	TRIMZ (ha)	WIMZ (ha)	Total (ha)
PCT 727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	(shrubby sub- formation)	Southern Tableland Dry Sclerophyll Forests	0.03	0.18	0.54	0.75	0.03	0.18	0.54	0.75
Total			18.5	16.29	23.94	58.73	15.84	14.53	21.71	52.1

a PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

PCT 1330 is best described as dry grassy woodland. PCT 1330 has been heavily grazed in the pipeline corridor. Areas of high to poor quality are distinguished largely by presence or absence of woody debris, and by the species composition. Table 4.11 provides a description of the vegetation zones attributed to this PCT.

Table 4.11 PCT 1330 vegetation zones 1-5 description

PCT ID	1330							
Common name	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlan Bioregion (LA276)							
Condition class	Vegetation zo	ne 1 – DNG						
	Vegetation zo	ne 2 – Fragme	nt					
	Vegetation zo	ne 3 – Intact						
	Vegetation zo	ne 4 – Shrubla	nd					
	Vegetation zo	ne 5 – Sparse						
Extent within pipeline disturbance footprint (inclusive of indirect impacts)	Vegetation zone	Orange	Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands		
	DNG	-	18.88 ha	10.21 ha	1.77 ha	-		
	Intact	-	0.76 ha	1.66 ha	0.85 ha	-		
	Shrubland	-	0.07 ha	0.07 ha	0.13 ha	-		
	Sparse	-	4.83 ha	4.65 ha	0.21 ha	-		
	Fragments	-	-	0.35 ha	0.11 ha	-		
	Total	-	24.54 ha	16.94 ha	3.07 ha	-		
Description	particularly th occasional sta In most areas Silver Wattle, Two exotic shi Blackberry cor The groundlay include <i>Phalar</i> Soft Brome, Pa	e 'Sparse' veg nds of Bundy, the midstorey Sifton Bush (<i>C</i> rub species oc mplex and Bria er in most are ris spp., Barley aspalum (<i>Pasp</i>	eas is dominated Grass (Hordeum alum dilatatum)	overstorey is contrina cunninghar ent. Where present Daphne Heathe fragmented or co-dominated leporinum), Gre , Catsear, Africar	-dominated by niana) and App ent, midstorey seth (Brachyloma vegetation zon I by exotic speciat Brome (Bron Lovegrass (Eron Lovegras) (Eron L	Yellow Box with le Box. species include a daphnoides). e, being ies such as nus diandrus), agrostis curvula),		
	Common Crowfoot (<i>Erodium cicutarium</i>), Ryegrass, Viper's Bugloss (<i>Echium vulgare</i>) and Smooth Catsear (<i>Hypochaeris glabra</i>). Native groundcover species include <i>Austrostipa nodosa</i> , Common Wheatgrass, Mat Spurge (<i>Euphorbia dallachyana</i>), Narrow-leaf Joyweed (<i>Alternanthera angustifolia</i>), Windmill Grass (<i>Chloris truncata</i>), Cotton Panic Grass (<i>Digitaria brownii</i>), Red Grass (<i>Bothriochloa macra</i>), Corkscrew Speargrass (<i>Austrostipa scabra</i>), Common Couch (<i>Cynodon dactylon</i>), Climbing Saltbush (<i>Einadia nutans</i>), Stinging Nettle (<i>Urtica incisa</i>), Spiny-headed Mat-rush (<i>Lomandra longifolia</i>) and Tall Sedge. Multiple other native and exotic groundlayer species are present in very low abundance.							

Table 4.11 PCT 1330 vegetation zones 1-5 description

Survey effort	Nine plots/transects within the pipeline disturbance footprint:					
	Vegetation zone 1 – DNG: one plot					
	Vegetation zone 2 – Fragment: one plot					
	Vegetation zone 3 – Intact: two plots					
	Vegetation zone 4 – Shrubland: one plot					
	Vegetation zone 5 – Sparse: four plots					
Condition description	Vegetation zone 1 – DNG: Across all sub-regions, the community is largely in Derived Native Grassland state due to a lack of both canopy and midstorey species and the presence of key characteristic groundlayer species. Remnant patches of PCT 1330 were recorded adjacent to mapped areas of DNG.					

Vegetation Zones 1-6 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands

mapped areas of DNG.

Vegetation zone 2 – Fragment: This vegetation zone comprises small patches of native canopy species and a groundlayer that is either largely exotic or of very low condition; ie

canopy species and a groundlayer that is either largely exotic or of very low condition; ie largely bare ground and occasional disturbance tolerant native species. Planted trees occur in this vegetation zone.

Vegetation zone 3 – Intact: This vegetation zone comprises moderate to high quality grassy woodland possessing both a native canopy and a native species dominated groundlayer. A native midstorey layer is present in some areas.

Vegetation zone 4 – Shrubland: This vegetation zone occurs in a derived native shrubland state due to a lack of canopy species and the presence of key characteristic groundlayer and midlayer species.

Vegetation zone 5 – Sparse: This vegetation zone comprises grassy woodland with a sparse canopy, possessing both a native canopy and a native groundlayer. A native midstorey layer is present in some areas.

Characteristic species used for identification of PCT

Bioregion (PCT 1330)

According to the NSW VIS Classification Version 2.1, the canopy layer species recorded in vegetation zones 2, 3 and 5 align with the dominant canopy species listed as characteristic of this PCT including Blakely's Red Gum, Yellow Box and Apple Box. Native midstorey was largely lacking among mapped areas of PCT 1330, although Silver Wattle was recorded in vegetation zone 3. However, the midstorey species listed for PCT 1330 under the NSW VIS Classification Version 2.1 are Peach Heath and Urn. These two species were not present along the pipeline corridor, even in ungrazed areas.

The description under the NSW VIS Classification Version 2.1 for PCT 1330 is brief and has few identifying ground layer species. This said, analysing the plot data against the key species in the PCT descriptions gives a match of 78% for PCT 1330.

Table 4.11 PCT 1330 vegetation zones 1-5 description

Vegetation Zones 1-6 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

to identify the PCT

Justification of evidence used Revision of vegetation mapping by EMM (2020) considered several closely related PCTs (277, 654 and 1330). This PCT was mapped as PCT 1330 (over PCT 277 or 654). Although the upper stratum species of Yellow Box and Apple Box closely match PCT 654:

- as the three PCTs under consideration have similar overstorey species, the overstorey composition cannot be used to identify the PCT conclusively on site;
- in the midstorey, no species are listed for PCT 654, while PCT 277 has Silver Wattle in the shrub storey (which is present on site). The midstorey species listed for PCT 1330 are Peach Heath and Urn Heath. These two species were not present at along the pipeline corridor, even in adjacent, ungrazed areas;
- the description of ground layer species for PCT 1330 is brief and has few identifying ground layer species. This said, analysing the plot data against the key species in the PCT descriptions gives a match of 78% for PCT 1330 versus 73% for PCT 277 (PCT 1330 provides: 33% canopy species, 100% midstorey species, 100% groundlayer species; PCT 277 provides: 56% canopy species, 100% midstorey species and 62% groundlayer species);
- the State-wide Vegetation Map (OEH 2018) maps PCT 1330 in the pipeline corridor.

As the PCT with the pipeline corridor shares greater alignment with key species (in the midstorey and ground layer) and the description of landscape and soils could fit any PCT, PCT 1330 was found to be a better fit based on alignment with regional mapping.

Table 4.11 PCT 1330 vegetation zones 1-5 description

Vegetation Zones 1-6 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

Status

PCT 1330 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion represents White Box Yellow Box Blakely's Red Gum Woodland listed under the BC Act as it:

- occurs on fertile soils in the western slopes of NSW;
- is dominated by Yellow Box, a representative canopy species;
- · has an understorey comprising grasses and herbs; and
- has a sparse shrub layer.

The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2010a) describes the listed community (under the EPBC Act) as a woodland or derived native grassland, characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, that is dominated by White Box, Yellow Box and/or Blakely's Red Gum. To be considered part of the listed community, remnants must also meet the condition thresholds outlined in DEH (2006):

- have a predominantly native understorey (i.e. more than 50% of the perennial ground layer must comprise native species); and
- be part of a patch 0.1 ha or greater in size; and
- contain 12 or more native understorey species (excluding grasses), including one or more identified important species; or
- be 2 ha or greater in size and have either natural regeneration of the overstorey species or an average of 20 or more mature trees per hectare.

The above criteria were applied to all patches of the PCT in the study area. The following vegetation zones were associated with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland as listed under the EPBC Act as described below:

- Fragments only patches 2 ha or greater in size, with a predominantly native understorey
 and with either natural regeneration of the overstorey species or an average of 20 or
 more mature trees per hectare.
- DNG only patches 0.1 ha or greater which contain 12 or more native understorey species (excluding grasses) including one or more identified important species; typically, in areas with low grazing intensity such as road reserves.
- Shrubland only patches 0.1 ha or greater which contain 12 or more native understorey species (excluding grasses) including one or more identified important species; typically found in roadside areas with a low to moderate level of previous soil disturbance.
- Intact all patches of this zone that are greater than 0.1 ha.

Estimate of percent cleared value of PCT across its distribution

95%



Photograph 4.5 Photograph of PCT - 1330 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion in a fragmented condition

b PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

PCT 277 is best described as dry grassy woodland. PCT 277 is largely in Intact or Moderate condition across the pipeline corridor with small patches of derived native grassland (DNG) recorded. Table 4.12 provides a description of the vegetation zones attributed to this PCT.

Table 4.12 PCT 277 vegetation zones 1-3 description

Vegetation Zones 1-3 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277)

	277								
Common name	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion								
Condition class	Vegetation zo	ne 1 – DNG							
	Vegetation zo	ne 2 – Intact							
	Vegetation zo	ne 3 – Moderate							
Extent within pipeline disturbance footprint (inclusive of indirect	Vegetation zone	Orange	Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands			
impacts)	DNG	1.60 ha	0.44 ha	0.48 ha	-	-			
	Intact	1.10 ha	-		-	-			
	Moderate	3.84 ha	0.02 ha	0.02 ha	-	-			
	Total	6.54 ha	0.46 ha	0.50 ha	-	-			
Description	The canopy is co-dominated by Yellow Box, Apple Box, Red Stringybark (<i>Eucalyptus macrorhyncha</i>) and Bundy. In some vegetation zones, the canopy is sparse or absent. The midstorey is largely absent. Three native shrub species occur occasionally within the moderate vegetation zone, being Tree Violet (<i>Melicytus dentatus</i>). Dolly Bush (<i>Cassinia aculeata</i>) and a Bush Pea (<i>Pultenaea microphylla</i>). A small amount of Hoary Guinea Flower (<i>Hibbertia obtusifolia</i>) were also observed. The groundlayer is co-dominated by native and exotic grass species. Dominant native species								
	are Crowloot	Eroaium sp.), vv	eeping Grass, Kang	garoo Grass (The	meda Australi				
	(<i>Rumex sp.</i>). V Dominant exo Canary Grass (Vallaby Grass, Co tic species are a <i>Phalaris minor</i>),	eeping Grass, Kang orkscrew Speargras Medic (<i>Medicago s</i> False Hairgrass (<i>Pe</i> <i>calendula</i>), Catsea	s. Red Grass and sp.), Rat's Tail Feath	Snowgrass. scue (<i>Vulpia m</i> des), <i>Phalaris</i> s	a), Dock nyuros), Lessei			
Survey effort	(<i>Rumex sp.</i>). V Dominant exo Canary Grass (Clover, Capew	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca	orkscrew Speargras Medic (<i>Medicago</i> s False Hairgrass (<i>Pe</i>	s. Red Grass and sp.), Rat's Tail Fe entaschistis airoid er and a clover (<i>T</i>	Snowgrass. scue (<i>Vulpia m</i> des), <i>Phalaris</i> s	a), Dock nyuros), Lesser			
Survey effort	(Rumex sp.). V Dominant exo Canary Grass (Clover, Capew Seven plots/tr	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca	orkscrew Speargras Medic (<i>Medicago s</i> False Hairgrass (<i>Pe calendula</i>), Catsea ne pipeline disturba	s. Red Grass and sp.), Rat's Tail Fe entaschistis airoid er and a clover (<i>T</i>	Snowgrass. scue (<i>Vulpia m</i> des), <i>Phalaris</i> s	a), Dock nyuros), Lesser			
Survey effort	(Rumex sp.). V Dominant exo Canary Grass (Clover, Capew Seven plots/tr • Vegetation	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca ansects within th	orkscrew Speargras Medic (<i>Medicago</i> s False Hairgrass (<i>Pe</i> <i>calendula</i>), Catsea ne pipeline disturba ne plot	s. Red Grass and sp.), Rat's Tail Fe entaschistis airoid er and a clover (<i>T</i>	Snowgrass. scue (<i>Vulpia m</i> des), <i>Phalaris</i> s	a), Dock nyuros), Lesser			
Survey effort	(Rumex sp.). V Dominant exo Canary Grass (Clover, Capew Seven plots/tr Vegetation Vegetation	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca ansects within the zone 1 – DNG: o	orkscrew Speargras Medic (<i>Medicago</i> s False Hairgrass (<i>Pe calendula</i>), Catsea ne pipeline disturba ne plot one plot	s. Red Grass and sp.), Rat's Tail Fe entaschistis airoid er and a clover (<i>T</i>	Snowgrass. scue (<i>Vulpia m</i> des), <i>Phalaris</i> s	a), Dock nyuros), Lessei			
	(Rumex sp.). V Dominant exo Canary Grass (Clover, Capew Seven plots/tr • Vegetation • Vegetation • Vegetation Vegetation zo Native Grassla presence of ke	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca ansects within the zone 1 – DNG: o zone 2 – Intact: zone 3 – Modera ne 1 – DNG: Acr nd is present du	orkscrew Speargras Medic (Medicago s False Hairgrass (Pecalendula), Catsea The pipeline disturbation plot The plot The plot The plots Th	s. Red Grass and sp.), Rat's Tail Ferntaschistis airoid rand a clover (Tance footprint:	Snowgrass. scue (Vulpia m des), Phalaris s rifolium sp.). amount of PCT storey species	a), Dock nyuros), Lesser spp., White 7 277 Derived and the			
Survey effort Condition description	(Rumex sp.). V Dominant exo Canary Grass (Clover, Capew Seven plots/tr • Vegetation • Vegetation • Vegetation Vegetation zo Native Grassla presence of ke recorded adjac	Vallaby Grass, Co tic species are a Phalaris minor), eed (Arctotheca ansects within the zone 1 – DNG: o zone 2 – Intact: zone 3 – Modera ne 1 – DNG: Acr nd is present du by characteristic cent to mapped ne 2 – Intact: A s	orkscrew Speargras Medic (Medicago s False Hairgrass (Pecalendula), Catsea The pipeline disturbation plot The plot The plot The plots Th	s. Red Grass and sp.), Rat's Tail Ferntaschistis airoid ar and a clover (Tance footprint: regions, a small a canopy and mids es. Remnant patce tact woodland on the sp.)	Snowgrass. scue (Vulpia m des), Phalaris s rifolium sp.). amount of PCT storey species hes of PCT 27	a), Dock nyuros), Lesser spp., White 7 277 Derived and the 7 were ling key canop			

Table 4.12 PCT 277 vegetation zones 1-3 description

Vegetation Zones 1-3 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277)

Characteristic species used for identification of PCT

According to the NSW VIS Classification Version 2.1, the canopy, mid and ground-storey layer species recorded in vegetation zones 3 align with the dominant canopy species listed as characteristic of this PCT including Yellow Box and Blakely's Red Gum. Native midstorey was largely lacking among mapped areas of PCT 277, however one midstorey species listed for PCT 277 under the NSW VIS Classification Version 2.1, Hoary Guinea Flower was observed. A second key characteristic midstorey species, Silver Wattle, was not observed within mapped PCT 277. Although the ground-story description under the NSW VIS Classification Version 2.1 for PCT 277 is vast, a number of key groundlayer species matched including Kangaroo Grass, Snow Grass and Red Grass.

Justification of evidence used to identify the PCT

Revision of vegetation mapping by EMM (2020) considered several closely related PCTs (1330, 654 and 277). This PCT was mapped as PCT 277 (over PCT 1330 or 654):

- as the three PCTs under consideration have similar overstorey species, the overstorey composition cannot be used to identify the PCT conclusively on site;
- in the midstorey, no species are listed for PCT 654, while PCT 277 has Hoary Guinea Flower in the shrub storey (which is present on site). The midstorey species listed for PCT 1330 are Peach Heath and Urn Heath. These two species were not present at McPhillamys; and
- although the ground-storey description under the NSW VIS Classification Version 2.1 for PCT 277 is vast, several key groundlayer species matched the PCT, including Kangaroo Grass, Snow Grass and Red Grass.

As the PCT on site shares greater alignment with key species (in the mid and ground layer) and the description of landscape and soils could fit any PCT, PCT 277 was found to be a better fit based on alignment with regional mapping.

Table 4.12 PCT 277 vegetation zones 1-3 description

Vegetation Zones 1-3 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion (PCT 277)

Status

PCT 277 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion represents White Box Yellow Box Blakely's Red Gum Woodland listed under the BC Act as it:

- occurs on fertile soils in the western slopes of NSW;
- is dominated by Yellow Box, a representative canopy species;
- · has an understorey comprising grasses and herbs; and
- has a sparse shrub layer.

The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2010a) describes the listed community (under the EPBC Act) as a woodland or derived native grassland, characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, that is dominated by White Box, Yellow Box and/or Blakely's Red Gum. To be considered part of the listed community, remnants must also:

- have a predominantly native understorey (i.e. more than 50% of the perennial ground layer must comprise native species); and
- be 0.1 ha or greater in size and contain 12 or more native understorey species (excluding grasses), including one or more identified important species; or
- be 2 ha or greater in size and have either natural regeneration of the overstorey species or an average of 20 or more mature trees per ha.

The above criteria were applied to all patches of the PCT in the study area. The following vegetation zones were associated with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland as listed under the EPBC Act as described below:

- Moderate—patches 0.1 ha or greater with a diverse native understorey (ie 12 or more
 native understorey species (excluding grasses) including one or more identified important
 species), and patches greater than 2 ha that do not have a diverse native understorey but
 have either natural regeneration of the overstorey species or an average of 20 or more
 mature trees per hectare.
- Intact all patches of this zone that are greater than 0.1 ha.

Estimate of percent cleared 95% value of PCT across its distribution



Photograph 4.6 PCT 277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion in a derived native grassland condition

c PCT 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion

PCT 1093 is best described as low, dry open woodland. PCT 1093 is largely in Intact or Shrubland condition in the pipeline corridor with small patches of DNG and Fragment condition vegetation recorded. Table 4.13 provides a description of the vegetation zones attributed to this PCT.

Table 4.13 PCT 1093 vegetation zones 1-4 description

Vegetation Zones 1-4 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion (PCT 1093)							
PCT ID	1093						
Common name	Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion						
Condition class	Vegetation zone 1 – Fragment						
	Vegetation zone 2 – Intact						
	Vegetation zone 3 – Shrubland						
	Vegetation zone 4 - DNG						

Table 4.13 PCT 1093 vegetation zones 1-4 description

Vegetation Zones 1-4 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion (PCT 1093)

Extent within pipeline disturbance footprint (inclusive of indirect	Vegetation zone	Orange	Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands				
impacts)	DNG	-	-	-	0.22 ha	-				
	Fragment	-	-	-	0.35 ha	0.89 ha				
	Intact	0.54 ha	-	-	0.95 ha	5.28 ha				
	Shrubland	-	-	-	0.58 ha	2.57 ha				
	Total	0.54 ha	-	-	2.10 ha	8.75 ha				
Description			Gum, Broad-leaved Pep d Red Stringybark. In so							
	The midstorey is dominated by native species comprising Sifton Bush, Green Wattle (<i>Acacia deanei</i>), Pink Five-Corners (<i>Styphelia triflora</i>), Honeypots (<i>Acrotriche serrulata</i>), Small Red-leaved Wattle (<i>Acacia nana</i>), Cherry Ballart (<i>Exocarpos cupressiformis</i>), Daphne Heath, Cough Bush (<i>Cassinia laevis</i>) and Tea-tree (<i>Leptospermum sp.</i>) and Native Cranberry (<i>Astroloma humifusum</i>). A small amount of Blackberry complex was observed.									
	The groundlayer varies from predominantly native to co-domination with exotic grasses. Dominant native species are Spiny-headed Mat-rush, Wattle Matt-rush (<i>Lomandra filiformis</i>), <i>Poa sp., Snowgrass</i> and a Lovegrass (<i>Eragrostis sp.</i>), Red-anther Wallaby Grass (<i>Rytidosperma pallidum</i>), Forest Hedgehog Grass (<i>Echinopogon ovatus</i>), Snowgrass, Corkscrew speargrass, Kidney Weed (<i>Dichondra repens</i>), Red Grass, Kangaroo Grass and Purple Wiregrass (<i>Aristida ramosa</i>). Dominant exotic species are <i>Phalaris sp.</i> and Common Crowfoot.									
Survey effort	Seven plots/transects within the pipeline disturbance footprint:									
	Vegetation zone 1 – Fragment: two plots									
	Vegetation zone 2 – Intact: six plots									
	 Vegetation zone 3 – Shrubland: three plots Vegetation zone 4 – DNG: one plot 									
Condition description	Vegetation zone 1 – Fragment: A small portion of PCT 1093 is mapped as fragmented due to the occurrence of numerous small patches of native woodland interspersed with exotic groundlayer species. These patches are too small to be mapped as intact and too large to be considered exotic.									
	Vegetation zone 2 – Intact: The majority of PCT 1093 within the pipeline corridor was mapped as being intact due to the occurrence of a native canopy, native groundlayer, and optionally a native midstorey.									
	Vegetation zone 3 – Shrubland: Part of PCT 1093 was mapped as Shrubland due to the absence of canopy species, the dominance of key midstorey species and the presence of key groundlayer									
	Species. Vegetation zone 4 – DNG: Across the Hill End IBRA sub-regions, a small amount of PCT 1093 Derived Native Grassland is present due to a lack of both canopy and midstorey species and the presence of key characteristic groundlayer species. Remnant patches of PCT 1093 were recorded adjacent to mapped areas of DNG.									

Table 4.13 PCT 1093 vegetation zones 1-4 description

61%

Estimate of percent cleared value of PCT across its distribution

Vegetation Zones 1-4 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion (PCT 1093)

Characteristic species	According to the NSW VIS Classification Version 2.1, the canopy, mid and groundstorey layer
used for identification of PCT	species recorded across the vegetation zones aligned with the dominant species listed as characteristic of this PCT. Key characteristic canopy species included Red Stringybark, Brittle gum, Broad-leaved peppermint and Bundy and were present amongst the majority of mapped PCT 1093. Although the description of midstorey and groundstorey species for PCT 1093 is brief and has few identifying species, two key species were identified with mapped areas of PCT 1093 being Daphne Heath and Wattle Matt-rush.
Justification of evidence used to identify the PCT	Revision of vegetation mapping by EMM (2020) considered several closely related PCTs (1330, 1390 and 277). This PCT was mapped as PCT 1093 (over PCT 1330 or 277):
	 Canopy species observed were unique and key identifying species (over PCT 1330 or 277) for PCT 1093 including Red Stringybark and Brittle gum.
	• in the midstorey, no species are listed for PCT 654, while PCT 1093 has Daphne Heath in the shrub storey (which is present on site). The midstorey species listed for PCT 1330 are Peach Heath and Urn Heath. These two species were not present at McPhillamys; and
	 although the groundstorey description under the NSW VIS Classification Version 2.1 for PCT 1093 is brief, and has few identifying species, on key identifying species, Wattle Matt-rush, was observed in areas mapped as PCT 1093.
	As the PCT on site shares greater alignment with key species (predominantly in canopy layer) and the description of landscape and soils could fit any PCT, PCT 1093 was found to be a better fit based on alignment with regional mapping.
Status	Commonwealth EPBC Act: not listed
	NSW BC Act: not listed



Photograph 4.7 PCT 1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands; South Eastern Highlands Bioregion in an intact confition

d PCT 1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion

PCT 1191 is a dry open woodland. PCT 1191 varies in condition from DNG to intact patches. Table 4.14 provides a description of the vegetation zones attributed to this PCT.

Table 4.14 PCT 1191 vegetation zones 1-5 description

Vegetation Zones 1-5 Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion (PCT 1191)

PCT ID 1191

Common name Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South

Eastern Highlands Bioregion

Condition class Vegetation zone 1 – DNG

Vegetation zone 2 - Fragments Vegetation zone 3 - Intact Vegetation zone 4 - Shrubland Vegetation zone 5 - Sparse

Table 4.14 PCT 1191 vegetation zones 1-5 description

Vegetation Zones 1-5 Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion (PCT 1191)

Extent within pipeline disturbance footprint (inclusive of indirect	Vegetation zone	Orange	Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands				
impacts)	DNG	-	-	-	-	0.34 ha				
	Fragment	-	-	-	0.12 ha	0.27 ha				
	Intact	-	-	-	0.60 ha	3.61 ha				
	Shrubland	-	-	-	-	1.25 ha				
	Sparse	-	-	-	0.32 ha	0.26 ha				
	Total	-	-	-	1.03 ha	5.74 ha				
Description	The canopy ranges from absent to intact. Where a canopy is present it contains one or a combination of Snow Gum (<i>Eucalyptus pauciflora</i>), Ribbon Gum. Silver Wattle, Black Sally (<i>Eucalyptus stellulata</i>) and Inland Scribbly Gum (<i>Eucalyptus rossii</i>), Red Stringybark, Mountain Gum (<i>Eucalyptus dalrympleana</i>) or Blackwood (<i>Acacia melanoxylon</i>). The midstorey ranges from absent to dense cover. Where a midstorey is present, it contains									
	Blackthorn (<i>Bursaria spinosa</i>), Native Raspberry (<i>Rubus parvifolius</i>), Cough Bush, Myrtle Teatree (<i>Leptospermum myrtifolium</i>), Sifton Bush, a Bitter-pea (<i>Daviesia sp.</i>), and Hoary Guinea Flower.									
	The groundlayer is largely dominated by native grasses and forbs but contains exotic grasses in some areas. It contains Snowgrass, Plantain (<i>Plantago</i> sp.), River Tussock. The dominant native groundstorey species comprises River Tussock and groundstorey is dominated by the exotic species <i>Phalaris sp.</i>									
	The groundstorey is largely dominated by native species including Red-anther Wallaby Grass, Corkscrew speargrass, Native Geranium (<i>Geranium solanderi</i>), Snowgrass, Bidgee-widgee (<i>Acaena novae-zelandiae</i>), Sheep's Burr (<i>Acaena echinata</i>), Plantain, River Tussock, Kangaroo Grass and Snowgrass, Long-leaved Wallaby Grass (<i>Rytidosperma longifolium</i>), Weeping Grass. Small patches of exotic Blackberry complex were recorded. Exotic species with the highest cover and abundance are Cocksfoot, Smooth Catsear and White Clover.									
Survey effort	Seven plots/transects within the pipeline disturbance footprint: • Vegetation zone 1 – DNG: one plot									
	 Vegetation zo 	ŭ	•							
	Vegetation zo		•							
	Vegetation zoVegetation zo		•							
	- vegetation 20	ile 2 – Spaise.	στις μιστ							

Table 4.14 PCT 1191 vegetation zones 1-5 description

Vegetation Zones 1-5 Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern **Highlands Bioregion (PCT 1191)**

Condition description

Vegetation zone 1 - DNG: Across the Capertee Uplands IBRA sub-regions, a small amount of PCT 1191 Derived Native Grassland is present due to the predominate lack of both canopy and midstorey species and the presence of key characteristic groundlayer species. Remnant patches of PCT 1191 were recorded adjacent to mapped areas of DNG.

Vegetation zone 2 - Fragments: A small portion of PCT 1191 is mapped as fragmented due to the occurrence of numerous small patches of native woodland interspersed with exotic groundlayer species. These patches are too small to be mapped as intact and too large to be considered exotic.

Vegetation zone 3 - Intact: The majority of PCT 1191 within the pipeline corridor was mapped as being Intact due to the occurrence of a native canopy, native groundlayer, and optionally a native midstorey.

Vegetation zone 4 – Shrubland: A small proportion of PCT 1093 was mapped as Shrubland due to the absence of canopy species, the dominance of key midstorey species and the presence of key groundlayer species.

Vegetation zone 5 - Sparse: A small proportion of PCT 1093 was mapped as Shrubland due to the presence of sparse canopy species, as well as a native groundlayer and optionally a native midstorey. The canopy species are too sparse to be considered woodland, and too dense to be considered grassland. The distinction is valuable for delineating threatened species potential habitat.

Characteristic species used for identification of PCT

According to the NSW VIS Classification Version 2.1, the canopy, mid and groundstorey layer species recorded across the vegetation zones aligned with the dominant species listed as characteristic of this PCT.

Key characteristic canopy species included Snow Gum, Black Sally and Ribbon Gum and were present amongst the majority of mapped PCT 1191.

Few characteristic midstorey and groundlayer species were recorded. Of note are the key characteristic species Silver Wattle and Weeping Grass, which were common in the mid and ground layers respectively.

Justification of evidence Revision of vegetation mapping by EMM (2020) considered two closely related PCTs (1191 and used to identify the PCT 1197). This PCT was mapped as PCT 1191 (over PCT 1197) because:

> Canopy species observed were unique and the key identifying species for PCT 1191 (over PCT 1197) included black Sally and Ribbon Gum.

Note that midstorey and groundstorey species observed fitted both PCT 1191 and 1197 and thus could not be used a key-distinguishing factors.

As the PCT on site shares greater alignment with key species (predominantly in canopy layer) and the description of landscape and soils could fit any PCT, PCT 1191 was found to be a better fit based on alignment with regional mapping.

Status

NSW BC Act: PCT 1191 represents Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions as it:

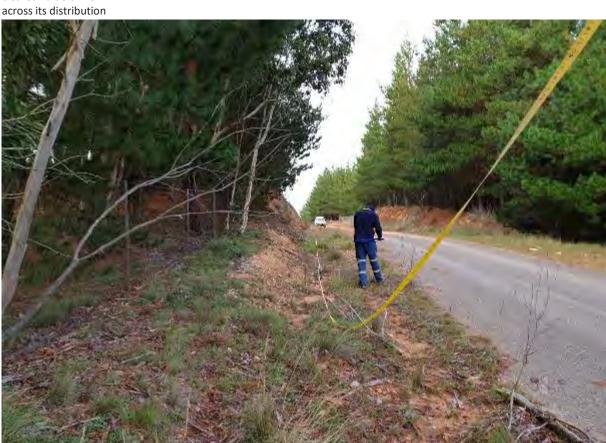
- · occurs within the area bounded by the eastern fall of the Great Dividing Range between Golspie in the north and Majors Creek in the south, Marulan in the east as Marulan and Carwoola in the west.
- ranges in structure from woodland to low open woodland.
- is characterised by a sparse to very sparse tree stratum dominated by E. pauciflora either in monospecific stands or with E. rubida as a co-dominant.
- has an understorey comprised of native herbs and grasses.

Commonwealth EPBC Act: not listed

Table 4.14 PCT 1191 vegetation zones 1-5 description

Vegetation Zones 1-5 Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion (PCT 1191)

Estimate of percent 95% cleared value of PCT



Photograph 4.8 PCT 1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion in a sparse condition

e PCT 1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion

PCT 1197 is tall, moist forest with highly variable condition. PCT 1197 is largely in intact condition, however it was also recorded in DNG, shrubland and sparse condition. Table 4.15 provides a description of the vegetation zones attributed to this PCT.

Table 4.15 PCT 1197 vegetation zones 1-4 description

Vegetation Zones 1-4 Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion (PCT 1197)

PCT ID	1197								
Common name	Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion								
Condition class	Vegetation zone 1 – DNG Vegetation zone 2 – Intact Vegetation zone 3 – Shrubland Vegetation zone 4 – Sparse								
Extent within pipeline disturbance footprint (inclusive of indirect impacts)	Vegetation zone	Orange	Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands			
	DNG	-	-	-	0.16 ha	-			
	Intact	-	-	-	4.43 ha	-			
	Shrubland	-	-	-	0.35 ha	-			
	Sparse	-	-	-	0.28 ha	-			
	Total	-	-	-	5.22 ha	-			
Description	The canopy varies in density from absent to intact. Where a canopy is present, it contains Mountain Gum, Inland Scribbly Gum, Snow Gum, Blackwood and Silver Wattle, Broad-leave Peppermint and Yellow Box. A small number of exotic Radiata Pine were also observed where the route traverses pine forest.								
	The midstorey varies from absent to dense. Where a native midstorey is present, it contains Sifton Bush, Hoary Guinea Flower, <i>Acrotriche spp.</i> , Dwarf Cherry (<i>Exocarpos strictus</i>). <i>Dillwynia spp.</i> , Narrow Leaf Bitter-pea (<i>Daviesia corymbosa</i>). Patches of exotic Blackberry complex and English Broom (<i>Cytisus scoparius</i>) were also observed.								
	The groundlayer is largely dominated by the native species and contains <i>Poa spp.</i> , Wallaby grass and Weeping Grass. Bracken (<i>Pteridium esculentum</i>), Snowgrass, Spiny-headed Matrush and River Tussock. Kangaroo Grass, Weeping Grass, River Tussock and a Wallaby Grass								
	Exotic species in the groundlayer comprise Catsear, Scarlet Pimpernel (<i>Lysimachia arvensis</i>), <i>Phalaris spp.</i> And Lamb's Tongues (<i>Plantago lanceolata</i>).								
Survey effort	Seven plots/transects within the pipeline disturbance footprint:								
	 Vegetation: 	zone 1 – DNG: o	ne plot						
	_	zone 2 – Intact: 1							
	_	zone 3 – Shrubla							
	Vegetation:	zone 4 – Sparse:	one plot						

PCT 1197 vegetation zones 1-4 description **Table 4.15**

Vegetation Zones 1-4 Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion (PCT 1197)

Vegetation zone 1 - DNG: Across the Hill End IBRA sub-regions, a small amount of PCT 1197 Derived Native Grassland is present due to the predominate lack of both canopy and midstorey species and the presence of key characteristic groundlayer species. Remnant patches of PCT 1197 were recorded adjacent to mapped areas of DNG.

Vegetation zone 2 - Intact: The majority of PCT 1191 comprises moderate to high quality grassy woodland possessing both a native canopy and a native groundlayer, and optionally a native midstorey layer.

Vegetation zone 3 – Shrubland: A small proportion of PCT 1197 was mapped as Shrubland due to the absence of canopy species, the dominance of key midstorey species and the presence of key groundlayer species.

Vegetation zone 4 – Sparse: A small proportion of PCT 1197 was mapped as Shrubland due to the presence of sparse canopy species, as well as a native groundlayer and optionally a native midstorey. The canopy species are too sparse to be considered woodland, and too dense to be considered grassland. The distinction is valuable for delineating threatened species potential habitat.

Characteristic species used for identification of PCT

According to the NSW VIS Classification Version 2.1, the canopy, mid and groundstorey layer species recorded across the vegetation zones aligned with the dominant species listed as characteristic of this PCT. Key characteristic canopy species present in the impact area included Snow Gum and Mountain Gum. Although the description of mid-storey species had few identifying species, all four identifying species were observed in vegetation mapped as being PCT 1197 including Silver wattle, Blackwood, Dwarf Cherry and Hoary Guinea Flower. A number of key groundstorey species were also recorded including Weeping grass, Hoary Guinea Flower and Snowgrass.

to identify the PCT

Justification of evidence used Revision of vegetation mapping by EMM (2020) considered two closely related PCTs (1191 and 1197). This PCT was mapped as PCT 1197 (over PCT 1191):

- Canopy species associations observed were unique and a key identifying aspect for PCT 1197 (over PCT 1191) including both Snow Gum and Mountain Gum;
- in the midstorey, the presence of all four key identifying species for PCT 1197 were observed: and
- several key groundstorey species for PCT 1197 were observed including Weeping grass, Hoary Guinea Flower and Snowgrass

As the PCT on site shares greater alignment with key species (predominantly in canopy layer) and the description of landscape and soils could fit any PCT, PCT 1197 was found to be a better fit based on alignment with regional mapping.

Status

NSW BC Act: PCT 1197 represents Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions as it:

- occurs within the area bounded by the eastern fall of the Great Dividing Range between Golspie in the north and Majors Creek in the south, Marulan in the east as Marulan and Carwoola in the west.
- ranges in structure from woodland to low open woodland.
- is characterised by a sparse to very sparse tree stratum dominated by E. pauciflora either in monospecific stands or with E. rubida as a co-dominant.
- has an understorey comprised of native herbs and grasses.

Commonwealth EPBC Act: not listed

Estimate of percent cleared value of PCT across its distribution



Photograph 4.9 PCT 1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion in a shrubland condition

f PCT 727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion

PCT 727 is a tall forest with a shrubby understorey. PCT 727 varies from Intact to Shrubland condition in the pipeline corridor. Table 4.16 provides a description of the vegetation zones attributed to this PCT.

Table 4.16 PCT 727 vegetation zones 1- 2 description

Vegetation Zones 1-2 Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (PCT 727)

PCT ID	727										
Common name		Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion Vegetation zone 1 – Intact									
Condition class	Vegetation zone 1 – Intact Vegetation zone 2 – Shrubland										
Extent within pipeline disturbance footprint (inclusive of indirect impacts)	Vegetation Orange zone		Bathurst (southern option)	Bathurst (northern option)	Hill End	Capertee Uplands					
	Intact	-	-	-	0.29 ha	-					
	Shrubland	-	-	-	0.46 ha	-					
	Total	-	-	-	0.75 ha	-					
Description	The canopy is contains several native species including Brown Barrel (<i>Eucalyptus fastigata</i>), Brittle Gum, Broad-leaved Peppermint, Blackwood and Mountain Gum. Some exotic Radiata Pine was also observed.										
	The midstorey is largely dominated by native species including Broad-leaved Hickory (<i>Acacia falciformis</i>), Tall Everlasting (<i>Coronidium elatum</i>), Dolly Bush, Broad-leaved Hickory, Hoary Guinea Flower and Common Beard-heath (<i>Leucopogon virgatus</i>). Patches of exotic Blackberry complex and English Broom were also recorded.										
	The groundstorey is largely dominated by native species including Bracken, Weeping Grass, Spiny-headed Mat-rush, Snowgrass, Button Everlasting (<i>Coronidium scorpioides</i>) and Redanther Wallaby Grass. Few exotic groundstorey species were observed.										
Survey effort	Four plots/transects within the pipeline disturbance footprint:										
	Vegetation zone 1 – Intact: two plots										
	Vegetation zone 2 – Shrubland: two plots										
Condition description	Vegetation zone 1 – Intact: The community comprises moderate to high quality grassy woodland possessing both a native canopy and a native groundlayer, and optionally a native midstorey layer.										
	Vegetation zone 2 – Shrubland: The community is largely in a derived native shrubland state due to a lack of canopy species and the presence of key characteristic groundlayer and midlayer species.										
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy, mid and groundstorey layer species recorded across the vegetation zones aligned with the dominant species listed as characteristic of this PCT. Key characteristic canopy species included Broad-leaved Peppermint and Brittle Gum. These two species were present amongst the majority of mapped PCT 727. Although the description of mid-storey species had few identifying species Broad-leaved Hickory was recorded across vegetation mapped as PCT 727, a key midstorey species. Hoary Guinea Flower, Red-anther Wallaby Grass and Snowgrass are key groundstorey species identified across PCT 727.										

Table 4.16 PCT 727 vegetation zones 1- 2 description

Vegetation Zones 1-2 Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern **Highlands Bioregion (PCT 727)**

to identify the PCT

Justification of evidence used Revision of vegetation mapping by EMM (2020) considered PCT 727 unique from other mapped PCTs within the pipeline corridor:

- Canopy species observed were unique and the key identifying species for PCT 727 included Broad-leaved Peppermint and Brittle Gum; and
- midstorey and groundstorey species observed fitted both PCT 727

As the PCT on site shares greater alignment with key species (predominantly in canopy layer) and the description of landscape and soils could fit any PCT, PCT 727 was found to be a better fit based on alignment with regional mapping.

Status

Commonwealth EPBC Act: not listed

NSW BC Act: not listed

Estimate of percent cleared value of PCT across its distribution



Photograph 4.10 PCT 727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion in an intact condition

g Non-native vegetation

The main components of non-native vegetation are areas of pine forest and exotic grassland which are dissected several times along the length of the pipeline. Most of the pine forests are present on the eastern side of the pipeline, which becomes dominated with agricultural land as it moves to the west. Exotic grasslands were in a highly disturbed state, meaning that they could not be reliably assigned to a PCT. Table 4.17 provides a description of non-native vegetation in the pipeline corridor.

 Table 4.17
 Non-native vegetation description

Non-native vegetation

PCT ID	N/A
Common name	Non-native vegetation
Condition class	N/A
Extent within pipeline disturbance footprint	140.78 ha (all IBRA subregions with northern option) 160.64 ha (all IBRA subregions with southern option)
Description	The overstorey and midstorey in these areas is absent, except for scattered paddock trees. Areas of open grassland are dominated by exotic grasses such Sheep Sorrel, Patterson's Curse, St. Johns Wart, Smooth Catsear and Blackberry. In some areas, native grasses such as Kangaroo Grass, Red-anthered Wallaby Grass and Weeping Grass and can be dominant over small areas; however, these areas are highly simplified through past grazing.
Survey effort	16 plots
Condition description	The community is in very poor to poor condition with a high cover of exotic pasture grasses and weeds. Areas of non-native vegetation are dominated by pine trees where the pipeline intersects state forests.
Characteristic species used for identification of PCT	N/A
Justification of evidence used to identify the PCT	N/A
Status	Commonwealth EPBC Act: not listed NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	N/A



Photograph 4.11 Photograph of non-native vegetation

h Vegetation integrity scores

Six PCTs occur in the pipeline corridor, with 23 vegetation zones mapped and or entered into the credit calculator (varying with occurrence across the IBRA subregions) to determine vegetation integrity scores. A summary of the vegetation integrity score for each vegetation zone is provided in Table 4.18.

VI scores for intact vegetation zones were typically high and varied between 51.3 and 71.8. Intact zones of PCT 1330 and 277 recorded were lower, ranging from 19.2 to 27.8. Shrubland zones had typically higher VI scores, ranging from 44 to 51.2, with a lower VI score (28.2) recorded for PCT 1197.

Sparse vegetation zones had low VI scores ranging from 20.1 to 26.8, with a lower score (3.4) recorded for PCT 1191. Fragments had moderate (31.6) to high (60.9) VI scores, with a lower score recorded for PCT 1330. DNG zones varied from low (3.5 for PCT 277) to moderate (43.4 for PCT 1093).

Comparatively lower VI scores were recorded in some grassy woodland vegetation zones (PCT 1330_Intact, 277_Intact, 1197_Shrubland, 1330_Sparse, 277_DNG) may be indicative of the drought conditions experienced when earlier plots were undertaken in 2018/2019. Some grass species and forbs may not have been present during these dry conditions, compared with when vegetation zones were revised for this report, following higher rainfall.

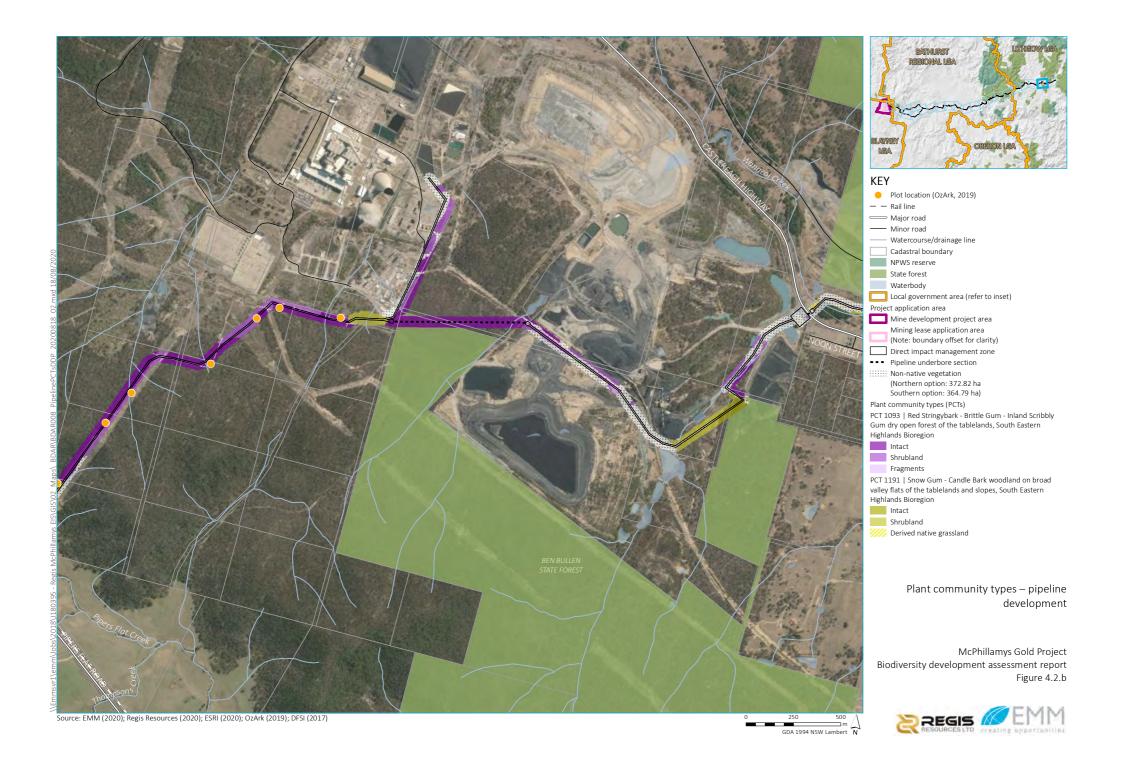
 Table 4.18
 Vegetation zone summary – pipeline development

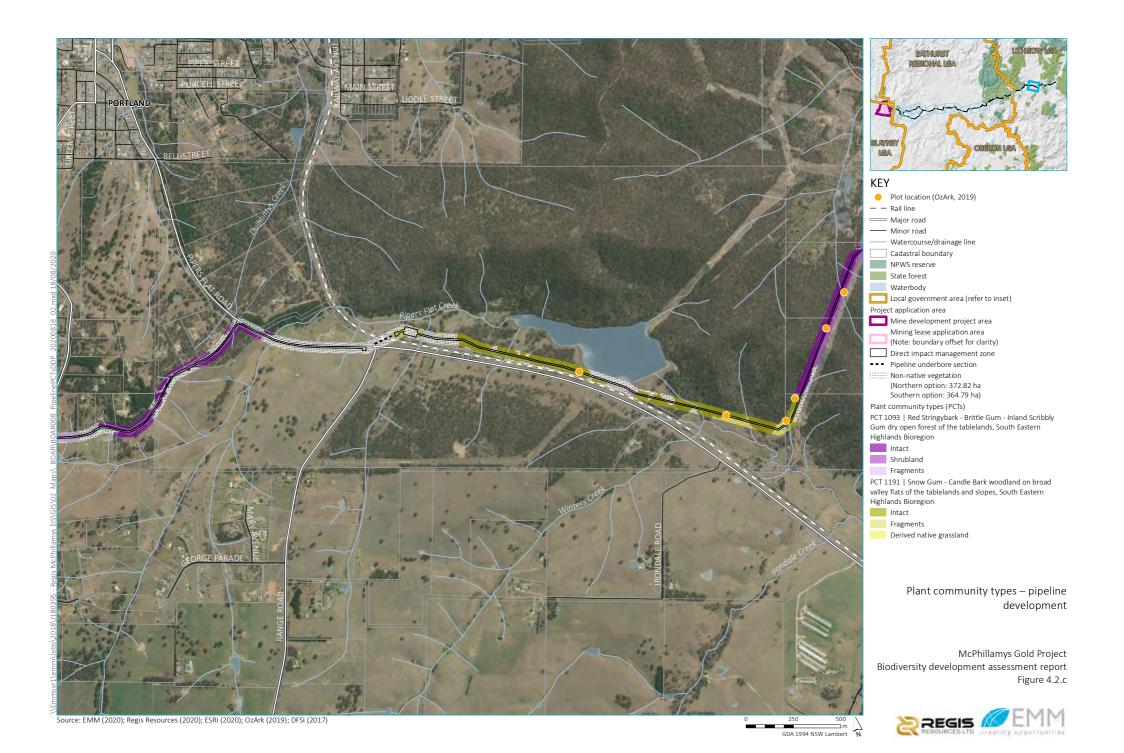
PCT ID	PCT name	Vegetation zone	Orange IBRA subregion		Bathurst IBRA subregion (southern option)		Bathurst IBRA subregion (northern option)		Hill End IBRA subregion		Capertee Uplands IBRA subregion	
			Extent in pipeline disturbance footprint (ha)	Vegetation integrity score	Extent in pipeline disturbance footprint (ha)	Vegetation integrity score	Extent in pipeline disturbance footprint (ha)	Vegetation integrity score	Extent in pipeline disturbance footprint (ha)	Vegetation integrity score	Extent in pipeline disturbance footprint (ha)	Vegetation integrity score
277	Blakely's Red Gum -	DNG	1.60	3.5	0.44	3.5	0.48	3.5	-	-	-	-
	Yellow Box grassy tall woodland of the NSW	Intact	1.10	27.8	-	-		-	-	-	-	-
	South Western Slopes Bioregion	Moderate	3.84	31.6	0.02	31.6	0.02	31.6	-	-	-	-
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124)	Intact	-	-	-	-	-	-	0.29	79.0	-	-
		Shrubland	-	-	-	-	-	-	0.46	44.1	-	-
1093	Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	DNG	-	-	-	-	-	-	0.22	43.4	-	-
		Intact	0.54	77.1	-	-	-	-	0.35	77.1	0.89	77.1
		Fragments	-	-	-	-	-	-	0.95	60.9	5.28	60.9
		Shrubland	-	-	-	-	-	-	0.58	44.0	2.57	44
1191	Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion		-	-	-	-	-	-	-	-	0.34	32.6

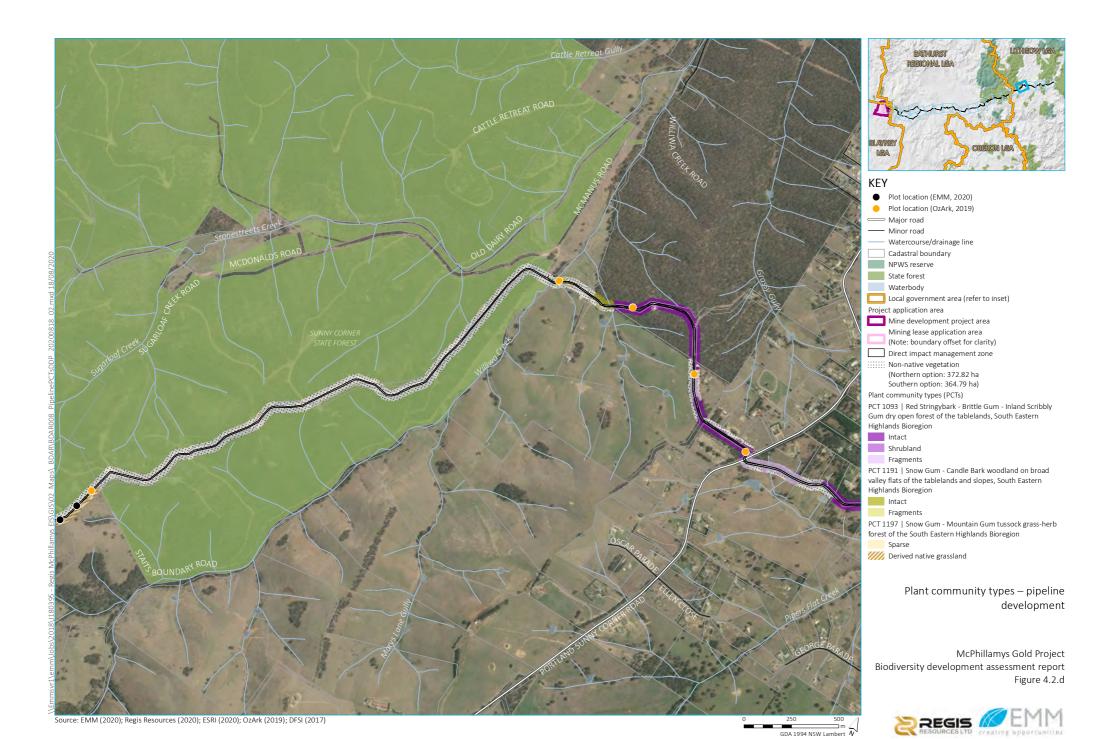
 Table 4.18
 Vegetation zone summary – pipeline development

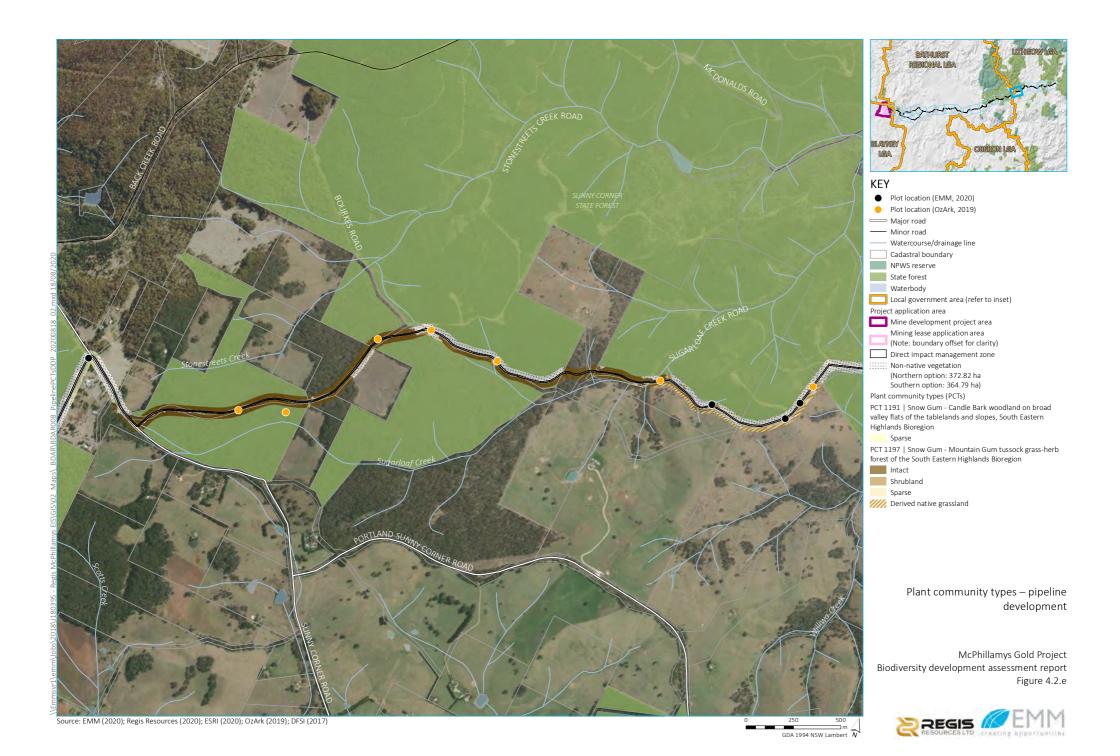
PCT PCT name ID	Vegetation zone	Orange IBRA subregion		Bathurst IBRA subregion (southern option)		Bathurst IBRA subregion (northern option)		Hill End IBRA subregion		Capertee Uplands IBRA subregion	
		Extent in pipeline disturbance footprint (ha)	Vegetation integrity score	Extent in pipeline disturbance footprint (ha)	Vegetation integrity score						
	Intact	-	-	-	-	-	-	0.12	51.3	0.27	51.3
	Sparse	-	-	-	-	-	-	0.60	3.4	3.61	3.4
	Fragments	-	-	-	-	-	-	-	31.6	1.25	31.6
	Shrubland	-	-	-	-	-	-	0.32	-	0.26	64.5
1197 Snow Gum - Mountain	DNG	-						0.16	20.4		
Gum tussock grass-herb forest of the South	Intact	-	-	-	-	-	-	4.43	71.8	-	-
Eastern Highlands	Sparse	-	-	-	-	-	-	0.35	26.8	-	-
Bioregion	Shrubland	-	-	-	-	-	-	0.28	28.2	-	-
1330 Yellow Box - Blakely's	DNG	-	-	18.88	17.4	10.21	17.4	1.77	17.4	-	-
Red Gum grassy woodland on the	Intact	-	-	0.76	19.2	1.66	19.2	0.85	19.2	-	-
tablelands, South	Shrubland	-	-	0.07	51.2	0.07	51.2	0.13	51.2	-	-
Eastern Highlands Bioregion (LA276)	Sparse	-	-	4.83	20.1	4.65	20.1	0.21	20.1	-	-
	Fragments	-	-	-	-	0.35	3.8	0.11	3.8	-	-







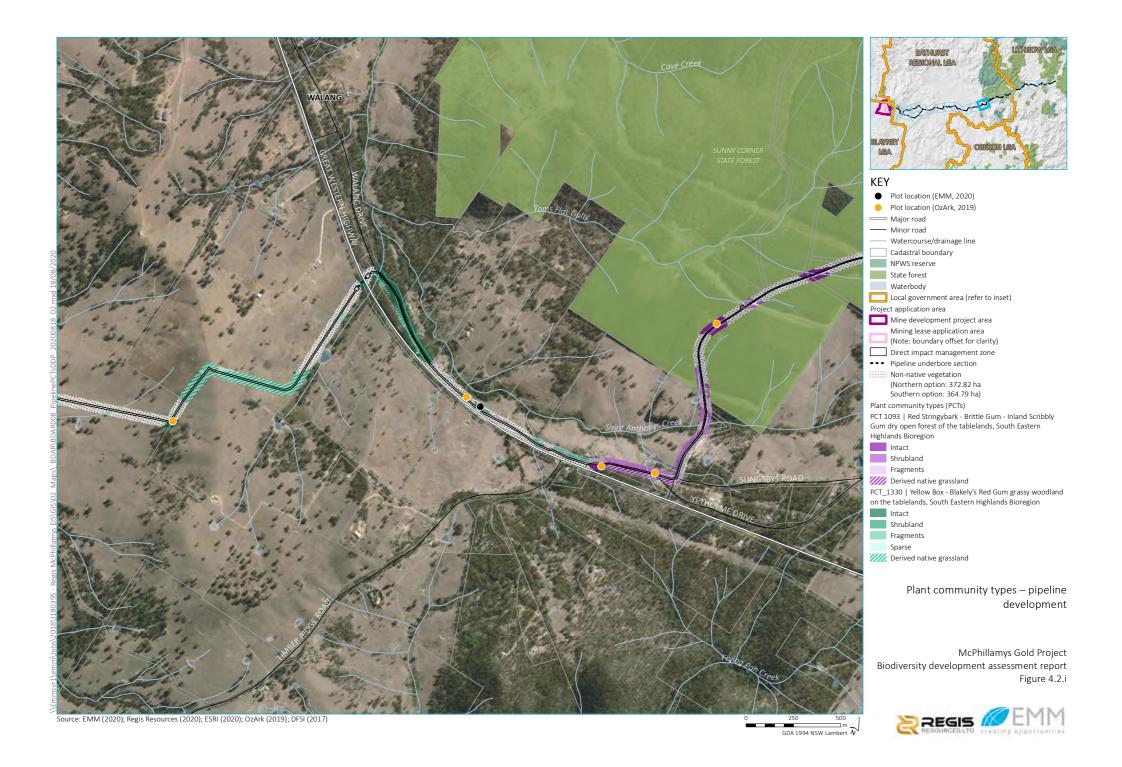


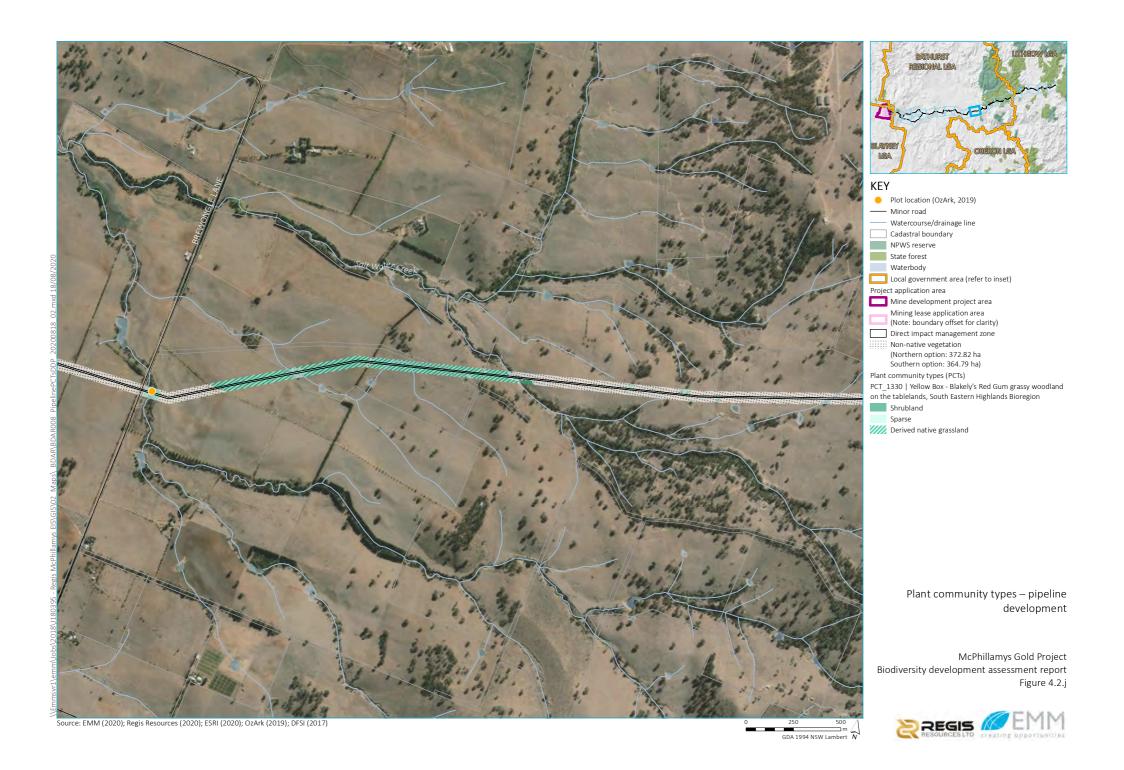


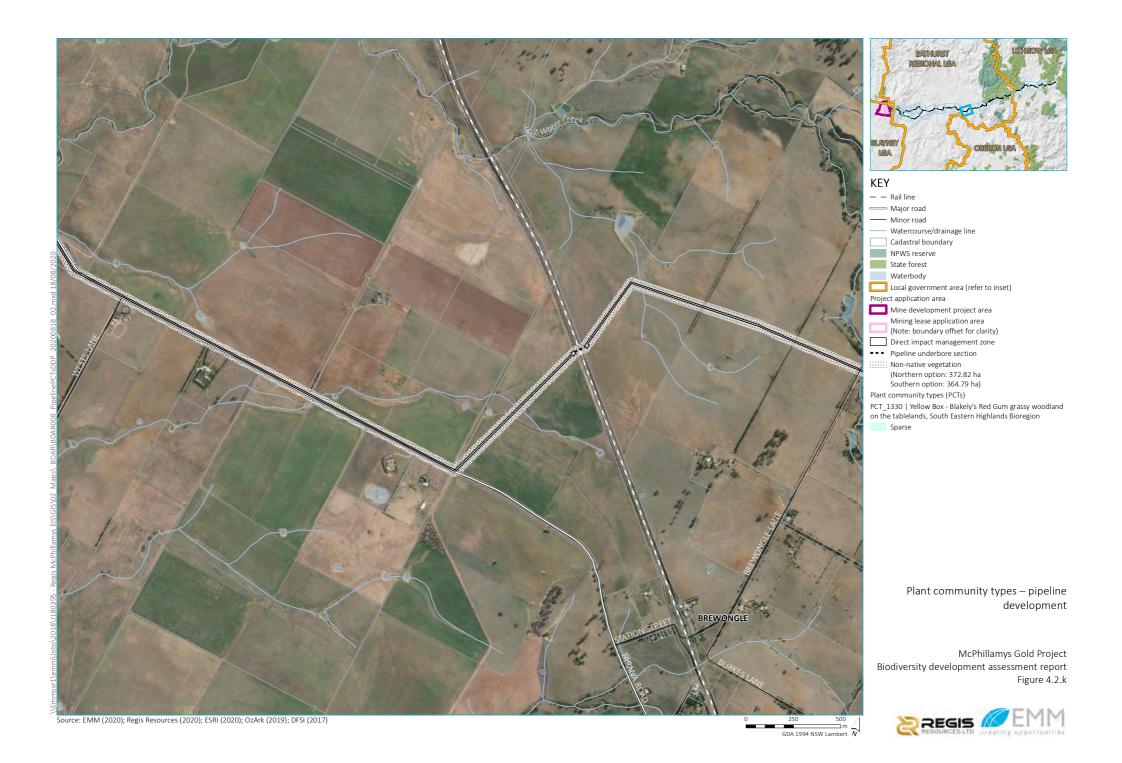


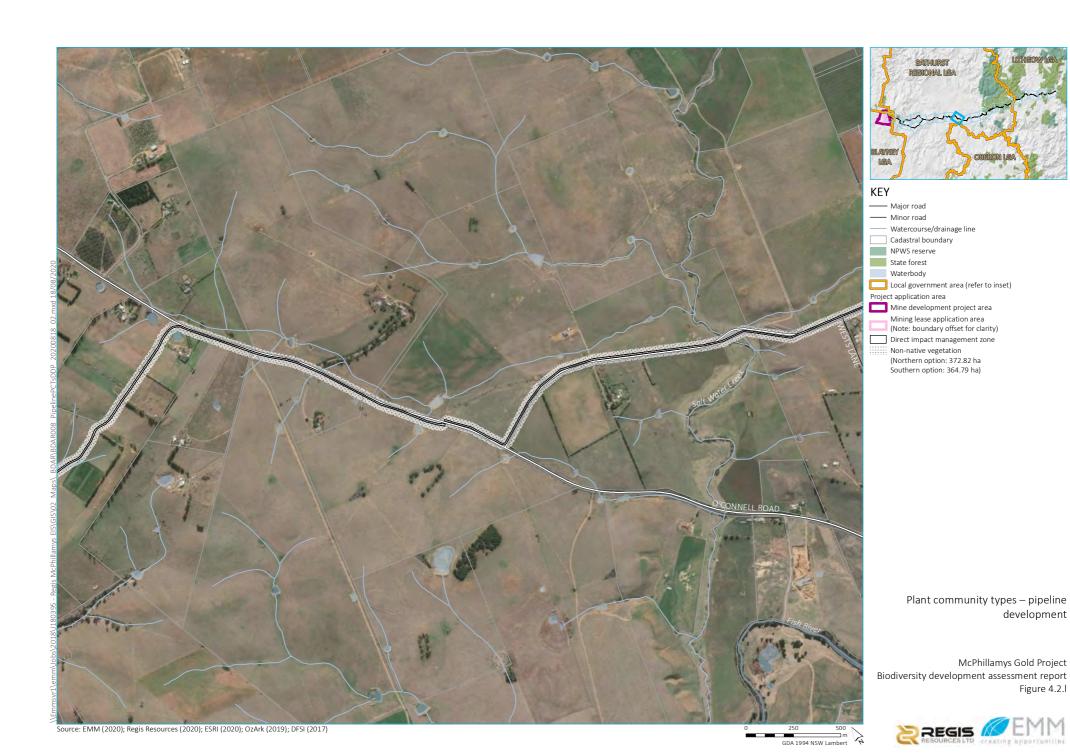


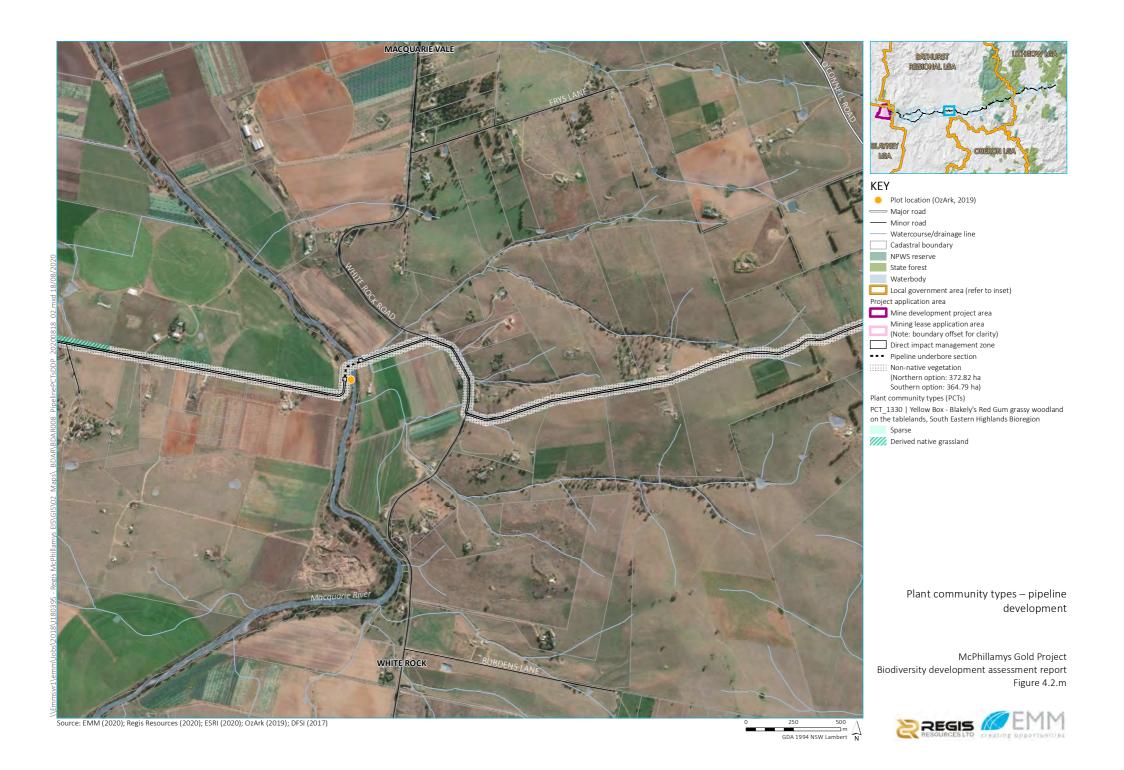


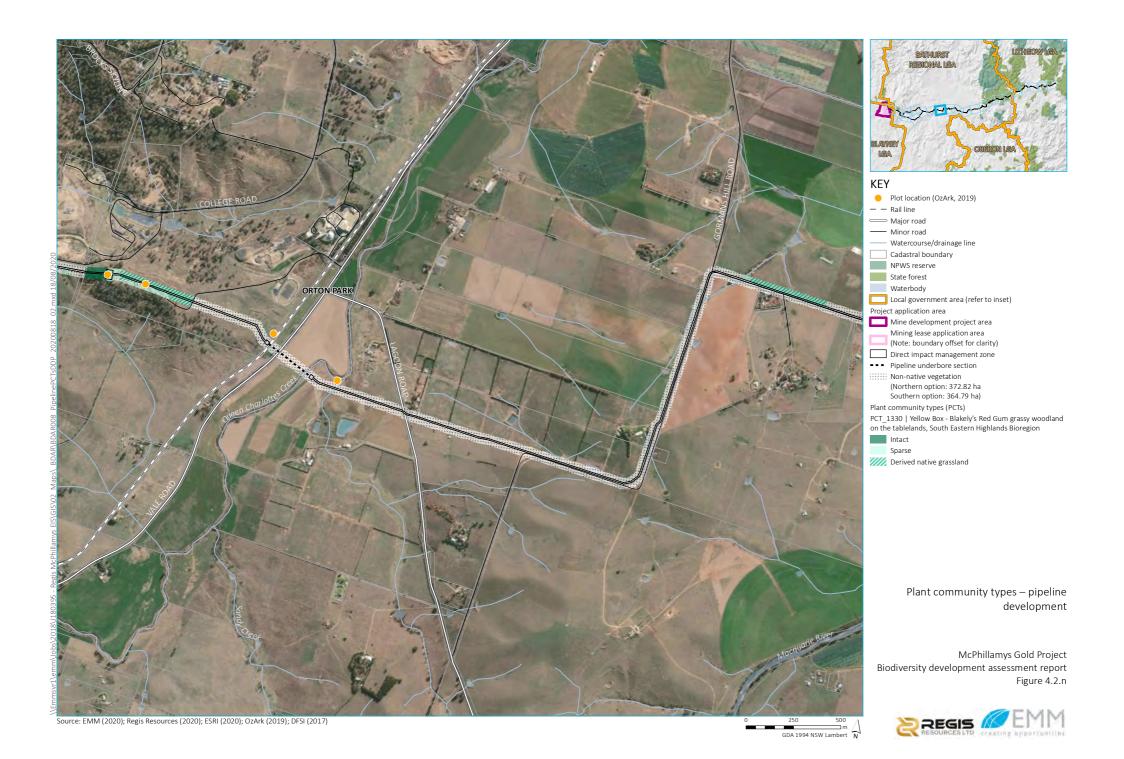


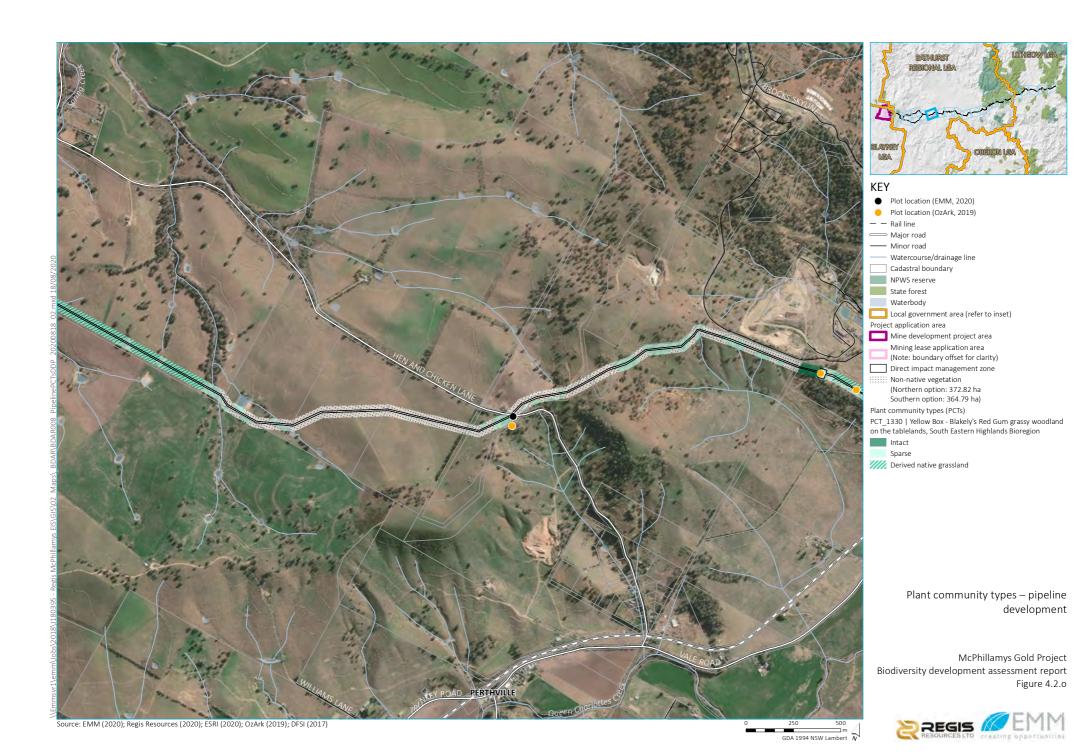


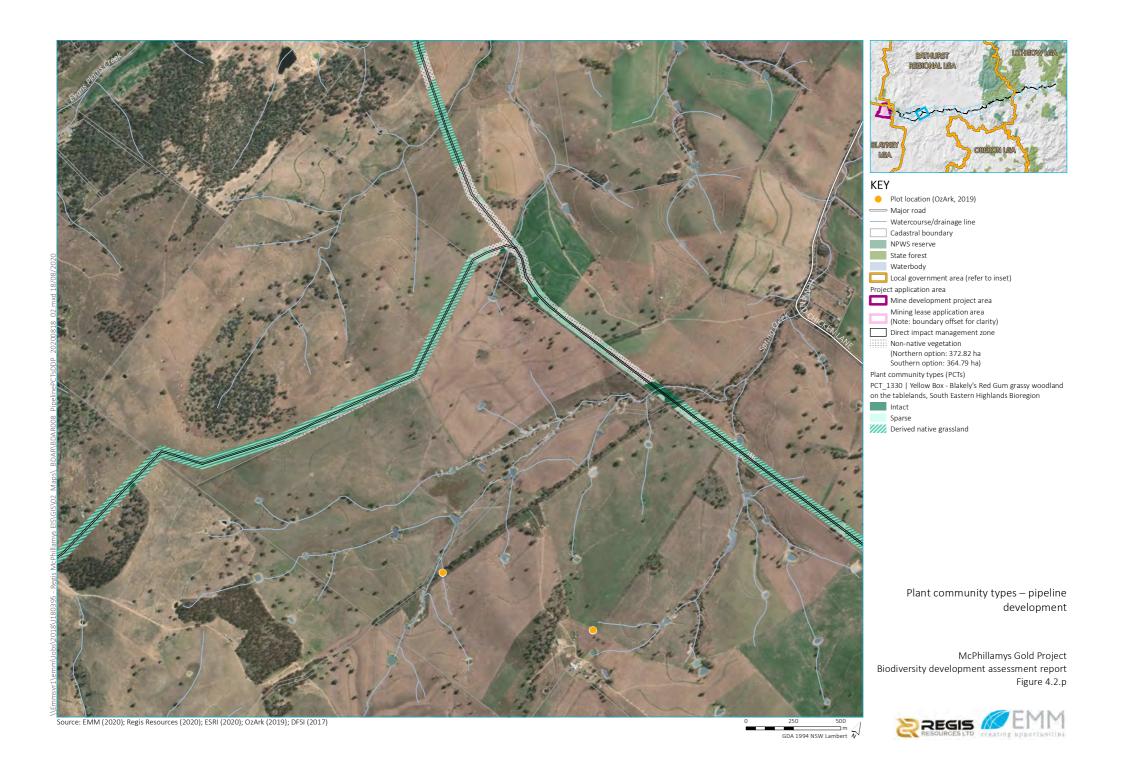


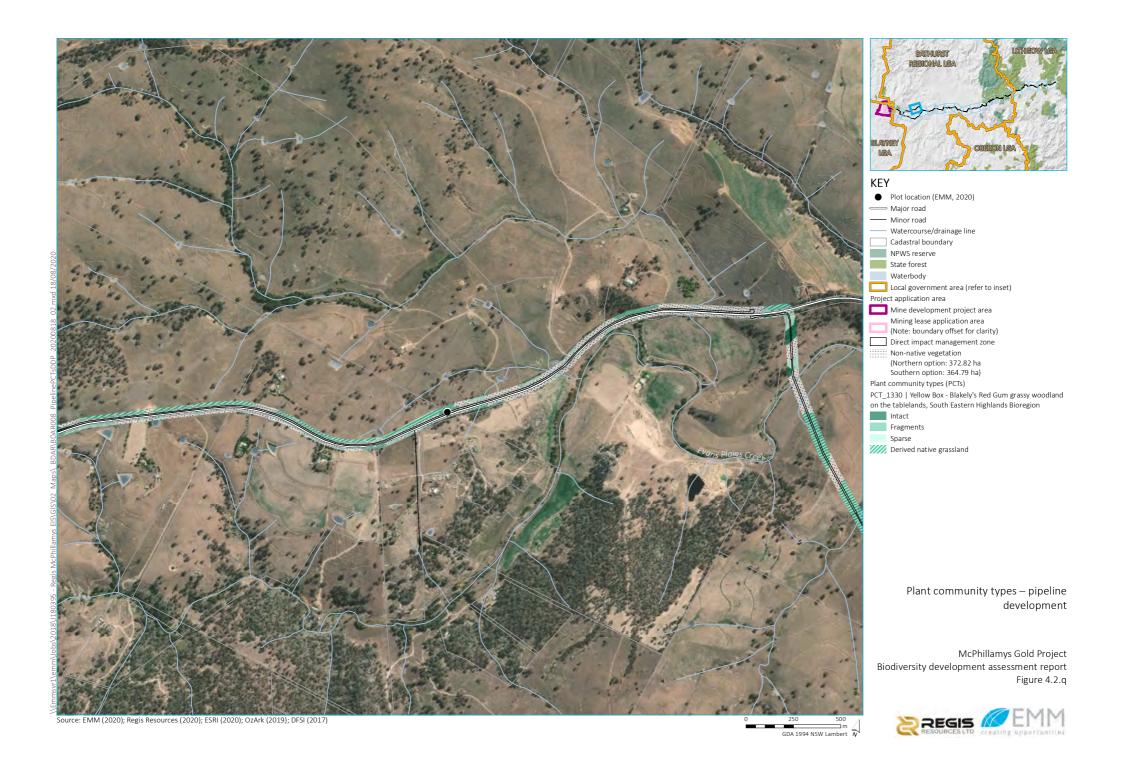




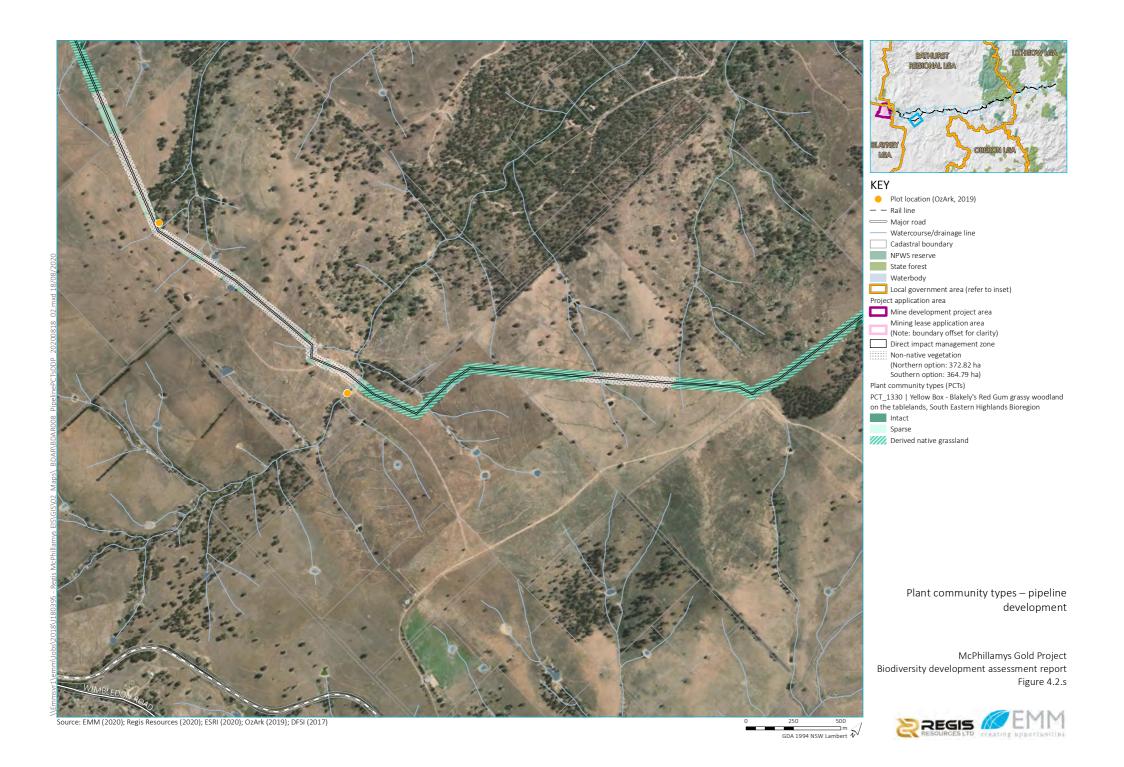




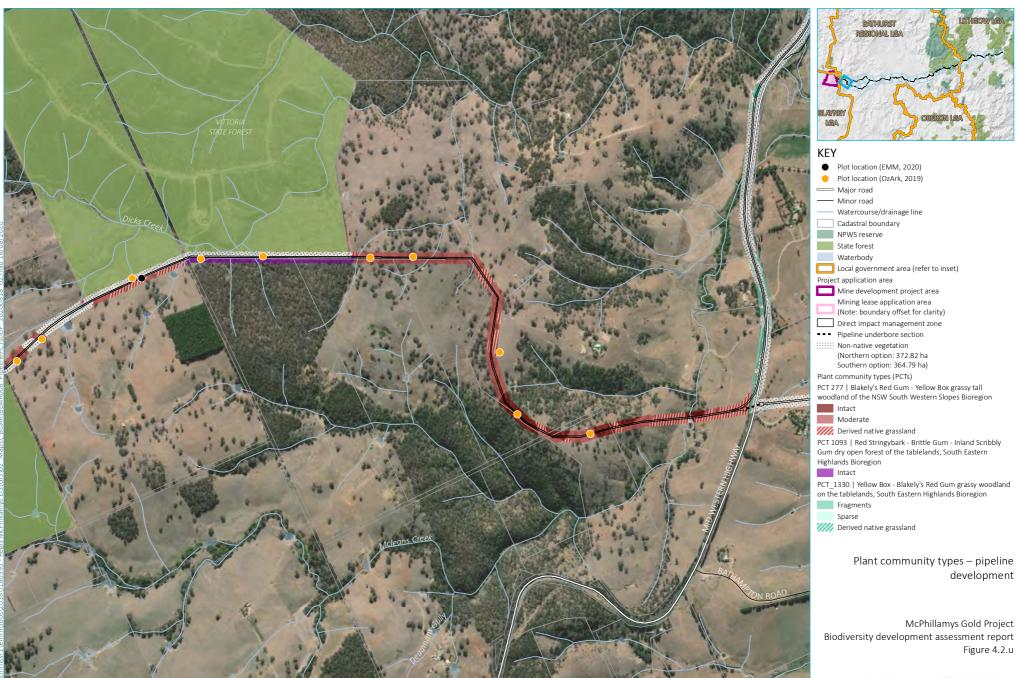








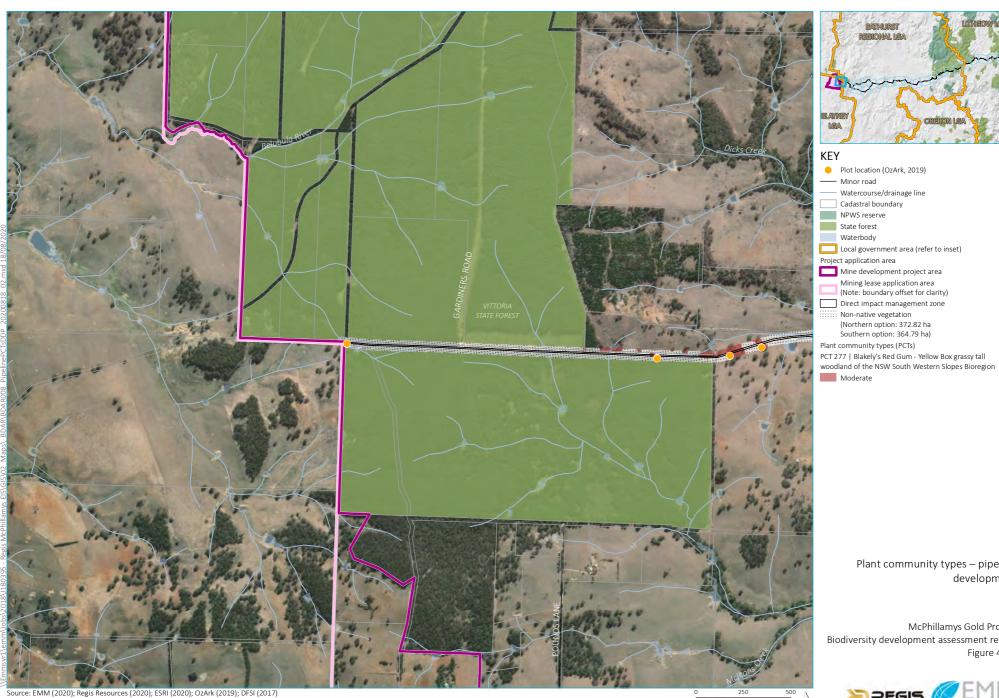


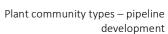


Source: EMM (2020); Regis Resources (2020); ESRI (2020); OzArk (2019); DFSI (2017)

REGIS EMM

GDA 1994 NSW Lambert





McPhillamys Gold Project Biodiversity development assessment report Figure 4.2.v



GDA 1994 NSW Lambert N

5 Threatened species

5.1 Methods

5.1.1 Identification of threatened species for assessment

i Ecosystem credit species

Predicted species for further assessment were identified in accordance with Step 1 to 2 (Section 6.4.1.2 to 6.4.1.16) of the BAM.

ii Species credit species

Candidate species for further assessment were identified in accordance with Step 1 to 2 (Section 6.4.1.2 to 6.4.1.16) of the BAM.

5.1.2 Habitat assessment

In accordance with Step 3 (Section 6.4.1.17 to 6.4.1.19 of the BAM), a field assessment of habitat constraints and microhabitats was undertaken in the field to determine the suitability of habitat within the project application area for:

- predicted species (ecosystem credit species associated with recorded PCTs, predicted by the Biodiversity Assessment Method Calculator (BAMC));
- candidate species (species credit species associated with specific geographic and landscape feature constraints); and
- species predicted to occur by the EPBC Act Protected Matters Search Tool.

i Ecosystem credit species

Twenty-nine ecosystem credit species were predicted for the mine development, while 37 species were predicted for the pipeline development (Section 5.2.2). In accordance with the BAM, ecosystem credit species do not require targeted survey, and therefore their presence was assumed where suitable habitat was present.

ii Species credit species

A list of candidate species requiring targeted surveys (Section 5.1.3) was generated. These candidate species are described in the following sections.

a Mine development

Four candidate threatened flora species were assessed for the mine development, comprising:

- Acacia meiantha;
- Black Gum (Eucalyptus aggregata);
- Silky Swainson-pea (Swainsona sericea); and

• Small Purple-pea (Swainsona recta).

Twelve candidate threatened fauna species were assessed for the mine development, comprising:

- Barking Owl (Ninox connivens);
- Brush-tailed Phascogale (Phascogale tapoatafa);
- Bush Stone-curlew (Burhinus grallarius);
- Eastern Pygmy Possum (Cercartetus nanus);
- Gang-gang Cockatoo (Callocephalon fimbriatum);
- Koala (Phascolarctos cinereus);
- Little Eagle (Hieraeetus morphnoides);
- Pink-tailed Worm Lizard (Aprasia parapulchella);
- Powerful Owl (Ninox strenua);
- Southern Myotis (Myotis macropus);
- Squirrel Glider (Petaurus norfolcensis); and
- White-bellied Sea-eagle (Haliaeetus leucogaster).

b Pipeline development

Fifteen candidate threatened flora species were assessed for the pipeline development, comprising:

- Acacia meiantha;
- Austral Toadflax (Thesium australe);
- Basalt Peppercress (Lepidium hyssopifolium);
- Black Gum;
- Bynoe's Wattle (Acacia bynoeana);
- Capertee Stringybark (E. cannonii);
- Clandulla Geebung (Persoonia marginata);
- Flockton Wattle (Acacia floctoniae);
- Grevillea divaricata;
- Robertson's Peppermint (Eucalyptus robertsonii subsp. hemispherica);
- Silky Swainson-pea (Swainsona sericea);

- Silver-leaved Stringybark (*E. pulverulenta*);
- Small Purple-pea;
- Tarengo Leek Orchid (Prasophyllum petilum); and
- Veronica blakelyi.

Fifteen candidate threatened fauna species were assessed in total for the pipeline development, comprising:

- Barking Owl;
- Bathurst Copper Butterfly (Paralucia spinifera);
- Booroolong Frog (Litoria booroolongensis);
- Brush-tailed Phascogale;
- Brush-tailed Rock Wallaby (Petrogale penicillata);
- Bush Stone-curlew;
- Eastern Pygmy Possum;
- Gang-gang Cockatoo;
- Koala;
- Large-eared Pied Bat (Chalinolobus dwyeri);
- Little Eagle;
- Masked Owl (Tyto novaehollandiae);
- Pink-tailed Worm Lizard;
- Powerful Owl; and
- Squirrel Glider.

Not all candidate species were predicted or assessed in each IBRA subregion. Rather, species are present in one or more IBRA subregions, with a separate assessment conducted for each.

5.1.3 Targeted candidate species surveys

i Mine development – flora

Initial targeted threatened flora surveys were carried out by EnviroKey in 2013 during peak detection periods (spring). Threatened flora searches were undertaken in the following survey periods:

• 9 - 14 September 2013 targeting Small Purple-pea;

- 23 24 October 2013 targeting Small Purple-pea and Hoary Sunray;
- 6 7 November 2013 targeting Hoary Sunray; and
- 20 26 November 2013 targeting Hoary Sunray.

Surveys were undertaken by walking transects (either random meanders or line transects) through patches of potentially suitable vegetation by experienced personnel (EnviroKey 2017, Figure 5.1)

Further targeted flora surveys were conducted from 18-22 February 2019 in accordance with OEH *Guide to surveying threatened plants* (OEH 2020b) using transects spaced at 10 m intervals (Figure 5.1). These surveys primarily targeted the Hoary Sunray. Vegetation communities which were mapped as having a High and Medium ancillary code were targeted as they were considered to have the most potential of the targeted species being present.

EMM provided correspondence to BCD on 11 February 2019 seeking confirmation regarding EMM's proposed approach to survey for the Small Purple-Pea. BCD responded on 5 March 2019 stating that targeted surveys had been conducted for Small Purple-pea in the spring of 2013, with adequate coverage of the following PCTs:

- PCT 1330 Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion; and
- PCT 727 Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest on the South Eastern Highlands Bioregion.

BCD stated they were satisfied with the survey effort conducted to date in the above listed PCTs. However, they noted that no transects were conducted in the northernmost part of the mine disturbance footprint in PCT 1298 – Wet tussock grasslands of cold air drainage areas of the tablelands (re-classified by EMM to PCT 766 – Carex sedgeland of the slopes and tablelands). It was noted this area contains suitable habitat for the Silky Swainson-pea. BCD advised that the exclusion of species within this PCT will need to be fully justified in the BDAR. In this regard, and to address the feedback provided by BCD, targeted surveys of Silky Swainson-pea were conducted in PCT 766 on 10 September 2019. The area was traversed via thirty-three transects spaced ten metres apart (Figure 5.1).

ii Mine development – fauna

Initial targeted fauna surveys were conducted by EnviroKey in 2013 and 2014, over six discrete sessions each five days long:

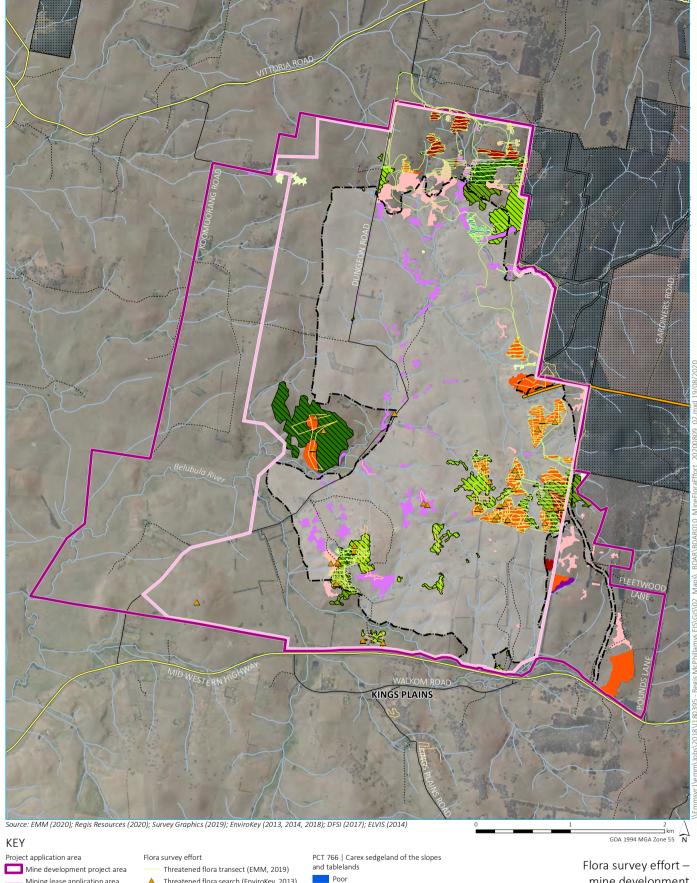
- 21 25 May 2013;
- 9 14 September 2013;
- 23 24 October 2013;
- 6 7 November 2013;
- 20 26 November 2013; and
- 24 30 March 2014.

Fauna surveys consisted of habitat assessments, bird surveys (Regent Honeyeater) including diurnal surveys (Gang-gang Cockatoo and White-bellied Sea-eagle), funnel traps (small terrestrial fauna), Elliot trapping (Eastern Pygmy-possum and Squirrel Glider), echolocation call recording (or Anabat, for Microchiropteran bats), camera trapping (Eastern Pygmy-possum), call playback (Masked Owl, Barking Owl, Squirrel Glider, Bush Stone Curlew and Koala), nocturnal searches and spotlighting (Squirrel Glider and Koala), reptile searches and tile-grid surveys (Pink-tailed Worm Lizard), frog searches (herpetological surveys), track and scat searches (Koala) (EnviroKey 2017). General surveys were also completed including rapid assessments of riparian condition (RARC) and platypus surveys.

Further targeted fauna surveys were undertaken by EMM from 18 to 22 February 2019 to ensure surveys had been undertaken in accordance with NSW (DEC 2004, DECC 2009) and Commonwealth (DEWHA 2010a, 2010b, 2010c, 2011a, 2011b) guidelines. Survey methods using included cameras, Elliott trapping, Koala SAT surveys and nocturnal transects.

A targeted survey was also completed for the Powerful Owl (*Ninox strenua*) over three days and three nights between 27 and 29 August 2019. Diurnal surveys to identify suitable hollows were conducted by meandering searches in PCT's 727 and 951, which are considered suitable to support breeding habitat for the species. Hollows identified during diurnal surveys were also surveyed after dark using call playback.

Fauna survey methods are described further below and shown on Figure 5.2.



Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure)
disturbance footprint

⊃ Pipeline

Existing environment

— Major road - Minor road

····· Vehicular track

Watercourse/drainage line :::::: Vittoria State Forest

△ Threatened flora search (EnviroKey, 2013) Threatened flora transect (EnviroKey, 2013)

Box Gum Woodland TEC (EMM, 2019)

Plant community types

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion

High

Medium Poor

PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion

Medium Poor

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

High Medium Poor

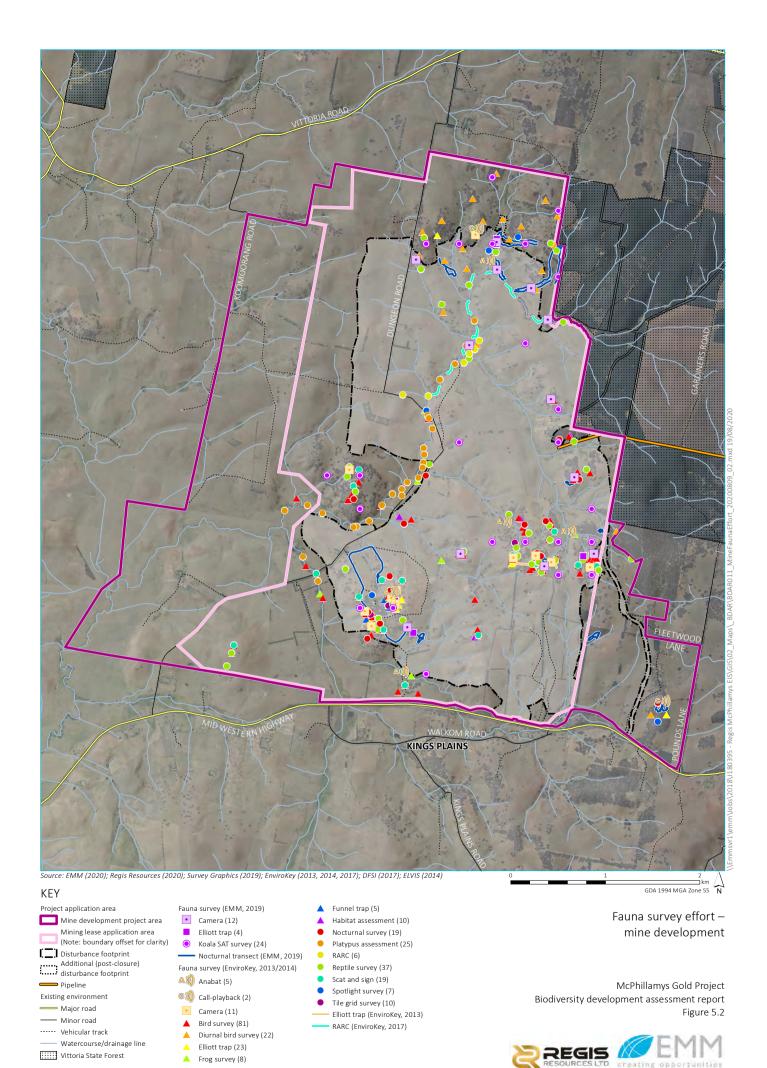
Other

mine development

McPhillamys Gold Project Biodiversity development assessment report Figure 5.1







a Diurnal birds

Bird surveys were undertaken to target the Gang-gang Cockatoo and White-bellied Sea-eagle. Stratification units and area of each survey unit in the mine project area are shown in Table 5.1.

Table 5.1 Stratification units and mine project area – diurnal birds

Stratification unit	Area (ha)
PCT 727 moderate/good – high, medium and poor	48.78
PCT 951 moderate/good – poor	32.73
PCT 1330 moderate/good – high, medium, other and poor	45.84

Bird survey methods and survey effort have been developed in accordance with DEC (2004) and DEWHA (2010b) guidelines. Diurnal bird surveys were conducted over five survey periods in 2013; in May, September, and October and twice in November. A further survey period was conducted in March 2014 giving a total of six survey periods.

Field surveys were completed at a variety of locations designed to cover as much of the suitable habitat in the mine project area as possible but with a focus on suitable habitat for threatened species (Figure 5.2). Surveys were conducted in either the early morning or late afternoon to coincide with peak bird activity. Opportunistic data was also collected across during the field survey whenever traversing the mine project area and locality.

Table 5.2 Methods and survey effort – diurnal birds

Method	Survey description	Survey effort
Area searches	 Land based areas searches in suitable habitat, conducted preferably in the morning or afternoon, to coincide with peak bird activity. 	DEC (2004) has not resolved bird survey requirements. DEWHA (2010b) specifies 20 hours of surveys over 10
 Surveyors conducted surveys within a 1-3 ha area over a 20- minute period. 	days for areas of less than 50 ha. No replication of survey effort is specified.	
	All calls and habitat features were investigated. Birds observed or heard were recorded.	A total of 143 bird surveys were undertaken by EnviroKey (2017) equating to an estimated 47.7 person hours of bird surveys.

b Small terrestrial mammals

Small terrestrial mammal surveys were undertaken to target the Eastern Pygmy Possum and Brush-tailed Phascogale. Stratification units and area of each survey unit in the mine project area is shown in Table 5.3. All vegetation in the study area was considered a low likelihood of the species occurring due to a lack of suitable cover in the midstorey and groundcover as a result of grazing. Areas in high and medium condition were considered suboptimal but were surveyed as a precaution.

Table 5.3 Stratification units and mine project area – small terrestrial mammals

Target species	Vegetation class	Area (ha)
Eastern Pygmy	PCT 727 high and medium	48.78
Possum	PCT 1330 high and medium	20.43

Methods and survey effort have been developed in accordance with DEC (2004) and included a mix of terrestrial trapping and remote camera surveys (Figure 5.2). Methods and survey effort are outlined in Table 5.4.

Table 5.4 Methods and survey effort – small terrestrial mammals

Method	Survey description	Survey effort
Trapping	20 Elliot A traps placed 10 m apart in two parallel lines separated by 25 m (access roads) or 25 Elliot A traps placed 10 m apart in a 5×5 grid (other areas):	DEC (2004) specifies one site per 50 ha stratification unit with replication of effort for every additional 100 ha.
	 Traps baited with a mixture of peanut butter, rolled oats and honey. Traps checked early in the morning and closed for the 	Based on the areas above this would require two survey sites (one in PCT 727 and one in PCT 1330) equating to
	day.	200 trap nights.
	Traps opened and rebaited in the late afternoon.	EnviroKey completed three trap sites
	 Animals to be temporarily marked to allow mark- recapture data to be collected. 	in PCT 727 and one trap site in PCT 1330, equating to 400 trap nights.
	 Surveys to be undertaken anytime except between May and August. 	
Remote cameras	Remote camera surveys were undertaken in accordance with the following guidelines:	No guidelines are available for the Eastern Pygmy-possum. Survey effort
	 Two cameras placed at least 100 m apart. 	from similar projects has been used, with one site (two cameras) per 20 ha
	Cameras are attached to tree or stake and positioned	of stratification unit.
	approximately 25cm above ground with bait stations placed 1.5m away.	Based on the areas above this would
	Bait stations were baited with a mixture of peanut butter, rolled oats and honey.	require three survey sites (two sites in PCT 727 and one site in PCT 1330) equating to 84 camera nights.
	Cameras are left in place for a minimum of 14 nights.	EnviroKey has completed four sites, consisting of a single camera per site, in the target habitats, with two sites in PCT 727 and two sites in PCT 1330. EMM completed an additional four sites in PCT 727.

c Arboreal mammals

Arboreal mammal surveys were undertaken to target the Brush-tailed Phascogale, Squirrel Glider and Koala. Stratification units and area of each survey unit in the mine project area is shown in Table 5.5.

Table 5.5 Stratification units and mine project area – arboreal mammals

Stratification unit	Area (ha)
PCT 727 moderate/good – high, medium and poor	48.78
PCT 951 moderate/good – poor	32.73
PCT 1330 moderate/good – high, medium, other and poor	45.84

Methods and survey effort have been developed in accordance with DEC (2004), Phillips and Callaghan (2011) and DoE (2014). Methods and survey effort are outlined in Table 5.6.

Table 5.6 Methods and survey effort – arboreal mammals

Method	Survey description	Survey effort
Arboreal trapping (Squirrel Glider)	 Ten Elliot B or cage traps were placed at 2-4 m above the ground, 50 m apart in two parallel lines separated by 50 m: Traps were baited with a mixture of peanut butter, rolled oats and honey. 	DEC (2004) requires a minimum of 24 trap nights over 3-4 consecutive days per 50 ha of stratification unit, with replication for every additional 100 ha (or part thereof).
	 A mixture of water and honey was sprayed on tree trunk. Traps were checked early in the morning and closed for the day. 	Based on the above stratification units, this would equate to 4 survey sites (one in each of PCTs 951 and 1330 and two in PCT 727).
	 Traps were re-opened and rebaited in the late afternoon. Animals to be temporarily marked to allow mark-recapture data to be collected. Trapping was undertaken in conjunction with terrestrial mammal trapping where suitable habitat occurs. 	EnviroKey has undertaken five arboreal trapping surveys, three sites in PCT 727 and two in PCT 1330. EMM has undertaken two additional surveys; one site in PCT 951 and one in PCT 1330.
Spotlighting (Squirrel Glider and Koala)	 Surveys included: 1km transects should be undertaken by an observer, or two 500 m transects by two observers with 25 m between transects. Observers move at a speed of 1km/h (ie one hour to complete the survey). All animals observed are recorded, including the distance of the animals from the observer. 	DEC (2004) recommends 2 x 1 km transects, completed on separate nights, per 200 ha of stratification unit. No survey effort for larger sites is specified. This would equate to three 1 km transects (one per PCT) completed on two nights (6 transects total). EnviroKey has undertaken seven spotlighting surveys; two transects were completed in PCT 727, one in PCT 951 and three in PCT 1330. One is outside an identified PCT, and covered paddock trees and areas of PCT 951. A further five transects were completed by EMM; two in PCT 727 and three in PCT 1330.

Table 5.6 Methods and survey effort – arboreal mammals

Method	Survey description	Survey effort
Spot Assessment Technique (SAT) (Koala)	The SAT method involves a radial assessment of Koala "activity" within the immediate area surrounding a tree of any species that is known to have been utilised by the species, or otherwise considered to be of some importance • Centre tree is located and marked with flagging tape. • The 29 nearest trees to the centre tree were also identified and marked. • Koala faecal pellets were searched for beneath each of the 30 trees within a distance of 100 cm. Initial inspections were checked in undisturbed ground surface, followed by a more thorough inspection involving disturbance of leaf litter and ground cover (if no faecal pellets were initially detected). • An average of approximately two person minutes per tree should be dedicated to the faecal pellet search. • Activity levels can be interpreted using Table 2 from	The Regularised Grid Based (RGB) SAT method was used to define survey locations. A 350 m grid was placed over the disturbance area and any points intersecting wooded areas was included for survey. This generated 24 survey locations. Twenty-four SAT surveys were completed across the mine project area.
	Phillips and Callaghan (2011).	

Funnel trap lines

Small terrestrial fauna species such as reptiles (ie Pink-tailed Worm Lizard), frogs and mammals were targeted using funnel trap lines across various locations within the mine project area. These trap lines comprised of three pairs of funnel traps set along a 20 m long x 0.23 m tall PVC fence. Funnel traps rather than the more traditional pitfall buckets were chosen given their appropriateness for the target fauna.

Echolocation (Anabat) call recording

Microchiropteran bats, particularly the Southern Myotis, were targeted by using a 'Titley' Anabat SD1 Echolocation Call Recording Unit coupled to a PDA for active or mobile monitoring. Surveys were conducted across the mine project area and the locality with an emphasis on derelict mine shafts and water sources such as dams and creeks. Further surveys were undertaken however these were static surveys, where the recorder was set up adjacent to a water source and left in place for the duration of the site surveys with recording times set up for approximately 8 hours over a night.

Call playback

Call playback was conducted across the mine project area to detect threatened nocturnal fauna. The target species for this assessment were Masked Owl, Powerful Owl, Barking Owl, Squirrel Glider, Bush Stone Curlew and Koala. Call playback was undertaken at across the mine project area in potentially suitable habitat on numerous occasions and across a range of seasonal variation. At each site, the call playback survey commenced with an initial listening period of 10 minutes. The call of a target species was then transmitted intermittently over a period of five minutes, followed by a five-minute listening period. This was then repeated for each target species for a total of approximately one hour per survey.

Spotlighting and nocturnal surveys

Spotlighting was undertaken to target the Bush Stone-curlew, Brush-tailed Phascogale, Eastern Pygmy Possum, Koala and Squirrel Glider. Spotlighting was conducted at the conclusion of each call playback survey by two persons for one-person hour. Spotlighting involved walking through areas of potential habitat (i.e. native woodland or forest) with powerful spotlights and shining them into the canopy to try and identify eyeshine of active avian, mammal or reptile species. The spotlights were also periodically shone onto the ground to identify reptiles or amphibians that may be foraging on the ground surface.

Reptile searches

Reptile searches were undertaken utilising roof tiles specifically targeting Little Whip Snake (*Parasuta flagellum*), but roof tiles are also known to detect the presence of Pink-tailed Worm-lizard. The tiles were set out in a 25 metre × 25 metre grid with a tile located every five metres and a total of 25 tiles for each grid (giving a total of 125 roof tiles). A resting period of six weeks was applied to allow for a sufficient period for animals to seek shelter and commence utilisation of the roof tiles.

Herpetofauna searches were conducted across the mine project area. Each site was systematically searched by an experienced herpetologist for a period of 30 minutes for active and inactive animals. Fallen timber, loose bark, tree and ground hollows, and loose soil were extensively searched. Rock rolling was also utilised as a search method at various locations where potential habitat was present. Each site was systematically searched for active and inactive animals by lifting loose surface rocks, signs of the presence (i.e. scats and sloughs) or ant activity underneath.

Frog searches

Frog searches were conducted at four locations during the late November survey to coincide with warmer weather and conditions suitable for species detection. Each site was systematically searched by an experienced herpetologist for a period of 30 minutes listening for calling frogs, undertaking sweeps for tadpoles, and searching for active animals. Call playback was also employed to elicit a response from non-calling frogs.

Track and scat search

Track and scat searches were conducted in May 2013 and November 2013 coinciding with diurnal bird surveys. In addition, any track and scat of interest observed during the field survey while undertaking other survey methods, were inspected.

iii Pipeline development – flora

Initial targeted threatened flora surveys were carried out by OzArk in August, September, October and December 2018 and in January and May 2019. Surveys were conducted accordance with NSW Guide to Surveying Threatened Plants (OEH 2016). The transect was walked inside the pipeline corridor of the associated PCT. Where the survey area was dissected by a road, both sides of road were traversed. The targeted surveys are described in further detail in Table 5.7.

Table 5.7 Targeted flora surveys

Species	Associated PCT/s
Acacia floctoniae	1330
Black Gum	1191, 1197
Silver-leaved Gum	1093
Robertson's Peppermint	727, 1197
Rough Eyebright	1191, 1197
Grevillea divaricata	1093, 277
Lepidium hyssopifolium	277, 1093, 1191, 1197, 1330
Clandulla Geebung	277, 1093
Silky Swainson-pea	277, 1191, 1330
Austral Toadflax	1093, 1191, 1197, 1330
Veronica blakelyi	277, 1093, 1197
Capertee Stringybark	277, 1093

At the time of the survey, climatic conditions were dry, with significantly less rainfall having occurred in the months leading up to the survey. As a result, the diversity of grasses and forbs was low throughout the survey period.

Further targeted surveys were conducted by EMM (2020) across the pipeline, as well as habitat assessments. pipeline corridor. Significant rain fell prior to the survey period, which would have increased the diversity of grasses and forbs compared with the OzArk surveys.

Targeted searches comprised visiting all accessible parts of the pipeline route on five separate trips between 10 February and 11 June 2020 (Section 4.2.1(ii), Figure 5.3). The route was driven slowly in a 4WD vehicle and stops were made wherever safe to do so. Where potential habitat occurred, the route was walked thoroughly at a spacing no greater than 10 metres apart, in accordance with *NSW Guide to Surveying Threatened Plants* (OEH 2016).

The first EMM survey comprised targeted searches of all flora species that are detectable in February, comprising:

- Black Gum;
- Bynoe's Wattle;
- Clandulla Geebung;
- Capertee Stringybark;
- Flockton Wattle;
- Silver-leaved Gum; and
- Capertee Stringybark.

The second, third and fourth survey events targeted areas that could not be accessed during the first survey event. The fifth survey event focused on targeted surveys for *Acacia meiantha* and the Tarengo Leek Orchid (*Prasophyllum petilum*) with survey methodology outlined in Section 5.1.3iii.

Habitat assessments comprised interpretation of satellite imagery followed by on-ground vegetation and structural mapping. Vegetation was mapped into plant community types (PCTs) whilst structures (eg. dams and riparian areas) were mapped as potential habitat features. The dominant species in each vegetation strata were recorded. This was important to assist in identifying the original vegetation type prior to European settlement for each site.

a Expert flora assessment

Dr Colin Bower of Premise Australia prepared separate Expert Reports on the likelihood of the following threatened species occurring on the pipeline disturbance footprint (Appendix E):

- Acacia meiantha; and
- Tarengo Leek Orchid.

Acacia meiantha surveys comprised targeted searches in the month prior to the optimal survey period and habitat matching assessments conducted by Dr Bower on 11 and 12 June 2020. Targeted searches comprised inspecting all parts of the pipeline. The route was driven slowly in a 4WD vehicle and regular stops were made where shrubby vegetation occurred on or near the disturbance corridor, or where visibility was poor, e.g. steep slopes and gullies.

Habitat matching comprised recording the habitat for each area inspected to determine whether the area matched the habitat features identified for the relevant targeted species. The dominant tree and shrub species in the immediate surrounds were recorded. This was important to assist in identifying the original vegetation type prior to European settlement for each site.

The Tarengo Leek Orchid cannot be surveyed for using the targeted search method unless reference populations are suitably visible (that is, where emergent leaves of any plants are visible). The reference population at Ilford Cemetery was not sufficiently visible when it was inspected on 12 June 2020. Therefore, Dr Bower conducted Habitat Matching assessments only to assess presence of the Tarengo Leek Orchid in the pipeline corridor, in accordance with the relevant guidelines; viz., NSW Guide to Surveying Threatened Plants (OEH 2016) and Draft Survey Guidelines for Australia's Threatened Orchids (DoE 2013b).

Suitable habitat for the Tarengo Leek Orchid was assessed using the following information from the National Recovery Plan for the Tarengo Leek Orchid, *Prasophyllum petilum* (DECCW 2010b):

- the site is relatively undisturbed, i.e. the soil profile is intact with no soil disturbance by farm or mining machinery;
- the dominant tree species include any of Snow Gum, Black Gum, Blakely's Red Gum, or Yellow Box, or is a natural grassland; and
- the site is prone to waterlogging.

iv Pipeline development – fauna

OzArk completed habitat assessments and targeted surveys for threatened species in August, September, October and December 2018, and in January and May 2019. Habitat assessments comprised traversing the pipeline disturbance footprint on foot or in a slow-moving vehicle and mapping the locations of any habitat features observed. Assessments were completed by OzArk for 15 species. Survey methods are outlined in Table 5.8.

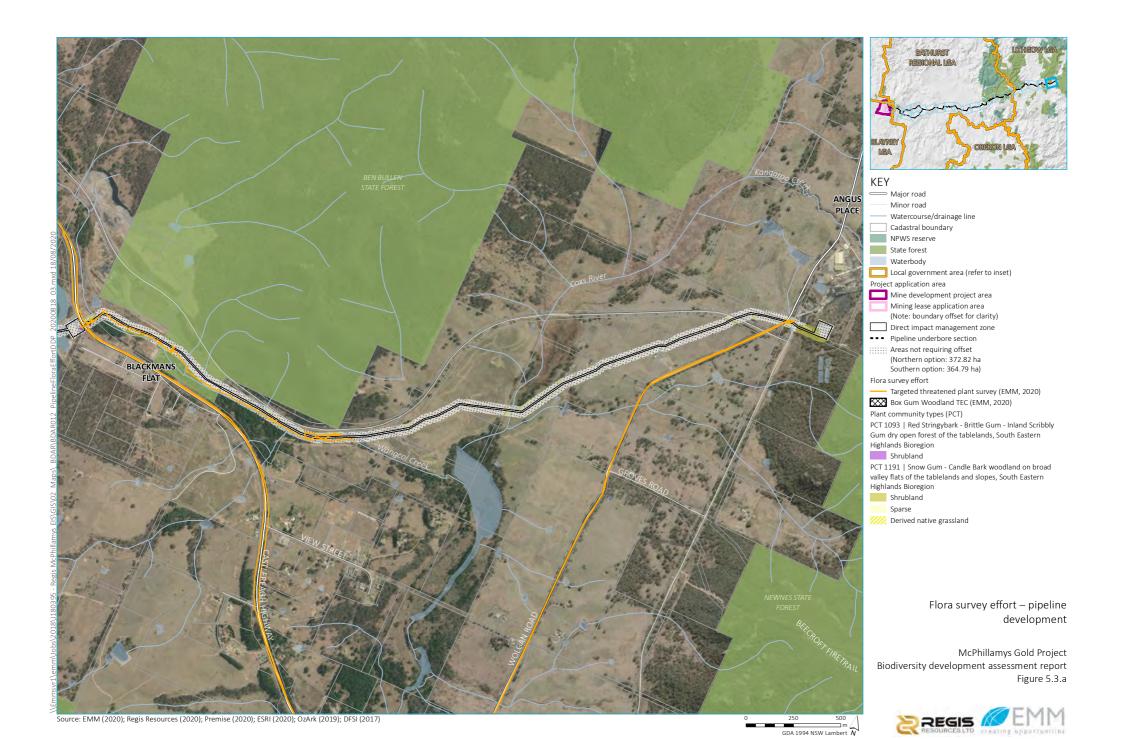
Table 5.8 OzArk threatened fauna species survey methodology – pipeline

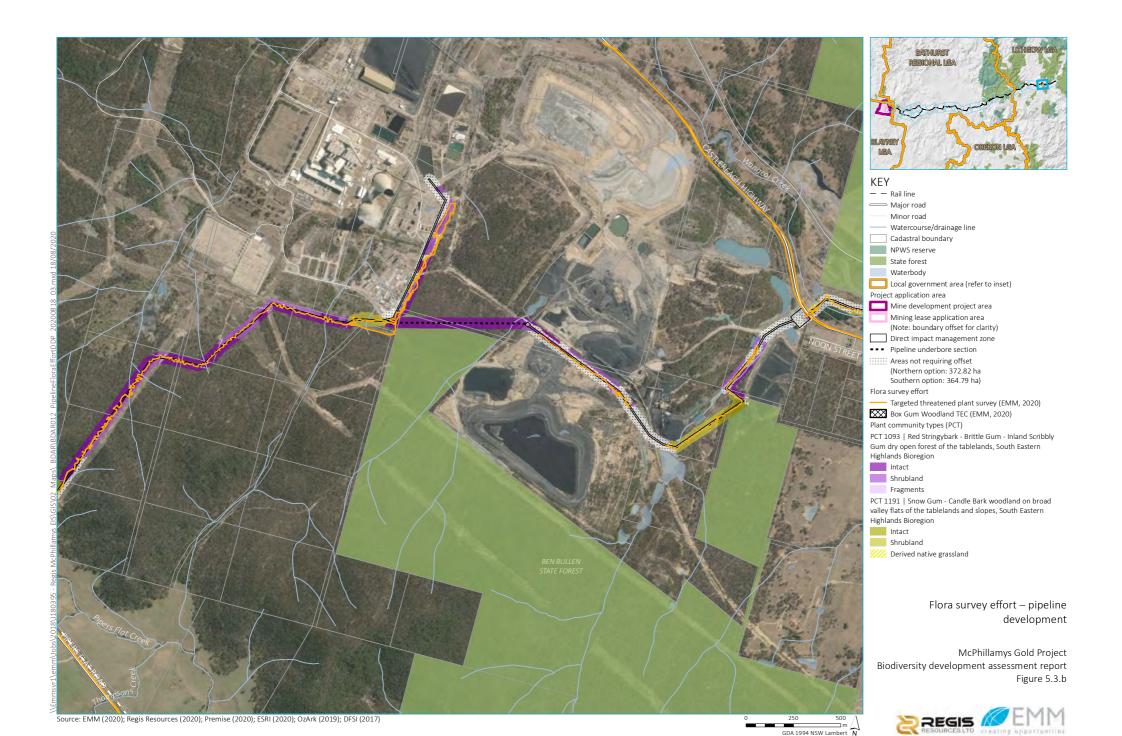
Species	Method
Superb Parrot (breeding)	Hollow-bearing trees on the pipeline corridor located within PCTs 277 and 1330 were observed and monitored for Superb Parrot activity for a thirty-minute period.
Bathurst Copper Butterfly	All areas of native vegetation above 850 m elevation were searched for the presence of Blackthorn (<i>Bursaria spinosa</i>) using the field transverse method. Sites of known records around the Yetholme and Sunny Corner regions were also searched for the presence of habitat as there was potential for the proposal to be re-routed through this area.
	Areas where Blackthorn were recorded were mapped and a 40 m buffer drawn around each location to indicate suitable habitat for the species, as suitable butterfly habitat is not found further than this distance from Blackthorn plants.
Grey-headed Flying Fox (breeding)	Treed areas (both native and introduced) and other suitable habitat within the pipeline corridor was searched using a field transverse method (both on foot and from slow moving vehicle) for the presence of Grey-headed Flying Fox breeding camps.
Breeding locations for: White-bellied Sea-Eagle, Little Eagle, and Square- tailed Kite	Searches were carried out in suitable treed areas (native and introduced) within the pipeline corridor for raptors and raptor nests that might indicate the presence of breeding White-bellied Sea-Eagle, Little Eagle, Spotted Harrier and Square-tailed Kite. A field transverse method was used (both on foot and from slow moving vehicle).
	The Little Eagle was observed; however no breeding evidence was recorded by OzArk.
Breeding locations for: Barking Owl, Powerful Owl, Masked Owl, Glossy	Areas of suitable habitat within the pipeline corridor (being those areas mapped as native vegetation) were searched by pedestrian transect and slow-moving vehicle for the presence of suitably sized tree hollows.
Black Cockatoo and Gang- Gang Cockatoo	The location of hollow-bearing trees was recorded using GPS. 100m buffers were applied around any hollow-bearing trees, however it is unlikely that these buffers were searched for nests.
Koala	Targeted searches for Koala were carried out within suitable habitat using the Spot Assessment Technique. Although areas of sparse upper layer vegetation and paddock trees were searched thoroughly, forested areas were surveyed at random points only. Only trees on the pipeline corridor were searched, not adjoining vegetation.
Bush Stone-curlew	Pedestrian transects were carried out through PCT 1330 within the pipeline corridor, searching for this species and threatened plants.

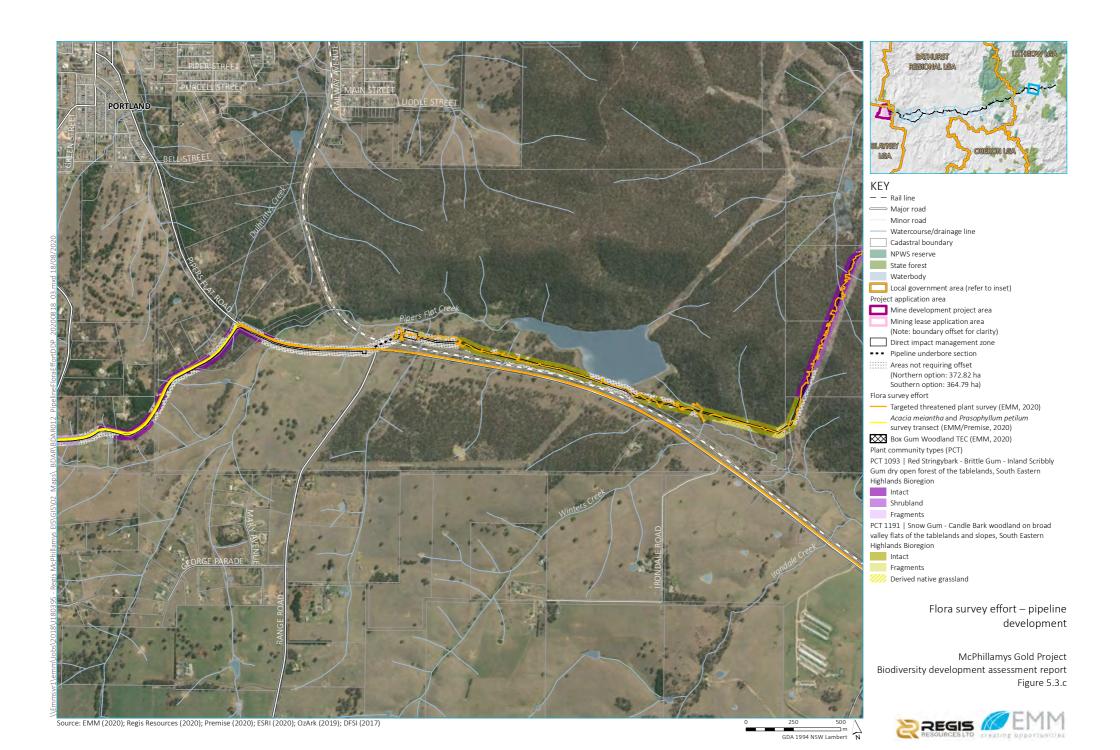
Targeted searches by EMM comprised visiting all accessible parts of the pipeline route over five visits between 10 February and 11 June 2020. The route was driven slowly in a 4WD vehicle and stops were made wherever safe to do so. Where potential habitat occurred, the route was walked thoroughly at a spacing no greater than 10 metres apart.

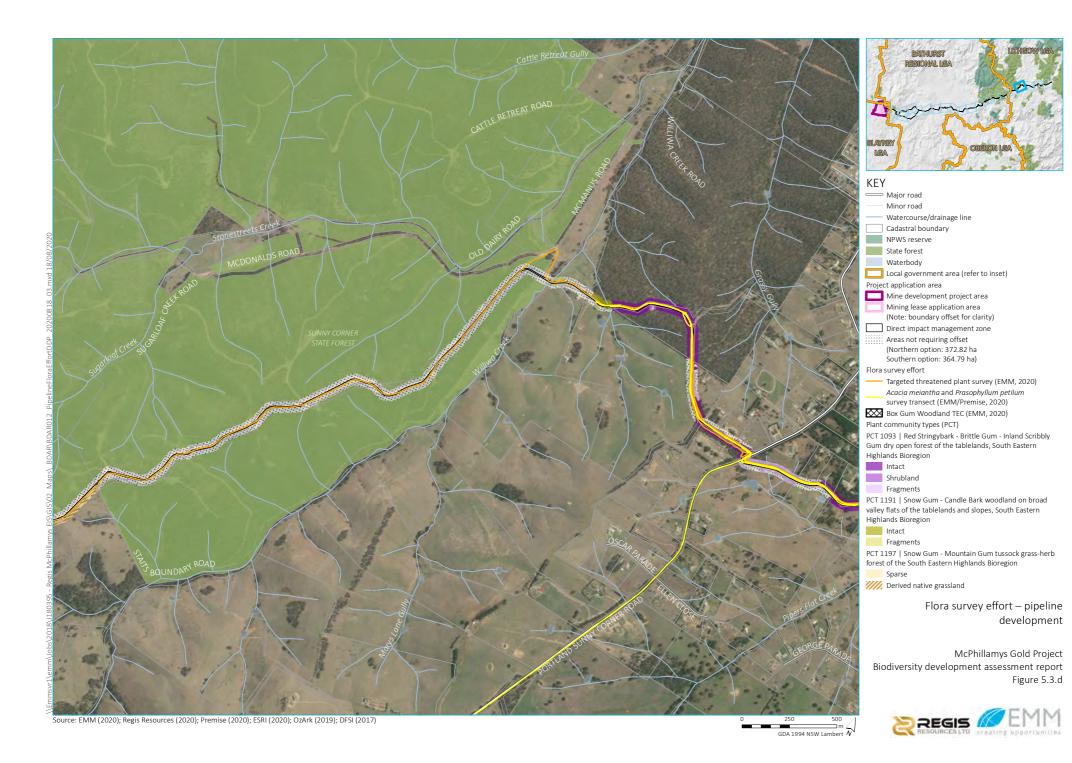
Further targeted surveys were conducted by EMM (2020) across the pipeline to inform the candidate species assessment, as well as habitat assessments. Targeted searches were made of all fauna species that are surveyable in February and June. These comprised revisiting potential breeding locations for Whitebellied Sea-Eagle, Little Eagle and Square-tailed Kite and assessing habitat constraints and microhabitats for the potential candidate species (Section 5.2.3).

Habitat assessments comprised interpretation of satellite imagery followed by on-ground vegetation and structural mapping. Habitat features (hollow bearing trees, dams, rocky areas, etc.) were mapped as potential fauna habitat.







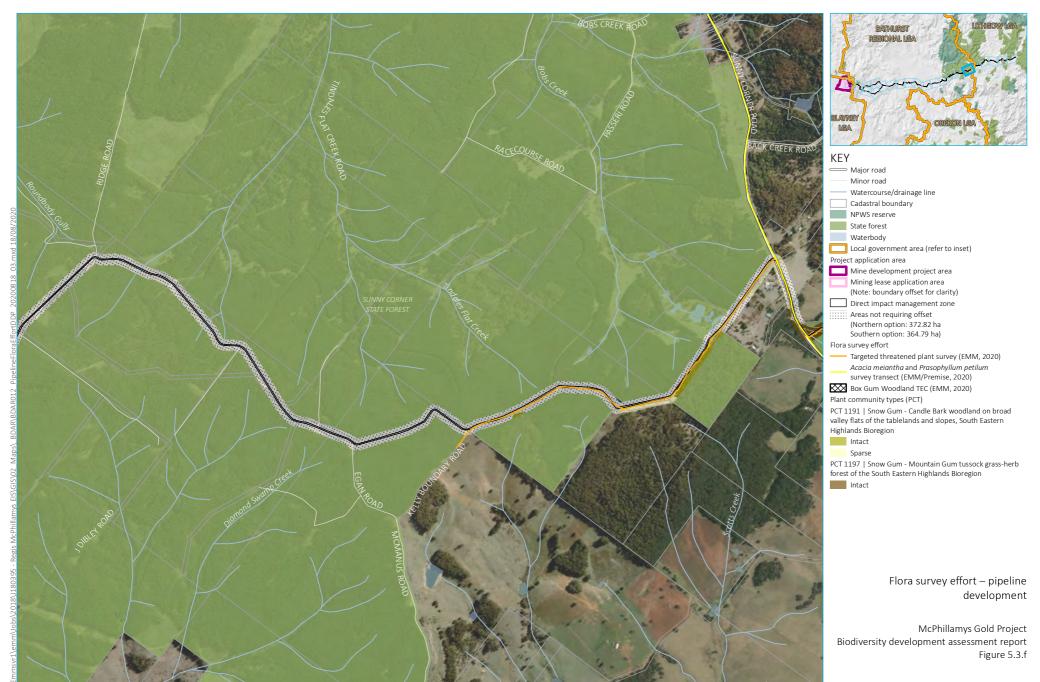




development

Biodiversity development assessment report Figure 5.3.e

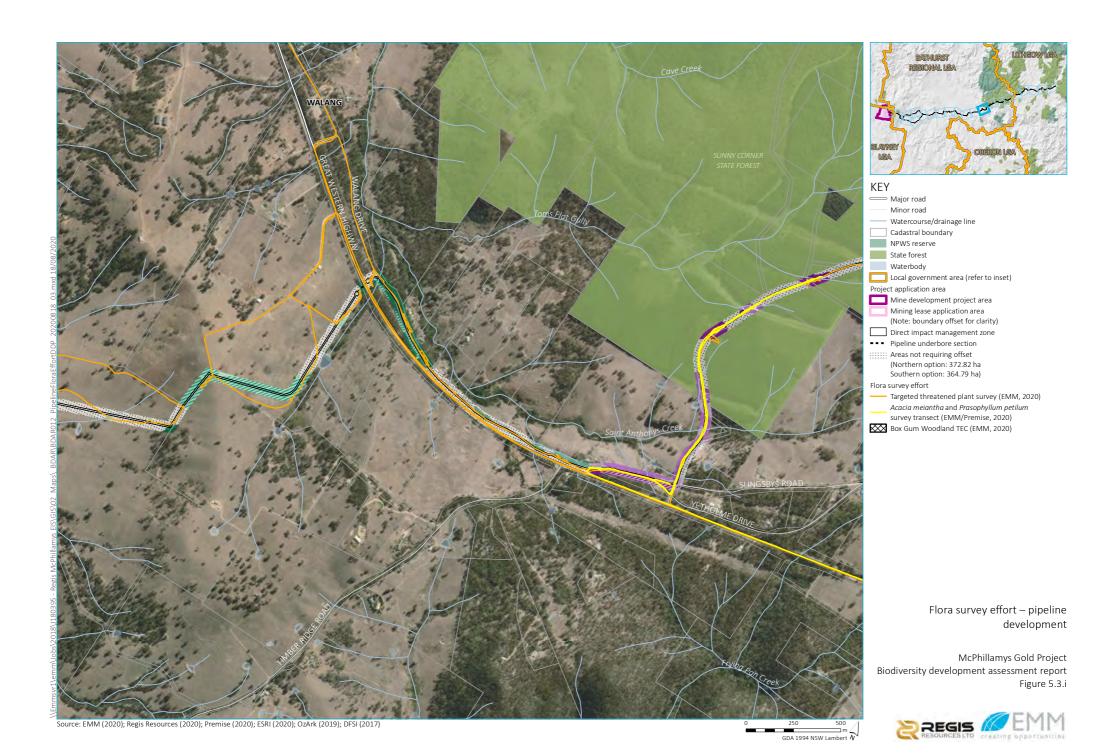


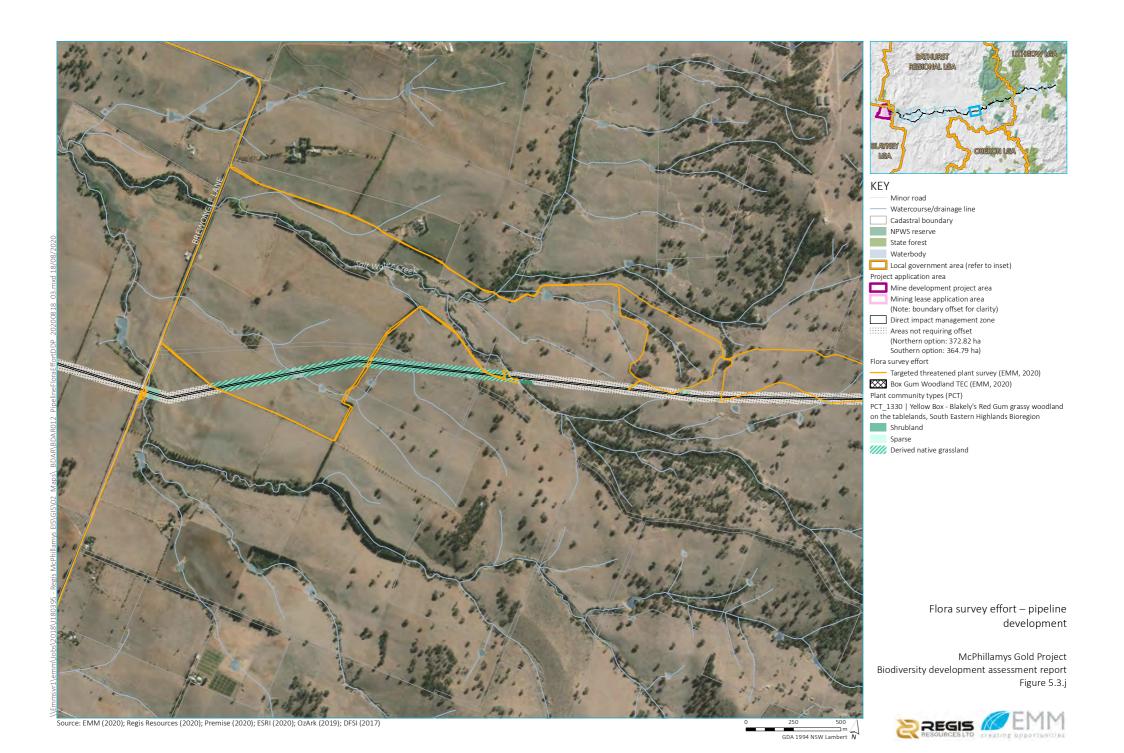


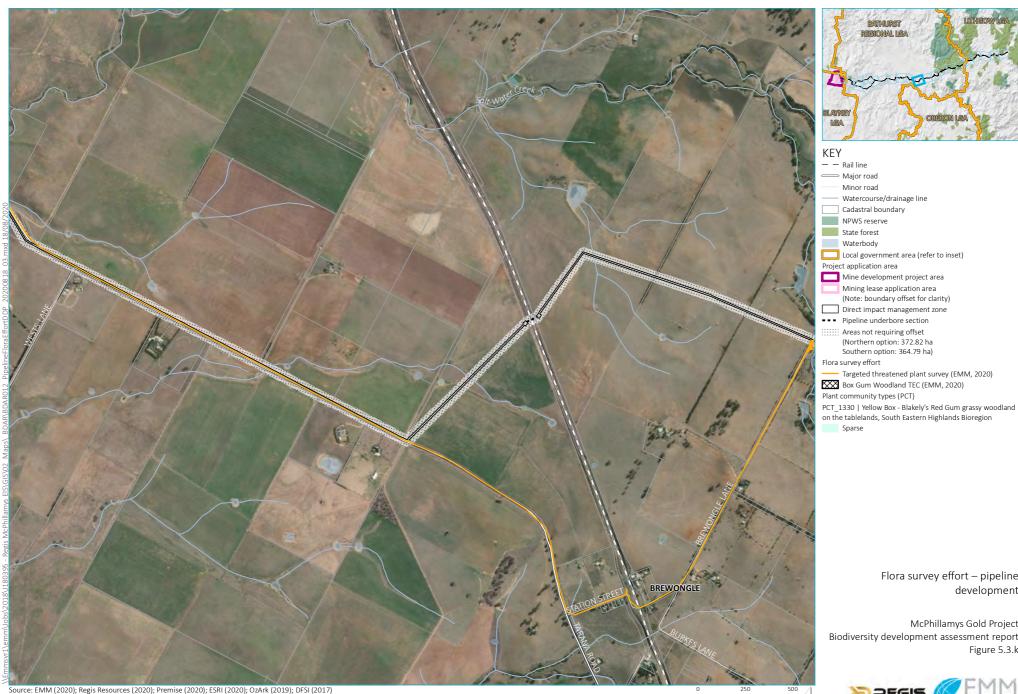












McPhillamys Gold Project Biodiversity development assessment report Figure 5.3.k





McPhillamys Gold Project Biodiversity development assessment report Figure 5.3.l

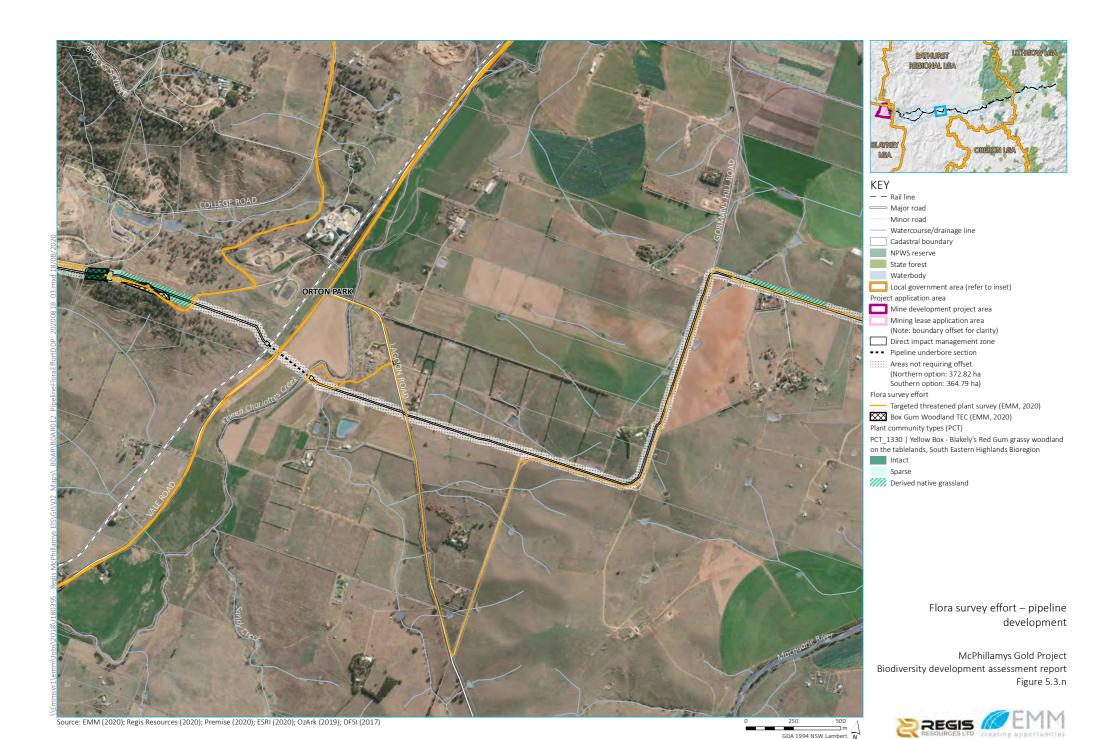


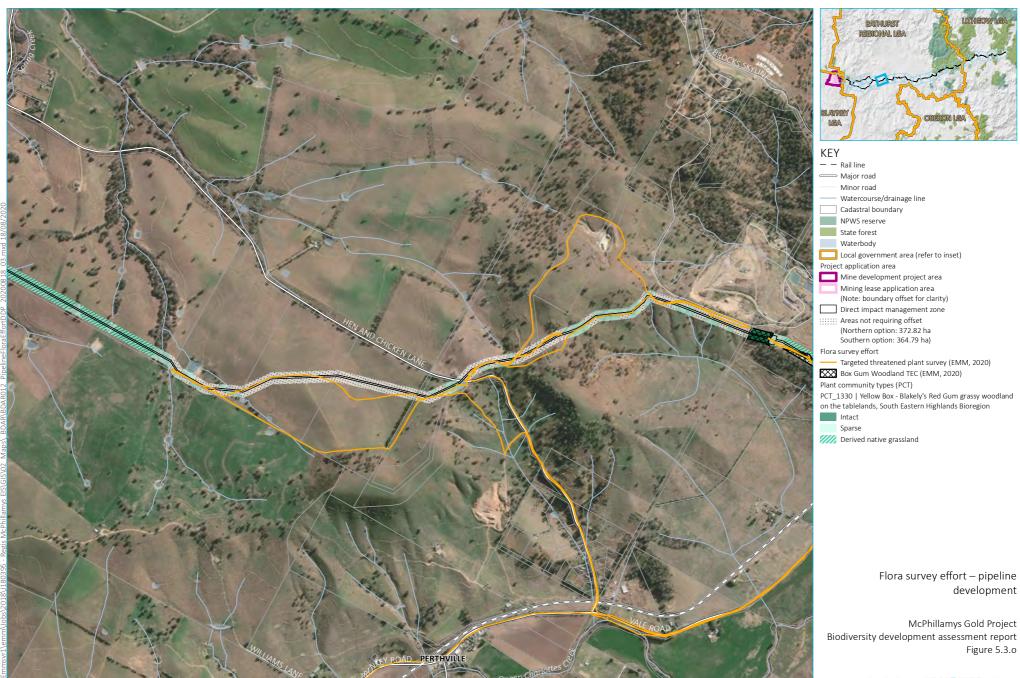


Flora survey effort – pipeline development

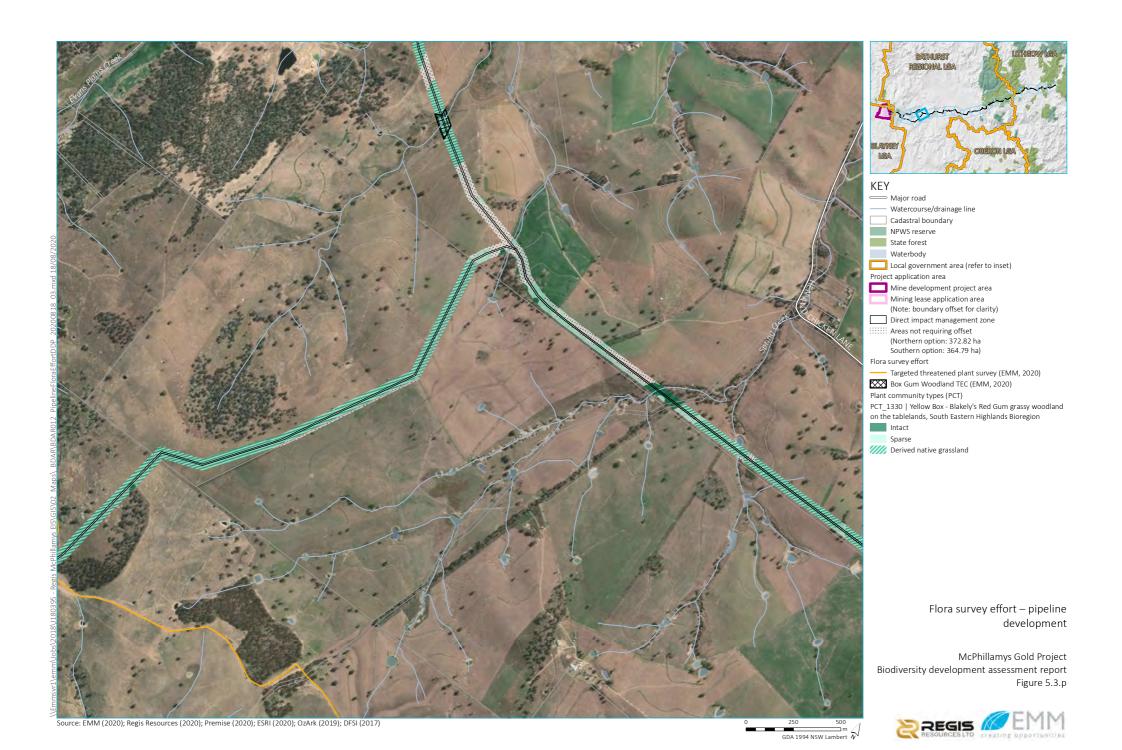
McPhillamys Gold Project Biodiversity development assessment report Figure 5.3.m

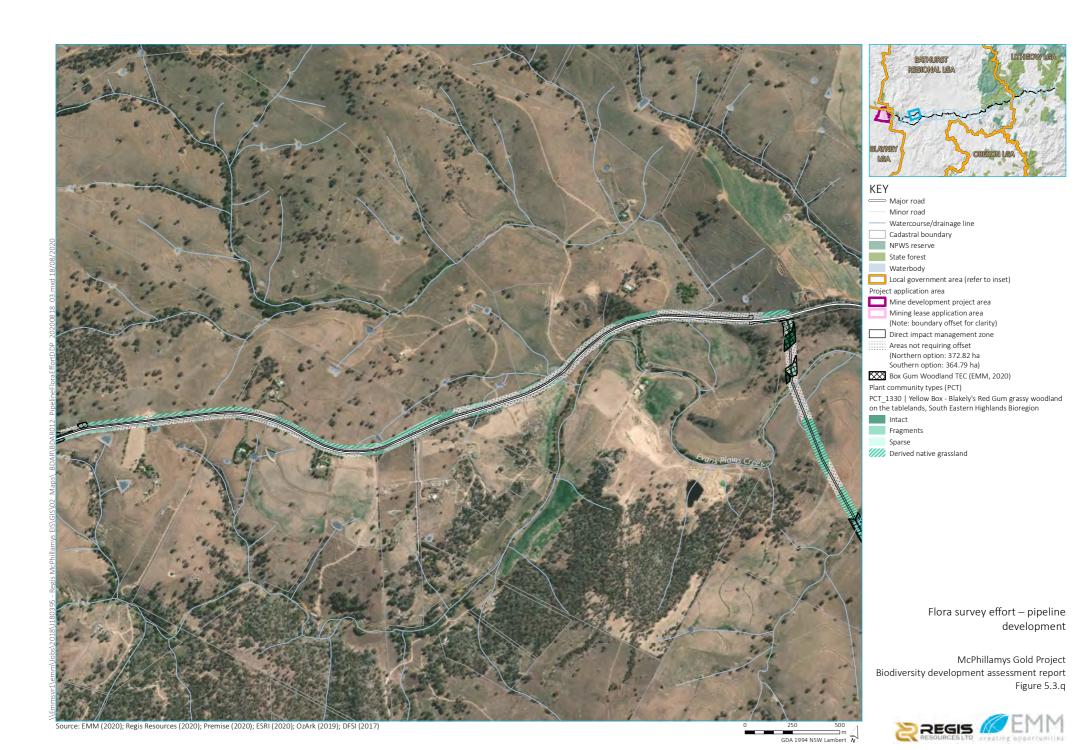


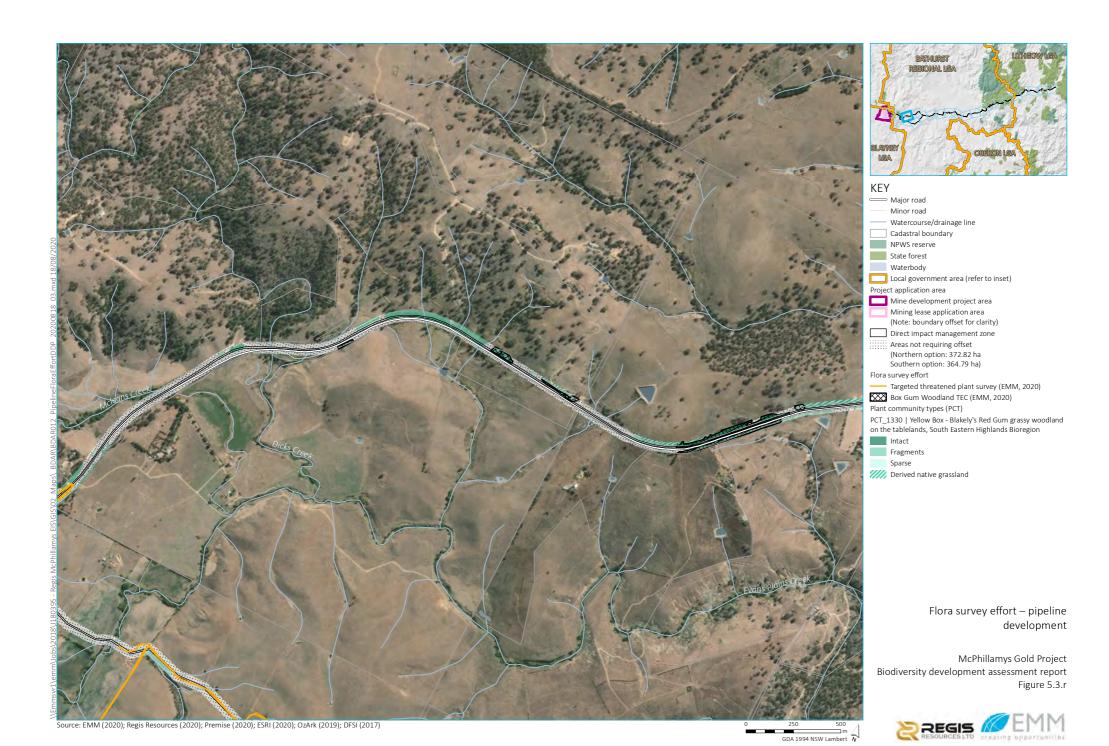


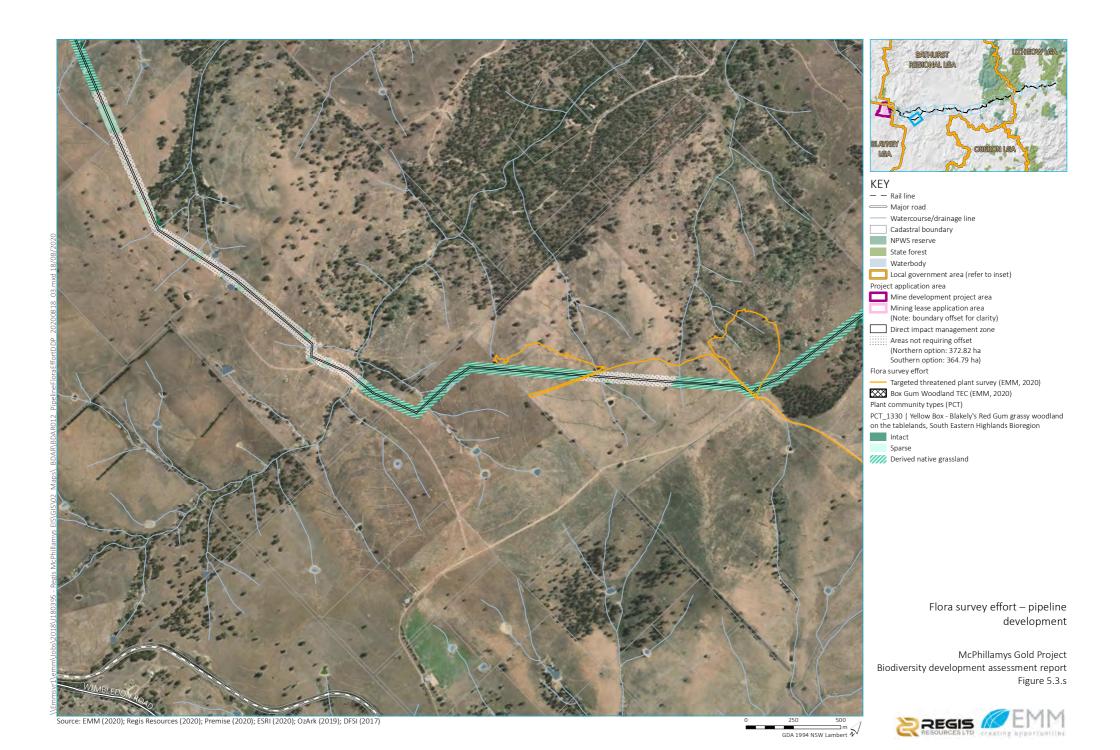


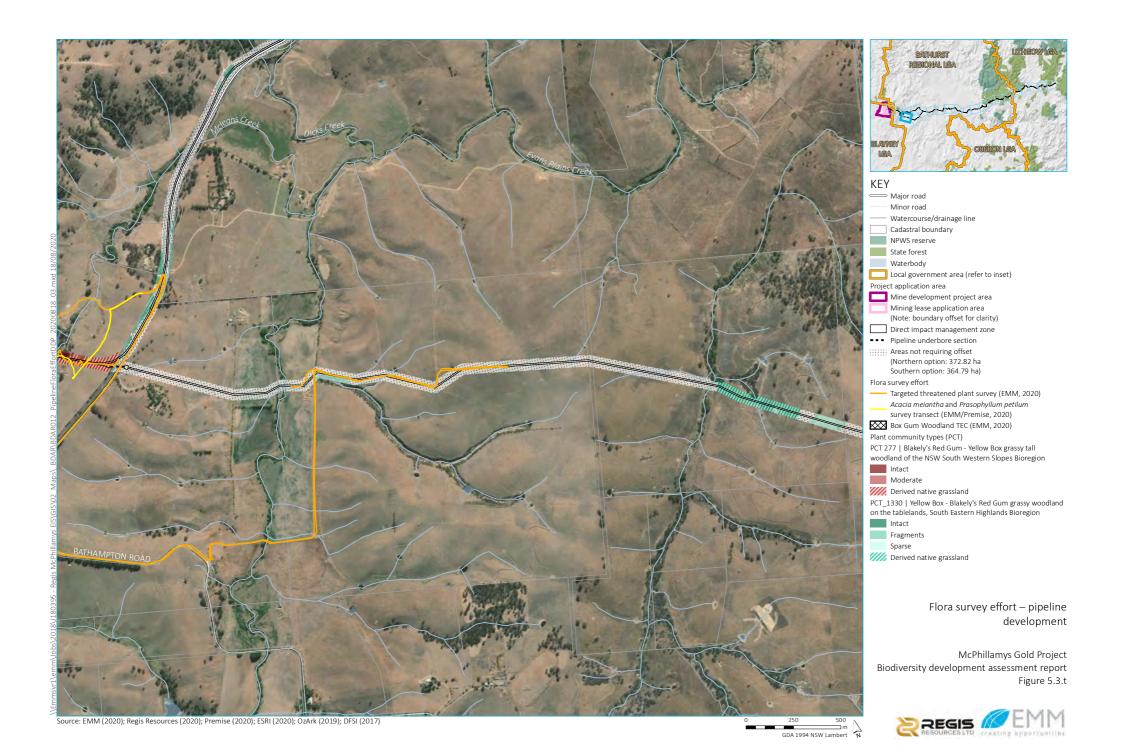


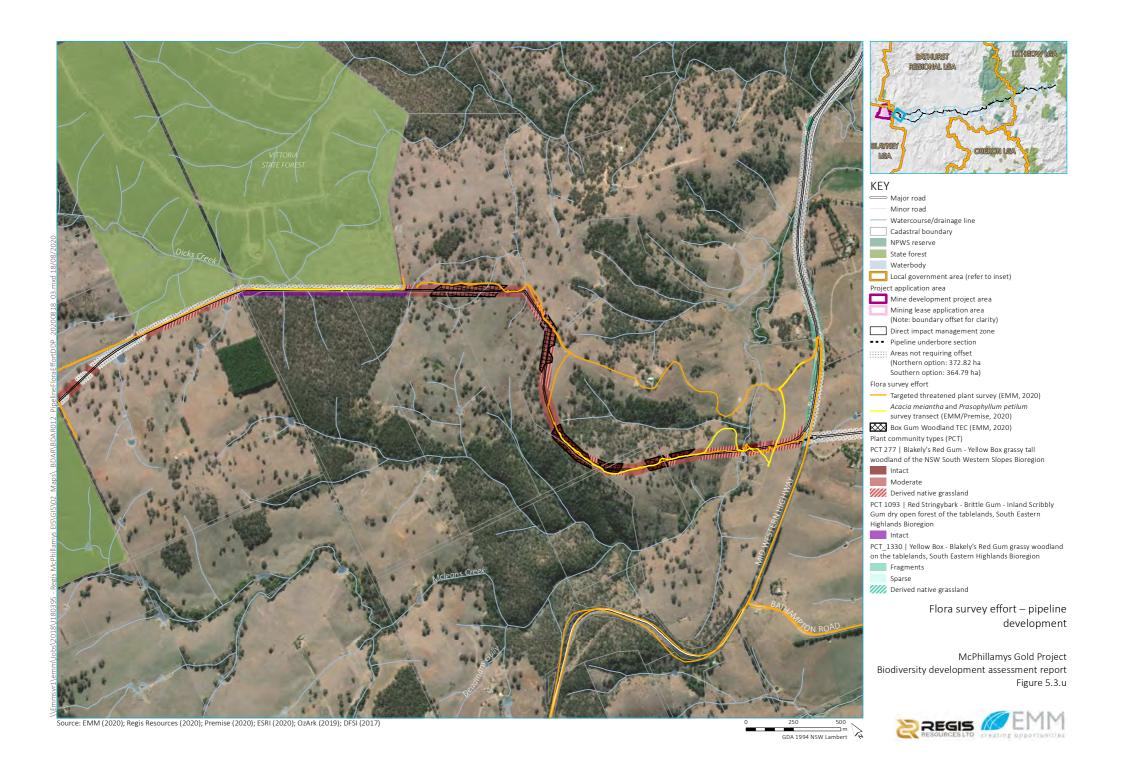


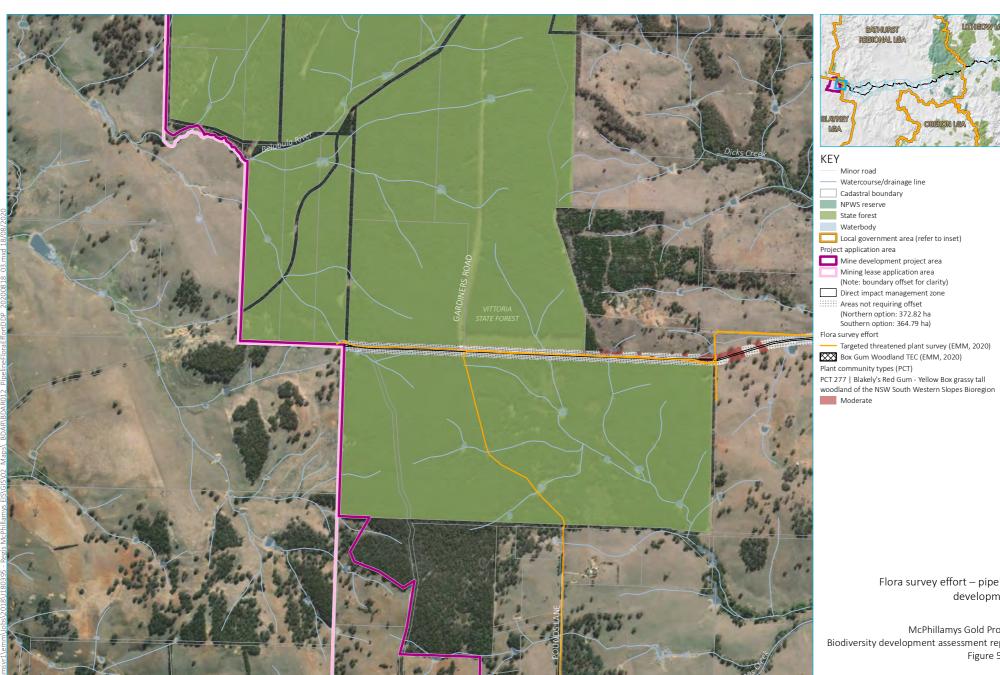








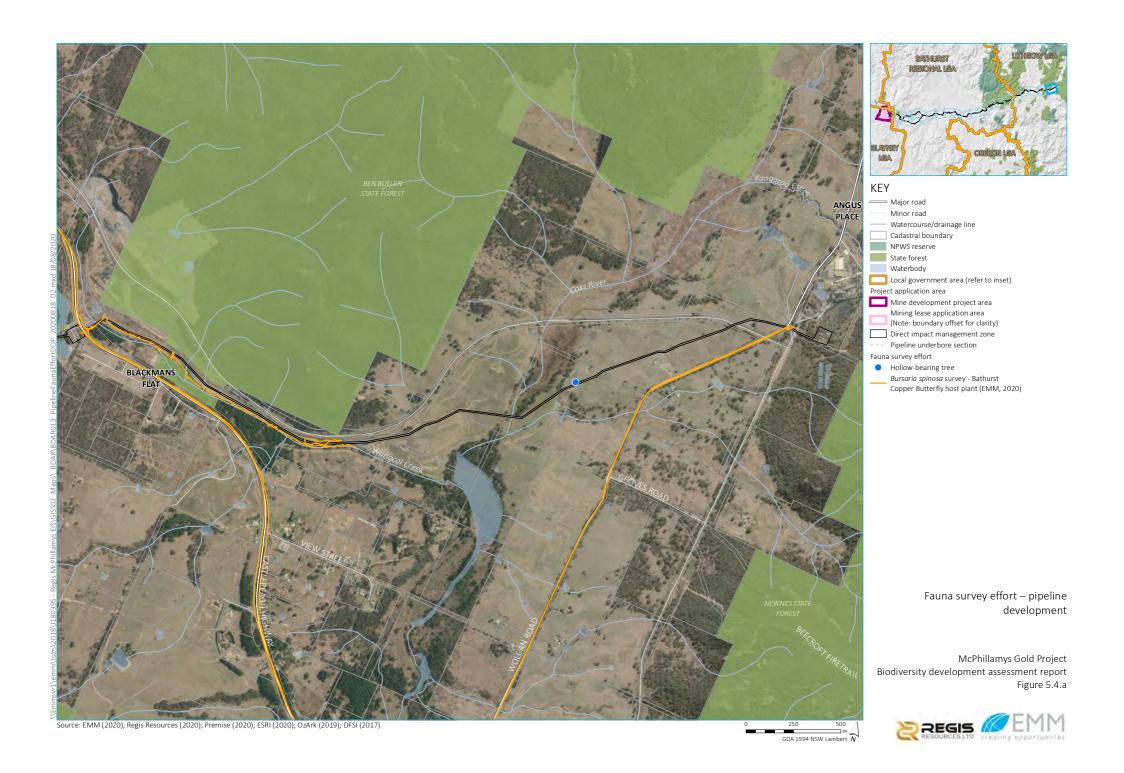


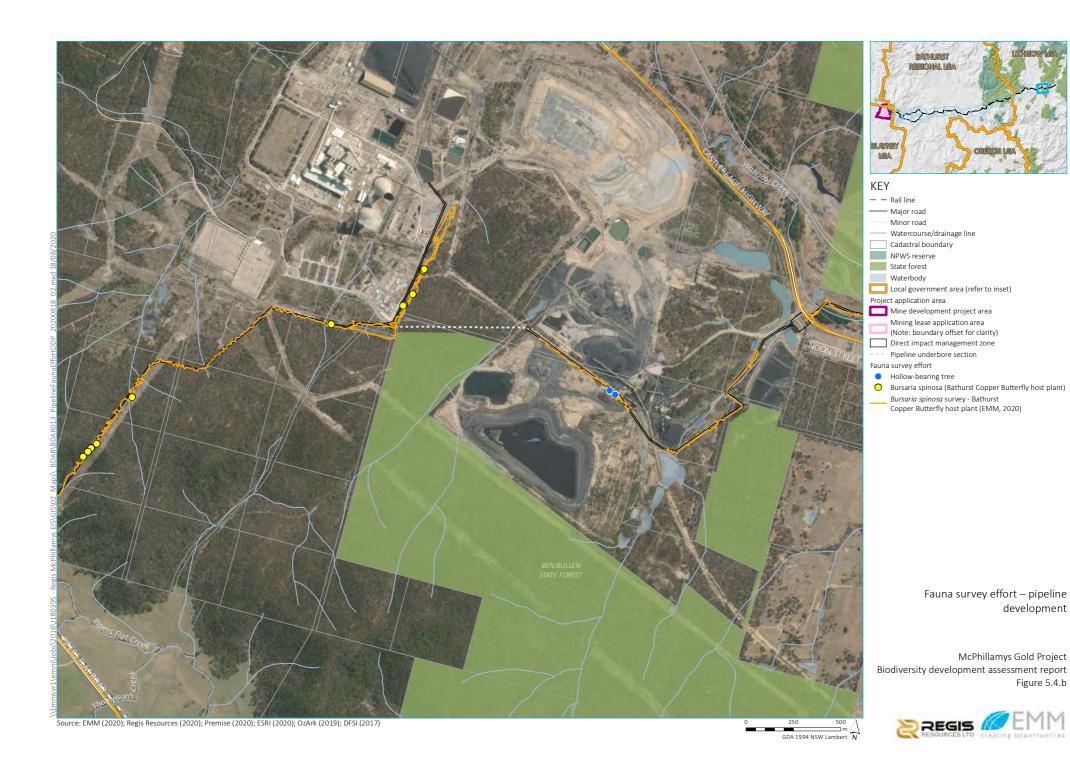


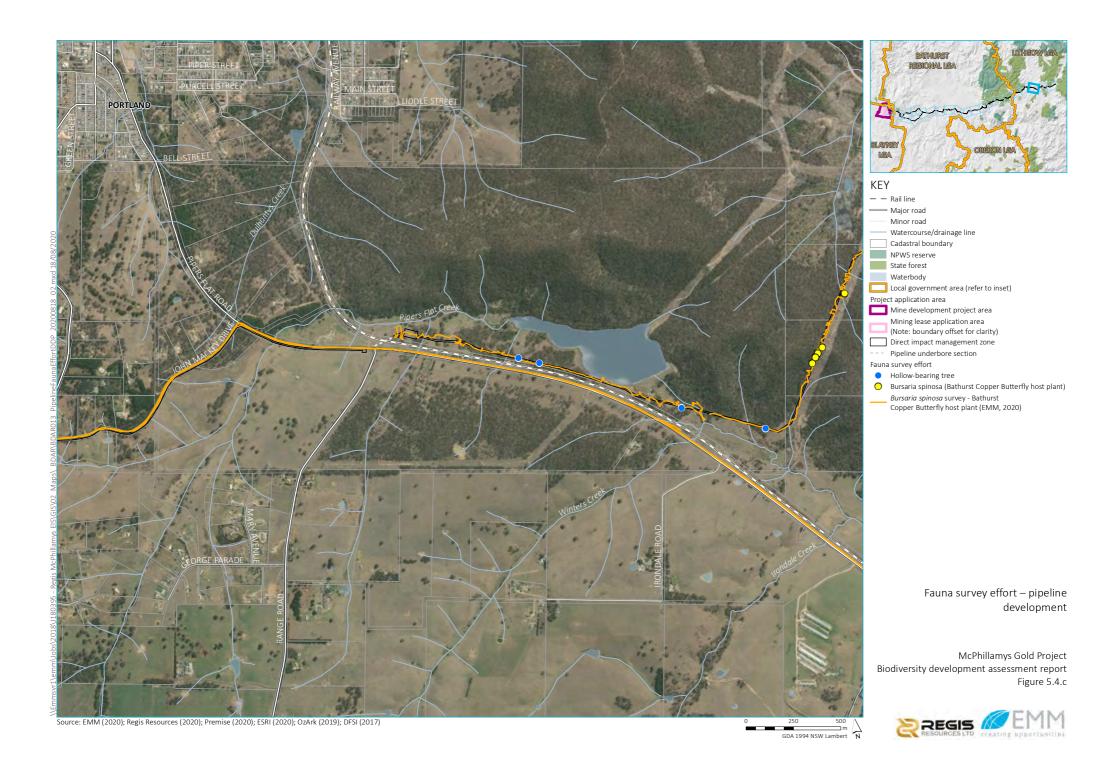
Flora survey effort – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 5.3.v

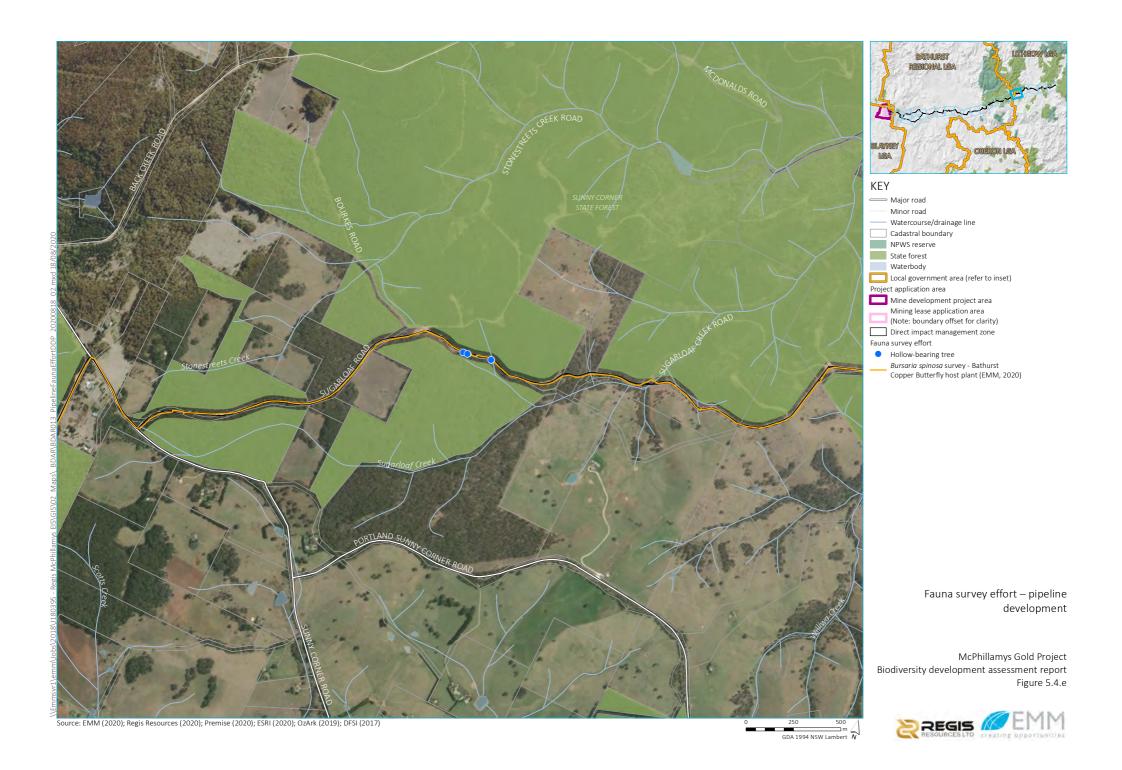














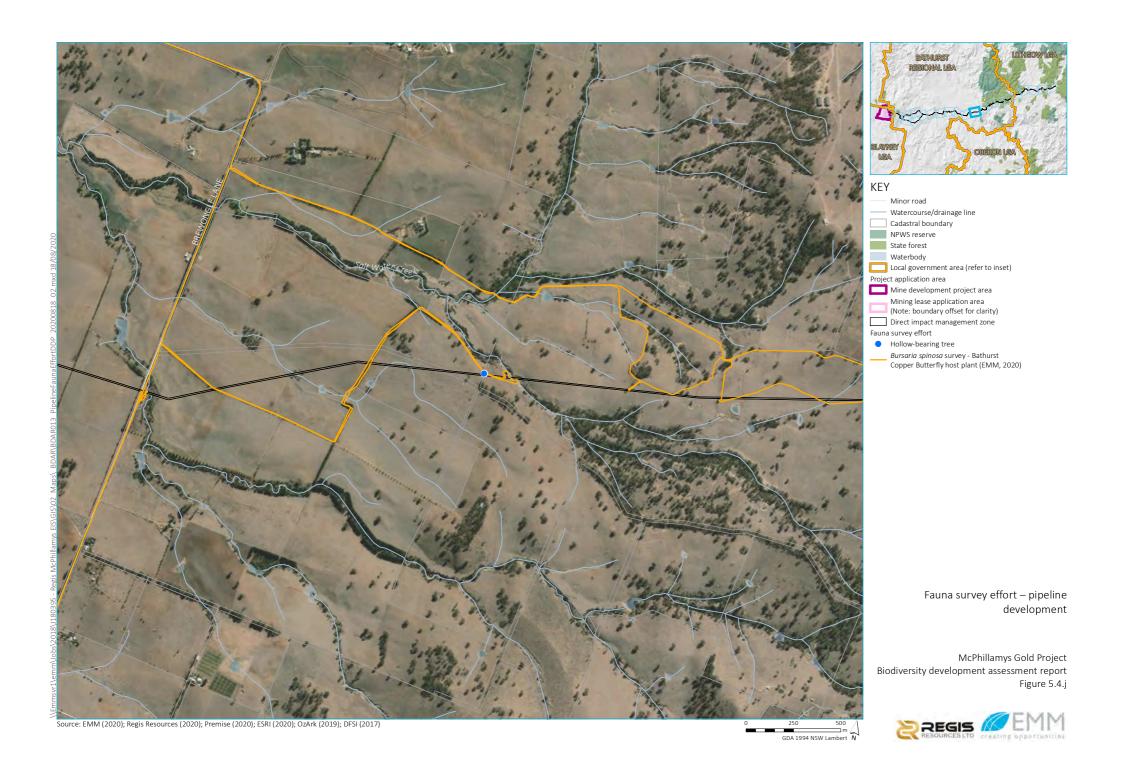


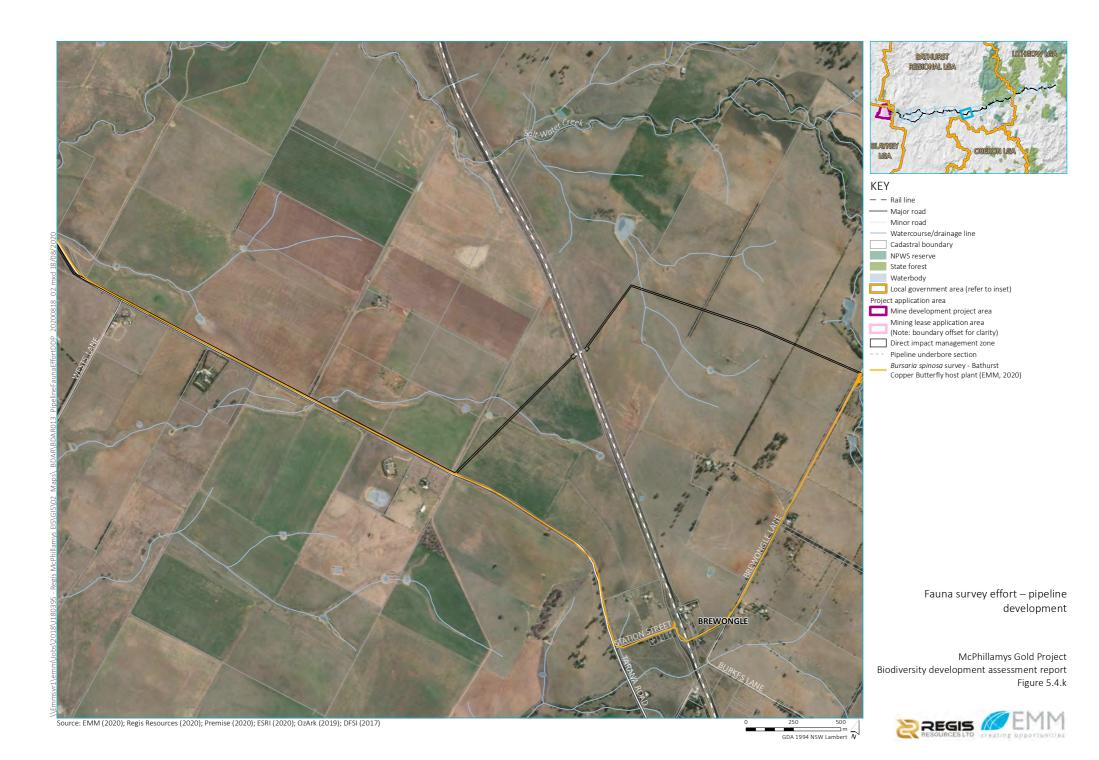
McPhillamys Gold Project Biodiversity development assessment report Figure 5.4.g





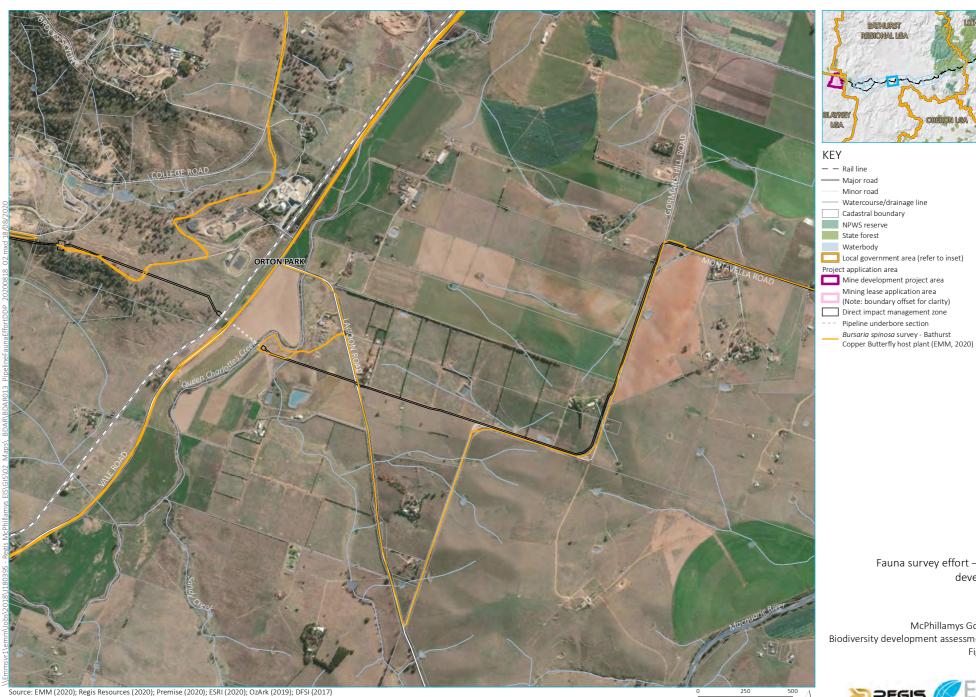












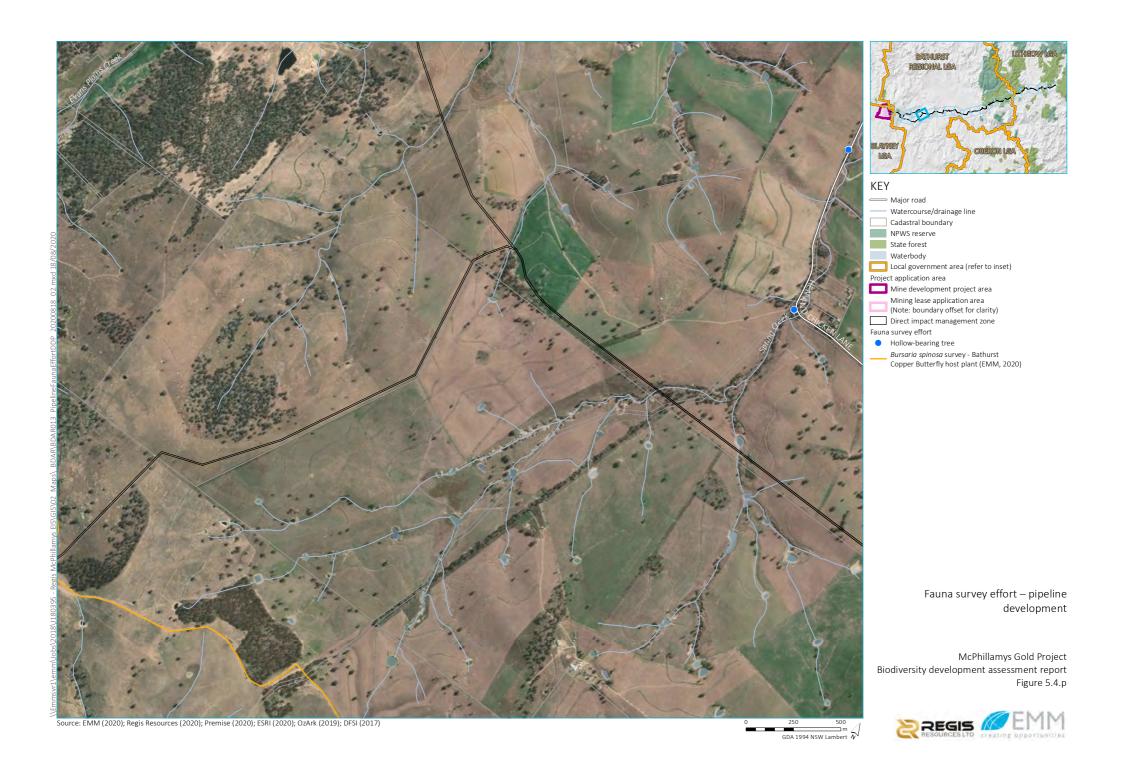
McPhillamys Gold Project Biodiversity development assessment report Figure 5.4.n

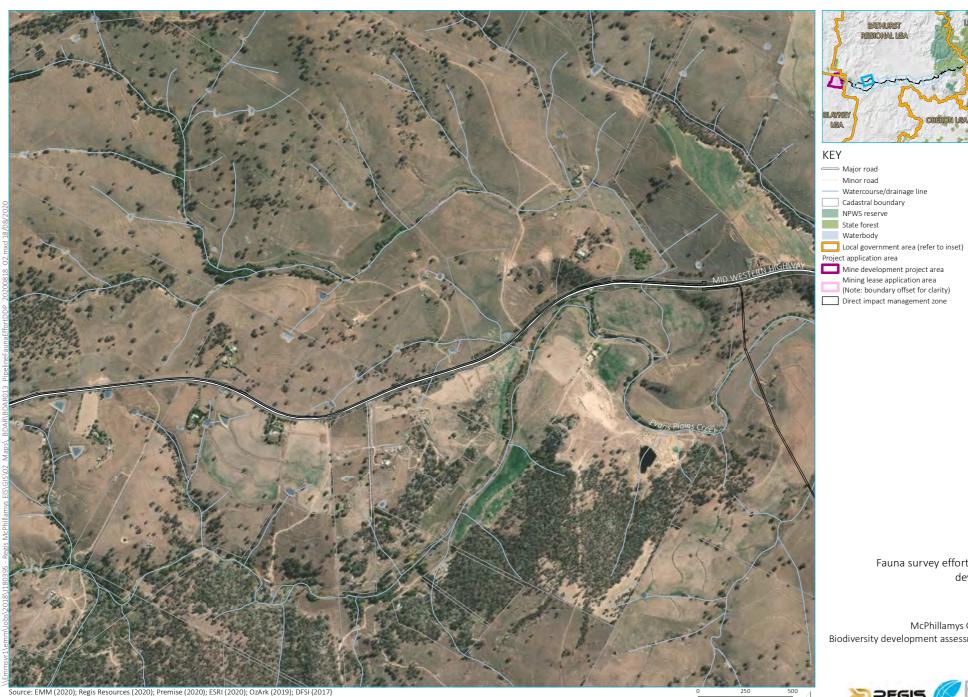




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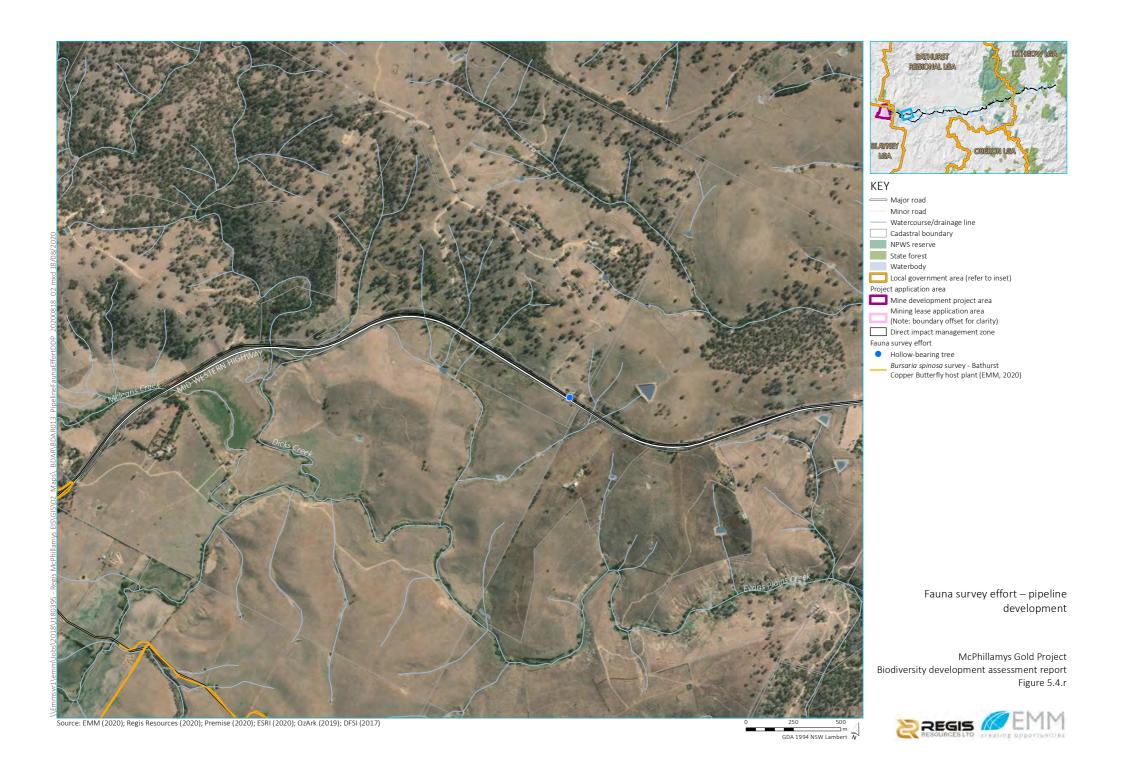


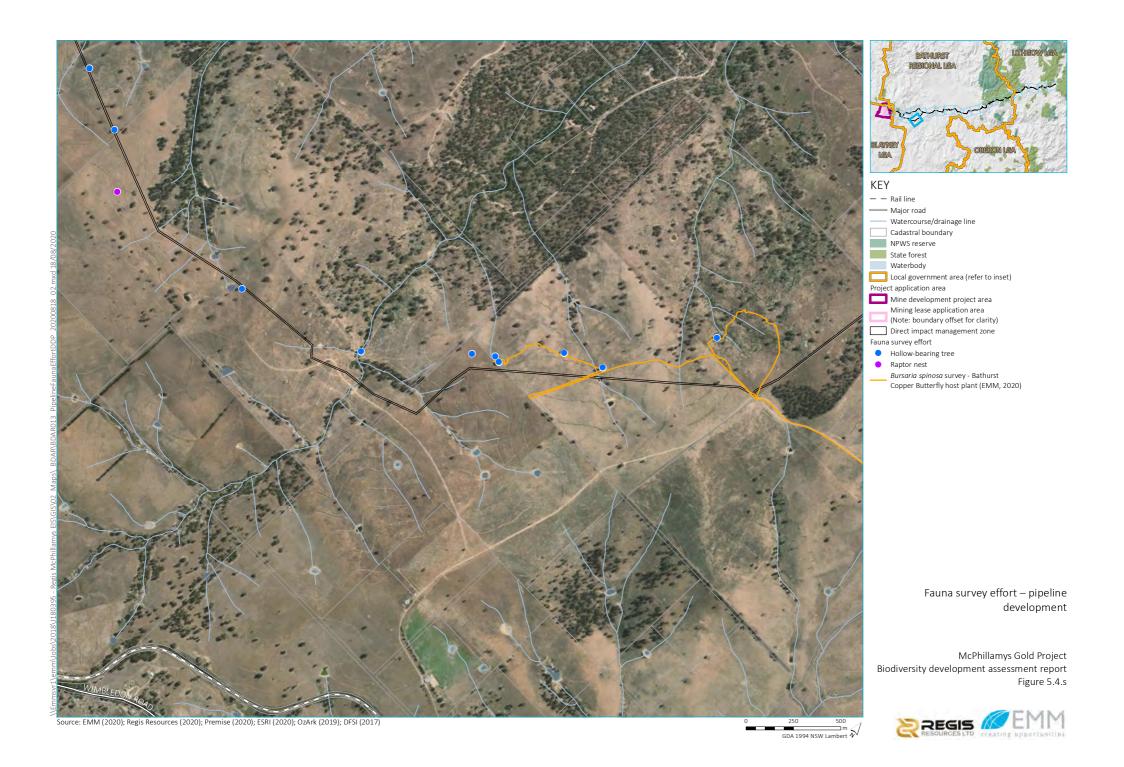


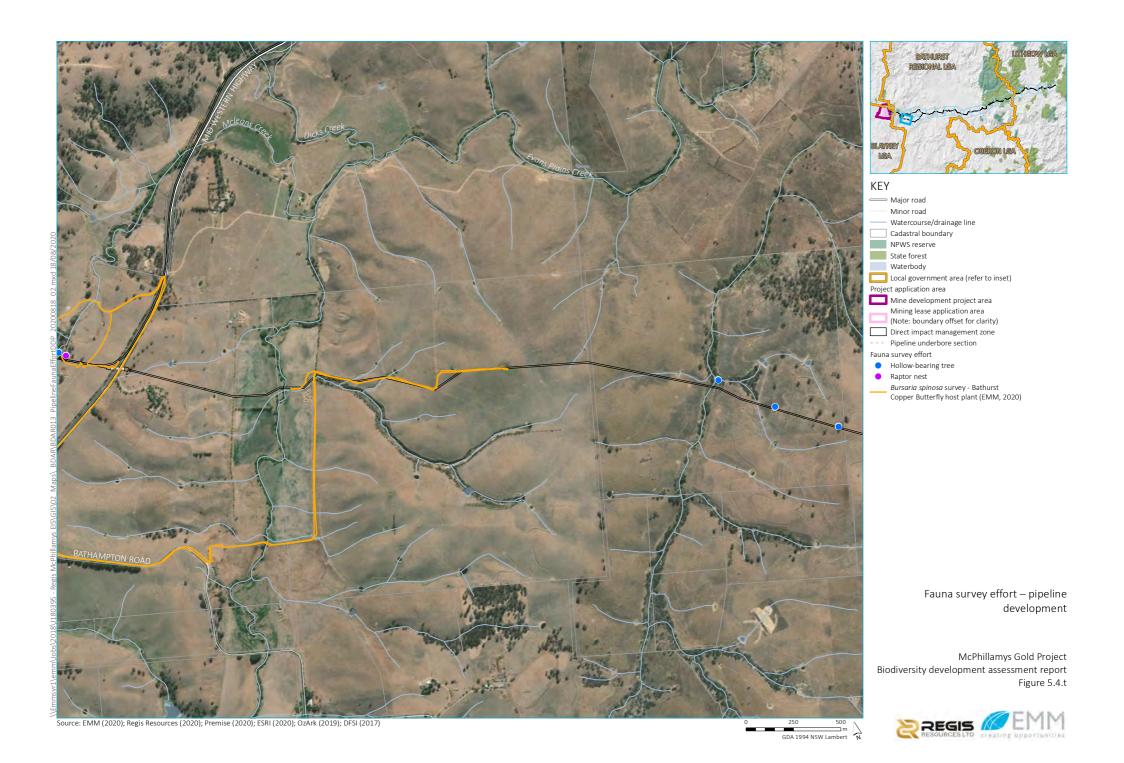


McPhillamys Gold Project Biodiversity development assessment report Figure 5.4.q

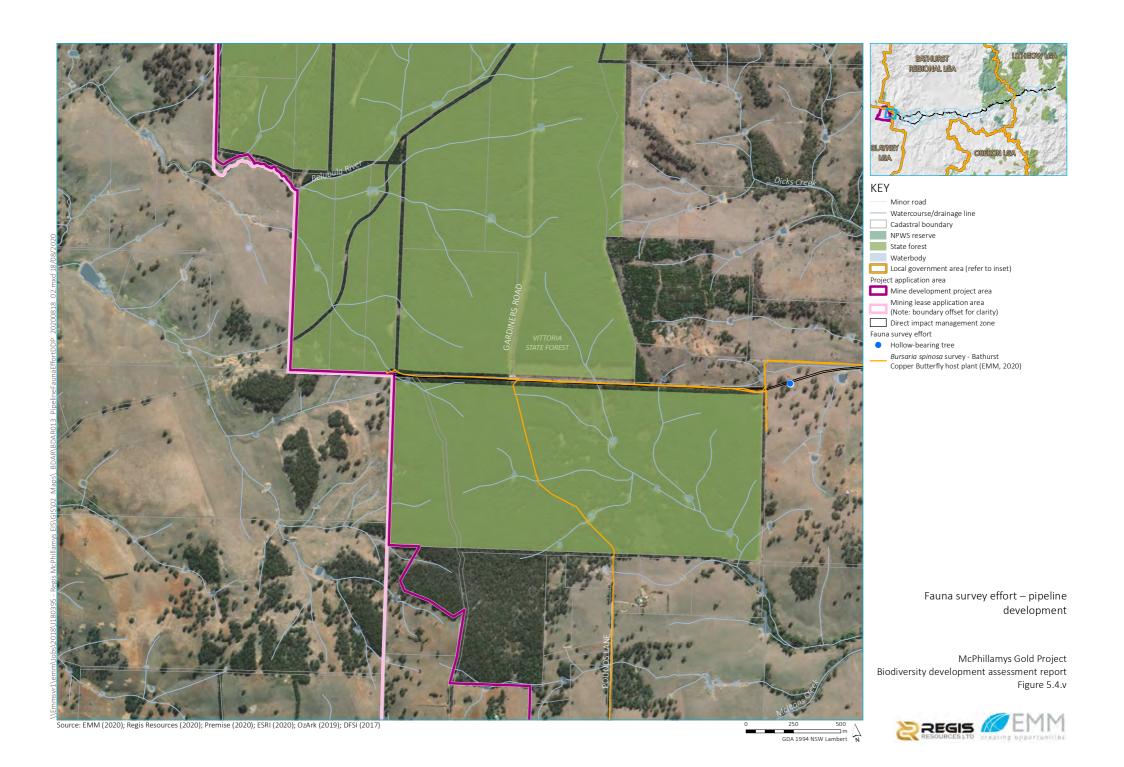












5.2 Results

5.2.1 Habitat assessment

i Mine development

The mine project area has an extensive history of use for agricultural purposes, particularly for grazing. As a result, the mine disturbance footprint provides limited refuge or habitat for fauna. Fauna habitat features were limited to areas of remnant vegetation, particularly those in higher quality, scattered trees and waterways.

Areas of remnant vegetation in moderate/good – high and moderate/good-medium condition contained a moderate level of fallen timber and a sparse to moderate litter cover; some hollow-bearing logs are present, but most have been cleared through underscrubbing. The groundcover consists of a sparse to moderate cover of native grasses, including tussock grasses, and forbs. The midstorey is largely absent due to grazing. Hollows varied from largely absent in areas of regrowth and younger vegetation to abundant in some vegetation zones.

Waterways within the mine project area are highly degraded due to stock access. During periods of low flow, the Belubula River consists of a series of disconnected pools with a gravel to muddy base and little aquatic vegetation. There is a large sediment load due to stock access. Riparian vegetation is largely absent and restricted to patches of retained trees and Willows (*Salix* sp.). There are several farm dams, which generally lack vegetation cover.

ii Pipeline development

Much of the pipeline corridor, particularly within the Bathurst IBRA subregion, comprises of cleared agricultural land used for grazing and cropping and plantations of *Pinus radiata* within state forests. Native vegetation consists of areas of paddock trees over exotic pasture and open woodlands in the western part of the pipeline corridor, to forests in the higher altitudes in the eastern part of the pipeline corridor.

The pipeline corridor crosses watercourses mapped as key fish habitat (KFH) with five identified as Highly Sensitive fish habitat. Five major streams in the pipeline corridor contain potential habitat for Platypus and turtles.

5.2.2 Predicted species assessment

i Mine development

Ecosystem credit species predicted by the BAMC for the mine development are provided in Table 5.9. A justification has been provided where predicted species have been excluded.

 Table 5.9
 Predicted species assessment – mine development

Scientific name	Common name	Associated PCTs	Justification for exclusion
Anthochaera phrygia	Regent Honeyeater	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Artamus cyanopterus cyanopterus	Dusky Woodswallow	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Callocephalon fimbriatum	Gang-gang Cockatoo	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Calyptorhynchus lathami	Glossy Black-Cockatoo	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Chthonicola sagittata	Speckled Warbler	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Circus assimilis	Spotted Harrier	766	Not excluded.
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Daphoenositta chrysoptera	Varied Sittella	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Dasyurus maculatus	Spotted-tailed Quoll	951, 1330, 727	Not excluded
Epthianura albifrons	White-fronted Chat	N/A	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Glossopsitta pusilla	Little Lorikeet	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Grantiella picta	Painted Honeyeater	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Haliaeetus leucogaster	White-bellied Sea-Eagle	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Hieraaetus morphnoides	Little Eagle	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Lathamus discolor	Swift Parrot	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species

Table 5.9 Predicted species assessment – mine development

Hooded Robin (south-eastern form)	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Black-chinned Honeyeater (eastern subspecies)	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Large Bent-winged Bat	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Turquoise Parrot	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Barking Owl	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Powerful Owl	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Scarlet Robin	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Flame Robin	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Koala	951, 1330, 727	Excluded from poor vegetation zones (excepting PCT 951) due to general absence of canopy and shrub species
Superb Parrot	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Grey-headed Flying-fox	1330	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Yellow-bellied Sheathtail-bat	951, 1330, 766	Not excluded
Diamond Firetail	1330, 727	Excluded from poor vegetation zones due to general absence of canopy and shrub species
Rosenberg's Goanna	1330, 727	Not excluded
	Black-chinned Honeyeater (eastern subspecies) Large Bent-winged Bat Turquoise Parrot Barking Owl Powerful Owl Scarlet Robin Flame Robin Koala Superb Parrot Grey-headed Flying-fox Yellow-bellied Sheathtail-bat Diamond Firetail	Black-chinned Honeyeater (eastern subspecies) Large Bent-winged Bat 1330, 727 Turquoise Parrot 1330 Barking Owl 1330, 727 Powerful Owl 1330, 727 Scarlet Robin 1330, 727 Flame Robin 1330, 727 Koala 951, 1330, 727 Superb Parrot 1330 Grey-headed Flying-fox 1330 Yellow-bellied Sheathtail-bat 951, 1330, 766 Diamond Firetail 1330, 727

ii Pipeline development

Ecosystem credit species predicted by the BAMC for the pipeline development (southern option) are provided in Table 5.10. A justification has been provided where predicted species have been excluded.

 Table 5.10
 Predicted species assessment- pipeline development

Scientific name	Common name	Associated PCTs					Justification for exclusion				
		Orange IBRA subregion	Bathurst IBRA subregion (southern option)	Bathurst IBRA subregion (northern option)	Hill End IBRA subregion	Capertee Uplands IBRA subregion					
Anthochaera phrygia	Regent Honeyeater	1093, 277	277, 1330	277, 1330	1093, 1191, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species				
Artamus cyanopterus cyanopterus	Dusky Woodswallow	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Not excluded				
Callocephalon fimbriatum fimbriatum	Gang-gang Cockatoo	1093, 277 277, 13		277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species				
Calyptorhynchus lathami	Glossy Black- Cockatoo	1093	1330	1330	1093, 1191, 1330	1093, 1191	Excluded from all zones due to absence of habitat constraint				
Chthonicola sagittata	Speckled Warbler	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1330	1093, 1191	Not excluded				
Circus assimilis	Spotted Harrier	277	277	277	1191	1191	Not excluded				
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species				
Daphoenositta chrysoptera	Varied Sittella	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species				
Dasyurus maculatus	Spotted-tailed Quoll	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Not excluded				
Falsistrellus tasmaniensis	Eastern False Pipistrelle	N/A	277, 1330	277, 1330	1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species				

 Table 5.10
 Predicted species assessment- pipeline development

Scientific name	Common name	Associated PCTs					Justification for exclusion
		Orange IBRA subregion	Bathurst IBRA subregion (southern option)	Bathurst IBRA subregion (northern option)	Hill End IBRA subregion	Capertee Uplands IBRA subregion	
Glossopsitta pusilla	Little Lorikeet	1093, 277	277, 1330	277, 1330	1093, 1191, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Grantiella picta	Painted Honeyeater	1093, 277	277, 1330	277, 1330	277, 1330 727, 1093, 1330 1093		Excluded from DNG and Shrubland zones due to general absence of canopy species
Haliaeetus leucogaster	White-bellied Sea- Eagle	277	277, 1330	1330 277, 1330 1191, 1330 1191		1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Hieraaetus morphnoides	Little Eagle	1093, 277	277, 1330 277, 1330 727, 1093, 1191, 1093, 1191 1197, 1330		1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species	
Lathamus discolor	Swift Parrot	277	277, 1330	277, 1330	1330	NA	Excluded from DNG and Shrubland zones due to general absence of canopy species
Lophoictinia isura	Square-tailed Kite	1093, 277	277	277	1093	1093	Excluded from DNG and Shrubland zones due to general absence of canopy species
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	1093, 277	277, 1330	277, 1330	1093, 1191, 1197, 1330	1093, 1191	Not excluded
Melithreptus gularis gularis	Black-chinned Honeyeater (easternsubspecies)	277	277, 1330	277, 1330	1330	NA	Excluded from DNG and Shrubland zones due to general absence of canopy species
Miniopterus orianae oceanensis	Large Bent-winged Bat	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Neophema pulchella	Turquoise Parrot	1093, 277	NA	NA	1093, 1191, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species

 Table 5.10
 Predicted species assessment- pipeline development

Scientific name	Common name	Associated PCTs		Justification for exclusion			
		Orange IBRA subregion	Bathurst IBRA subregion (southern option)	Bathurst IBRA subregion (northern option)	Hill End IBRA subregion	Capertee Uplands IBRA subregion	
Ninox connivens	Barking Owl	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Ninox strenua	Powerful Owl	1093	1330	1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Petaurus australis	Yellow-bellied Glider	1093	1330	1330	1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Petroica boodang	Scarlet Robin 1093, 277 277, 1330 277, 1330 727, 1093, 1191, 1093, 1191 1197, 1330		1093, 1191	Not excluded			
Petroica phoenicea	Flame Robin	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Not excluded
Phascolarctos cinereus	Koala	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Polytelis swainsonii	Superb Parrot	277	277, 1330	277, 1330	1330	NA	Excluded from DNG and Shrubland zones due to general absence of canopy species
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	277	NA	NA	NA	NA	Excluded from DNG and Shrubland zones due to general absence of canopy species
Pteropus poliocephalus	Grey-headed Flying-fox	1093, 277	277, 1330	277, 1330	NA	1093	Excluded from DNG and Shrubland zones due to general absence of canopy species
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	1093, 277	277, 1330	277, 1330	1093, 1197, 1330	1093	Not excluded

 Table 5.10
 Predicted species assessment- pipeline development

Scientific name	Common name	Associated PCTs					Justification for exclusion
		Orange IBRA subregion	Bathurst IBRA subregion (southern option)	Bathurst IBRA subregion (northern option)	Hill End IBRA subregion	Capertee Uplands IBRA subregion	
Scoteanax rueppellii	Greater Broad- nosed Bat	N/A	1330	1330	1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Stagonopleura guttata	Diamond Firetail	1093, 277	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Not excluded
Tyto novaehollandiae	Masked Owl	N/A	277, 1330	277, 1330	727, 1093, 1191, 1197, 1330	1093, 1191	Excluded from DNG and Shrubland zones due to general absence of canopy species
Varanus rosenbergi	Rosenberg's Goanna	1093	1330	1330	727, 1093, 1191, 1330	1093, 1191	Not excluded

5.2.3 Candidate species assessment

i Mine development

Candidate species predicted by the BAMC relevant to the mine development are shown in Table 5.11. An assessment of the geographic and landscape constraints has been provided for each species, with a justification provided where species have been excluded, in accordance with steps 1 and 2 in the BAM.

Species polygons are shown on Figure 5.5.

 Table 5.11
 Candidate threatened species assessment – mine development

Step 1 – Identify species for asses		Step 2 – Assessment of habitat	constraints and vagrant s	pecies	Step 3 – Identify candidate species for further assessment		Step 5 – Determine the area or count and location of suitable habitat for a species credit species		
Scientific name	Common name	Habitat/geographic constraints	Constraint present in mine disturbance footprint?	Vagrant species?	Candidate species (yes/no) and rationale	Species recorded during targeted surveys?	Species polygon calculation method		
Flora									
Eucalyptus aggregata	Black Gum	N/A	N/A	N/A	Yes. Known to occur in the region, this species occurs on alluvial soils in low lying areas, including in association with Manna Gum. Initially considered to have potential to occur in association with PCT 951. However, all patches of this PCT were visited during vegetation mapping by EnviroKey and EMM and the species was not recorded.		-		
, , , , , , , , , , , , , , , , , , ,	bertsonii Peppermint bsp.		N/A	No. Habitat degraded. The site does not contain required microhabitats including quartzite ridges, upper slopes and a slight rise of shallow clay over volcanics.	-	-			
	Silver-Leaf Candlebark	N/A	N/A	N/A	No. Habitat degraded. Known only from Mt Canobolas near Orange. Mine project area is outside species range.	-	-		
Swainsona recta	Small Purple-pe	a N/A	N/A	N/A	Yes. Species occurs in a variety of woodlands, including Box Gum Woodland, generally with an understorey dominated by Kangaroo Grass (<i>Themeda triandra</i>), Poa tussocks (<i>Poa</i> spp.) and Spear-grasses (<i>Austrostipa</i> spp.). There are records south of the mine project area, near Carcoar. Such woodlands occur on site.	No	-		
Swainsona sericea	Silky Swainson- pea	N/A	N/A	N/A	Yes. Species is associated with Box Gum Woodland, which occurs on site.	No	-		
Acacia meiantha	1-	N/A	N/A	N/A	Yes. Habitat is degraded. Although PCT 727 contains Brittle Gum (an associated species). An expert report was prepared Premise 2020b). This report concluded that <i>Acacia meiantha</i> is unlikely to occur as the site is lower than 900 m in elevation.	No (expert report)	-		
Prostanthera gilesii	-	N/A	N/A	N/A	No. Habitat is degraded. The site does not contain the required habitat association of wet sclerophyll forest containing tall <i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i> , with scattered <i>E. canobolensis</i> and <i>E. dives</i> or the required soil association of a deep basaltic clay-loam with alluvial deposits on the lower slopes.	-	-		
Fauna									
	Regent Honeyeater	Important mapped areas (breeding).1	No	N/A	No. The site is not a mapped important area.	-	-		
•	Pink-tailed Legless Lizard	Rocky areas, or within 50m of rocky areas.	Yes	No	Yes. The site contains some well-drained areas of Box Gum Woodland with partially buried rocks.	No	-		
	Bush Stone- curlew	Fallen/standing dead timber including logs.	Yes	No	Yes. The site contains some open areas of Box Gum Woodland with fallen timber.	No	-		
	Gang-gang Cockatoo	Eucalypt tree species with hollows greater than 9 cm diameter	Yes	No	Yes. The site contains eucalypts with hollows greater than 9cm diameter.	No	-		

Table 5.11 Candidate threatened species assessment – mine development

Step 1 – Identify species for asses		Step 2 – Assessment of habitat c	onstraints and vagrant s	pecies	Step 3 – Identify candidate species for further assessment		Step 5 – Determine the area or count and location of suitable habitat for a species credit species		
Scientific name	Common name	Habitat/geographic constraints	Constraint present in mine disturbance footprint?	Vagrant species	Candidate species (yes/no) and rationale	Species recorded during targeted surveys?	Species polygon calculation method		
Calyptorhynchus lathami	Glossy Black- Cockatoo	Living or dead tree with hollows greater than 15cm diameter and greater than 5m above ground.	Yes	No	No. Habitat degraded. While the site contains the habitat constraints of this species, their preferred foraging habitat is absent from the site.	-	-		
Cercartetus nanus	Eastern Pygmy- possum	N/A	N/A	No	Yes. Found in a broad range of habitats, usually with a complex midstorey. The habitat in the mine project area is considered marginal and the mine project area is outside of the species range, with no recent records within proximity to the mine project area. All habitat within the site considered marginal to suboptimal	No	-		
					However, a precautionary assessment has been undertaken and the species has been included as a candidate species. Potential to occur in PCTs 727 and 951, excluding areas lacking tree or shrub cover.	S			
Chalinolobus dwyeri	Large-eared Pie Bat	d Cliffs; Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels. ¹	No	No	No. The required habitat constraints are absent from the site.	-	-		
Haliaeetus Ieucogaster	White-bellied Sea-Eagle	Living or dead mature trees within suitable vegetation within 1km of a rivers, lakes, large dams or creeks, wetlands and coastlines		No	Yes. Potential breeding habitat is present at the site, including live large old trees within 1km of a rivers.	No	-		
Hieraaetus morphnoides	Little Eagle	Nest trees - live (occasionally dead) large old trees within vegetation.	No	Yes	Yes. The site contains potentially suitable habitat for the species including open eucalypt forest, woodland and open woodland.	No	-		
Lathamus discolor	Swift Parrot	Important mapped areas ¹	No	No	No. The site is not a mapped important area.	-	-		
Litoria booroolongensis	Booroolong Fro	g N/A	N/A	No	No. Habitat degraded. The mine project area does not support permanent streams, with all waterways declining to disconnected ponds during low flow. Further, waterways within the mine project area do not support cobble banks or other rock substrate along stream margins that would provide breeding habitat for this species.	-	-		
 Litoria castanea	Yellow-spotted Tree Frog	N/A	Yes	No	The mine project area does not provide suitable habitat for this species. No. Habitat degraded. The species requires large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation. Emergent and aquatic vegetation is largely absent from the site and creek condition is degraded.	-	-		

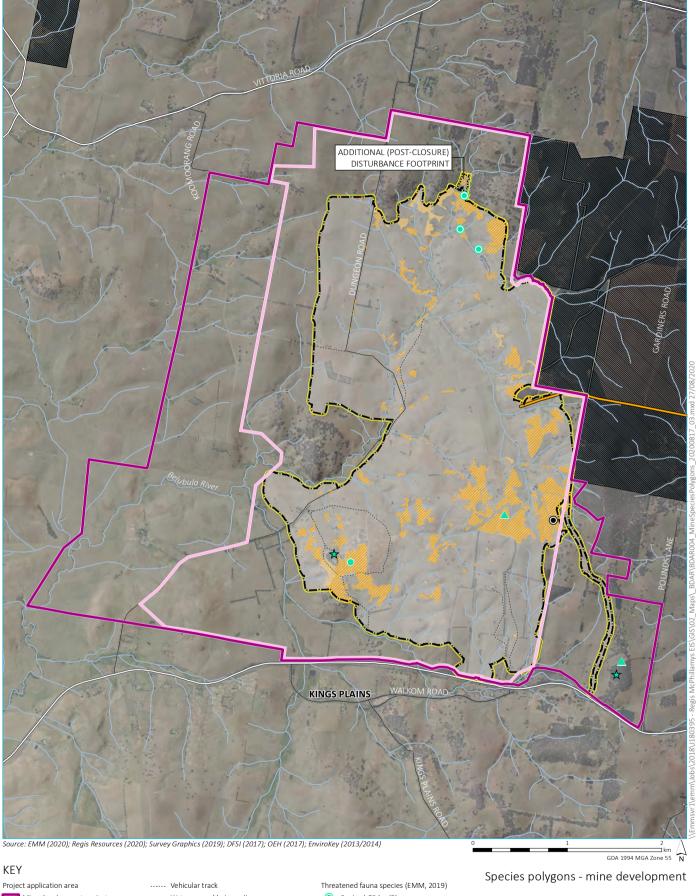
Table 5.11 Candidate threatened species assessment – mine development

Step 1 – Identification species for asse		Step 2 – Assessment of habitat of	constraints and vagrant s	species	Step 3 – Identify candidate species for further assessment		Step 5 – Determine the area or count and location of e suitable habitat for a species credit species		
Scientific name	Common name	Habitat/geographic constraints	Constraint present in mine disturbance footprint?	Vagrant species	? Candidate species (yes/no) and rationale	Species recorded during targeted surveys?	Species polygon calculation method		
Miniopterus orianae oceanensis	Large Bent- winged Bat	Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave;" observation type code "E nest-roost;" with numbers of individuals >500.1	No	No	No. The required habitat constraints are absent from the site.	-	-		
Myotis macropus	Southern Myoti	s Hollow-bearing trees; Within 200 m of riparian zone; Bridges, cave or artificial structures within 200 m of riparian zone; Waterbodies including rivers, creeks, billabongs, lagoons, dams and other waterbodies on or within 200m of the site.	S	No	Yes. The mine project area supports hollow-bearing trees, bridges and artificial structures.	No	-		
Ninox connivens	s Barking Owl	Living or dead trees with hollows greater than 20 cm diameter and greater than 4m above the ground.		No	Yes. The site contains living or dead trees with hollows greater than 20 cm diameter and greater than 4m above the ground.	No	-		
Ninox strenua	Powerful Owl	Living or dead trees with hollow greater than 20cm diameter	Yes	No	Yes. The site contains living or dead trees with hollow greater than 20cm diameter	No	-		
Petaurus norfolcensis	Squirrel Glider	N/A	N/A	No	Yes. The mine project area supports forests and woodlands dominated by Box species, although a shrubby or <i>Acacia</i> spp. dominated midstorey is largely absent. The species has been recorded during previous surveys and is known to occur on-site. Species was considered likely to occur in all PCTs excluding areas lacking	Yes	The species polygon for Squirrel Glider is the sum of all PCTs that contain woodlands (PCT 727, 951 and 1330).		
Phascogale tapoatafa	Brush-tailed Phascogale	N/A	N/A	No	tree cover. Yes. PCT 727 contains dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter, which the species prefers.	No	-		
Phascolarctos Koala cinereus		Important' habitat (however this is not a mapped important habitat area), defined by the density of koalas and quality of habitat determined by on-site survey	Yes	No	Yes. The Koala occurs in a wide variety of forests and woodlands. Five species listed under Koala SEPP as feed trees in the central and southern koala management area, namely Apple Box, Broad-leaved Peppermint, Bundy, Yellow Box and Ribbon Gum are present. There are records in proximity to the project area.		The species polygon for the Koala is the sum of PCT 727_High, 727_Moderate, 727_Intact, 1330_High, 1330_Moderate and 951_poor, which contain the key feed tree species listed under SEPP (Koala Habitat Protection) 2019 for the central and southern tablelands koala management area.		

Table 5.11 Candidate threatened species assessment – mine development

Step 1 – Identify threatened species for assessment		Step 2 – Assessment of habitat o	constraints and vagrant s	pecies	Step 3 – Identify candidate species for further assessment	Step 4 – Determine presence/absence of candidate species	Step 5 – Determine the area or count and location o e suitable habitat for a species credit species			
Scientific name	Common name	Habitat/geographic constraints	Constraint present in mine disturbance footprint?	Vagrant species?	Candidate species (yes/no) and rationale	Species recorded during targeted surveys?	Species polygon calculation method			
Polytelis swainsonii	Superb Parrot	Living or dead <i>E. blakelyi, E. melliodora, E. albens, E. camaldulensis, E. microcarpa, E. polyanthemos, E. mannifera, E. intertexta</i> with hollows greater than 5cm diameter; greater than 4m above ground or trees with a DBH of greater than 30cm.	1	Yes	No. Species is vagrant. The Superb Parrot breeds in riverine forests in the Riverina and Box-Gum Woodlands on the tablelands and slopes. Tree species typically selected for nesting on the slopes and tablelands comprise River Red Gum (E. camaldulensis), Blakely's Red Gum, Apple Box (E. bridgesiana), Grey Box (E. microcarpa), White Box and Red Box (E. polyanthemos). Of the species described above, Blakely's Red Gum and Apple Box occur in the project area and surrounds. However, the project area does not occur within the three main breeding areas for the species, so local records of the species are considered to be vagrant individuals.	e	-			
Pteropus poliocephalus	Grey-headed Flying-fox	Breeding camps	No	No	No. The Grey-headed Flying-fox is not a candidate species as it required habita constraint is absent.	- t	-			

^{1.} This habitat constraint is not appearing in the BAMC, and therefore "habitat degraded" has been selected to remove the species from the candidate species list.



Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint

Additional (post-closure) disturbance footprint

Pipeline Existing environment

—— Major road

— Minor road

Watercourse/drainage line

Vittoria State Forest Weed impact management zone (WIMZ)

Koala species polygon Squirrel Glider species polygon Squirrel Glider (3)

Koala (1)

Threatened fauna species (EnviroKey) May 2013 sightings

Squirrel Glider (3)

November 2013 sightings ▲ Squirrel Glider (4)

March 2014 sightings Squirrel Glider (2)

McPhillamys Gold Project Biodiversity development assessment report Figure 5.5





ii Pipeline development

Candidate species predicted by the BAMC relevant to the pipeline development are shown in Table 5.12. An assessment of the geographic and landscape constraints has been provided for each species, with a justification provided where species have been excluded, in accordance with steps 1 and 2 in the BAM.

Species polygons are shown on Figure 5.6.

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment o	of habitat cons	straints and	vagrant spp	р							Step 3 - Iden	tify candida	te spp for fu	rther assess	ment	Step 4 - Determine presence/absence	
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	present in p	ipeline dist	curbance fo	ootprint?	Habitat o	degraded or vag	grant species?			Rationale					of candidate spp	location of suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Flora																				
Acacia flocktoniae	Flockton Wattle	BA (sth), BA (nth)	-	N/A	-	-	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Potentiall suitable habitat present.	Yes. y Potentially suitable habitat present.	N/A /	N/A	Not recorded during targeted surveys by OzArk or EMM.	-
Lepidium hyssopifolium	Basalt Peppercress	BA (sth), s BA (nth)	-	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Potentiall suitable habitat present.	Yes. y Potentially suitable habitat present.	N/A /	N/A	in BA (sth) and BA (north).	In higher quality Box Gum Woodland that is ungrazed, in BA sth and nth (PCT 1330_Intact, 1330_DNG, 1330_Shrubland, 277_Intact and 277 Moderate).
Swainsona recta	Small Purple-pea	OR	-	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	Yes. Potentially suitable habitat present.	N/A	N/A	N/A	N/A	Not recorded targeted during surveys. Assumed present in OR.	In higher quality Box Gum Woodland that is ungrazed, in OR (PCT 277_Intact, 277_Moderate).
Swainsona sericea	Silky Swainson- pea	All	-	N/A	N/A	N/A	N/A	N/A	-	-	-	-	Habitat degraded. Too far east from species known distribution.		Yes. Potentiall suitable habitat present.	Yes. y Potentially suitable habitat present.	Yes. y Potentially suitable habitat present.	No. / Habitat degraded.	(north) and HE.	In higher quality Box Gum Woodland that is ungrazed, in OR (PCT 277_Intact, 277_Moderate), BA sth and nth (PCT 1330_Intact, 1330_DNG, 1330_Shrubland) and HE (PCT 1191_Intact and 1330_Intact).

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	-	tep 2 - assessment of habitat constraints and vagrant spp								Step 3 - Identify candidate spp for further assessment					Determine presence/absence				
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	present in p	pipeline dist	urbance fo	ootprint?	Habitat (degraded or vag	rant species?			Rationale					—of candidate spp	location of suitable habitat for candidate spp	
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU			
Thesium australe	Austral Toadflax	BA (sth), BA (nth), CU	dflax BA (nth),		N/A	N/A	N/A	N/A	N/A	N/A		-	N/A	Habitat degraded. The understorey of woodlands is degraded and does not contain suitable patches of Kangaroo Grass.		Yes. Potentiall suitable habitat present.	Yes. y Potentially suitable habitat present.	No. Habitat degraded	N/A	Not targeted during surveys. Assumed present in BA (sth) and BA (nth).	In higher quality Box Gum Woodland that is ungrazed, in BA sth and nth (PCT 1330_Intact, 1330_DNG and 1330_Shrubland).
Eucalyptus cannonii	Capertee Stringybark	HE, CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Suitable habitat present.	Yes. Suitable habitat present.	Recorded by OzArk during targeted survey. EMM revisited these areas to collect samples to send to the National Herbarium. It was confirmed that the trees were a hybrid between Red Stringybark and Capertee Stringybark, and not the threatened species.		
Eucalyptus pulverulenta	Silver- leaved Stringybark	HE, CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Potentiall suitable habitat present.	Yes. y Potentially suitable habitat present.	Not recorded during targeted survey.	-	

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify candidate Pre spp for assessment sub Scientific name Common			Step 2 - assessment o	of habitat cons	traints and	vagrant spp	p							Step 3 - Iden	tify candida	te spp for fu	rther assessi	ment	Step 4 - Determine presence/absence of candidate spp	Step 5 - Determine area or count and location of
Scientific name	Common name		Habitat/geographic constraints	Constraint	present in p	ipeline dist	urbance fo	ootprint?	Habitat o	degraded or vag	rant species?			Rationale					–or candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Prasophyllum petilum	Tarengo Leek Orchid	CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	Yes. Potentially suitable habitat present.	Expert report completed. Potentially present in CU (expert report).	This species has been excluded. Expert report has identified 0.62 ha potential habitat. Targeted surveys will be completed in November 2020 and if found, direct impacts will be avoided.
Persoonia marginata	Clandulla Geebung	HE and CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Potentially suitable habitat present.	Yes. Potentially suitable habitat present.	Absent from HE. Four individuals recorded in CU.	30 m buffer placed around each plant to be disturbed in CU in PCT 1093_Intact and 1093_Shrubland.
Acacia meiantha	-	OR, HE, CU	-	-	-	-	-	-	-	-	-	-	-	Υ	N/A	N/A	Yes. Potentially suitable habitat present.	Yes. Potentially suitable habitat present.	Expert report has determined that the species is largely absent from the BA, OR and CU IBRA subregions where it was predicted to occur.	-
Eucalyptus aggregata	Black Gum	HE, CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	N/A	N/A	N/A	Yes. Suitable habitat present.	Yes. Suitable habitat present.	Four individuals recorded in CU during targeted surveys by EMM. Not recorded during targeted surveys in HE.	One individual of this count-based species will be impacted in CU in PCT 1191_Sparse.
Acacia bynoeana	Bynoe's Wattle	HE	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	Yes. Suitable habitat present.	N/A	Not recorded during targeted surveys by OzArk or EMM.	-

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat con	nstraints and	vagrant spp	•							Step 3 - Ident	ify candidat	e spp for fui	ther assessi	ment	Step 4 - Determine presence/absence of candidate spp	Step 5 - Determine area or count and location of
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	t present in p	pipeline dist	urbance f	ootprint?	Habitat	degraded or vag	rant species?			Rationale					-or candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Grevillea divaricata	-	HE, CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes, potentially suitable habitat occurs.	Yes, potentially suitable habitat occurs.	N/A	N/A	N/A	No. Species not recorded during targeted surveys by OzArk.	No. Species not recorded during targeted surveys by OzArk.	-	-
Veronica blakelyi	-	HE	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	Yes. Potentially suitable habitat present.	N/A	Assumed present in HE in suitable habitat.	Assumed present in PCT 1197_Intact in HE.
Eucalyptus robertsonii subsp. hemispherica	Robertson's Peppermint		-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A	Yes. Potentially suitable habitat present.	Not found during targeted survey.	-
Fauna																				
Aprasia parapulchella	Pink-tailed Worm Lizard	OR, BA (sth), BA (nth), CU	Rocky areas; Or within 50m of rocky areas	Yes	Yes	No	No	No	-	-	-	-	-	Yes. Habitat constraint present.	Yes. Habitat constraint present.	No. Habitat constraint absent.	No. Habitat constraint absent.	No. Habitat constraint absent.	Presence assumed in OR and BA (sth).	Areas containing granite outcropping in OR (PCT 277_Intact) and BA sth (PCT 1330_DNG, 1330_Intact and 1330_Sparse).

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessme		Predicted subregions	Step 2 - assessment of	f habitat cons	traints and v	/agrant spp	0							Step 3 - Identi	fy candidat	e spp for fu	rther assess	ment	Step 4 - Determine presence/absence	
Scientific name	Common name	_	Habitat/geographic constraints	Constraint p	present in pi	peline dist	urbance foo	tprint?	Habitat de	graded or vag	rant species?			Rationale					of candidate spp	location of suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Litoria booroolongensis	Booroolong Frog	All		N/A	N/A	N/A	N/A	N/A	Habitat degraded. No cobble- lined streams suitable for breeding are present.		Habitat degraded. No cobble- lined streams suitable for breeding are present	for		No. Habitat degraded.	Yes. Potentialli suitable habitat present.	No. y Habitat degraded	No. Habitat . degraded.	Yes. Potentially suitable habitat present.	Assumed present in BA (sth) and CU.	In creek crossings with rock or cobble banks. Instream area buffered by 50 m to estimate foraging habitats in BA sth (PCT 1330_Sparse), BA nth (non-native vegetation), CU (non-native vegetation, PCT 1191_Intact and 1191_Sparse).
Paralucia spinifera	Bathurst Copper Butterfly	BA (sth), BA (nth), HE, CU	Other; Bursaria spinosa or within 40m of Bursaria spinosa; Above 800 m altitude (CU only)	N/A	Yes. Habitat constraint present	No. Habitat t constrain absent.	Yes. Habitat it constraint present	Yes. Habitat t and geographic constraints present		N/A	N/A	N/A	N/A	N/A	Yes. Habitat constraint present	No. Habitat constrain absent.	Yes. Habitat t constraint present	geographic	Absent from BA (sth). Host plants recorded in HE and CU. Pipeline disturbance footprint minimised to avoid direct impacts.	The pipeline disturbance footprint has been narrowed to avoid direct impacts. Indirect impacts calculated within 40 m buffer area of host plants.
Petaurus norfolcensis	Squirrel Glider	All	-	N/A	N/A	N/A	N/A	N/A	-	-		-	-	Yes. Potentiall	y suitable h	abitat prese	ent.		Assumed present in all IBRA subregions.	In woodland areas with a minimum distance of approximately 60 m between trees in OR (PCT 1093_Intact and 277_Intact), BA sth and nth (PCT 1330_Intact, 1330_Shrubland and 1330_Sparse).

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat cons	traints and	vagrant spp	0							Step 3 - Ident	ify candidat	e spp for fu	rther assess	ment	Step 4 - Determine presence/absence	Step 5 - Determine area or count and location of
Scientific name	Common name	_	Habitat/geographic constraints	Constraint p	present in p	ipeline dist	urbance fo	otprint?	Habitat d	degraded or vag	rant species?			Rationale					—of candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Phascolarctos cinereus	Koala	All	Other; Areas identified via survey as important habitat	Yes	Yes	Yes	Yes	Yes				Yes. Important habitat present in large vegetated corridors that contain key feed tree species for the southern and in all zones. select central tablelands koala management area in SEPP (Koala Habitat Protection) 2019 (Brittle Gum, Red Stringybark, Inland Scribbly Gum and Snow Gum). BA st (PCT and 1330 (PCT 1191 1197 1330 727_ CU (F 1093 1093 1093 1093 1093 1093 1093 1093		selected in these connected areas comprise OR (PCT 277_Intact and 1093_Intact), BA sth and nth (PCT 1330_Intact						
Burhinus grallarius	Bush Stone- curlew	OR, BA (sth), BA (nth)	Fallen/standing dead timber including logs	Yes	Yes	Yes	N/A	N/A	-	-	-	-	-	No. Species not recorded during OzArk's targeted surveys.	No. Species not recorded during OzArk's targeted surveys.	No. Species not recorded during OzArk's targeted surveys.	N/A	N/A	-	-
Calyptorhynchus Iathami	Glossy Black- cockatoo	All	Hollow-bearing trees; living or dead tree with hollows greater than 15cm diameter and greater than 5m above ground	Yes	Yes	Yes	Yes	Yes		degraded. Suitab eg Allocasuarina				No. Habitat degraded.	No. Habitat degraded	No. Habitat degraded.	No. Habitat degraded	No. Habitat . degraded.	-	-

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat cons	straints and	vagrant spp	•							Step 3 - Ident	ify candida	te spp for fu	rther asses	sment	Step 4 - Determine presence/absence	Step 5 - Determine area e or count and location of
Scientific name	Common name		Habitat/geographic constraints	Constraint	present in p	ipeline dist	urbance f	ootprint?	Habitat de	graded or vag	rant species?			Rationale					—of candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Cercartetus nanus	Eastern Pygmy Possum	All		N/A	N/A	N/A	N/A	N/A	Vegetation	Habitat degraded. Vegetation is typically an open woodland structure without the required shrub layers for cover.	Habitat degraded. Vegetation is typically an open woodland structure without th required shrub laye for cover.	e		No. Habitat degraded.	No. Habitat degraded	No. Habitat . degraded	Yes. Suitable habitat present.	Yes. Suitable habitat present.	Assumed present in HE and CU.	In vegetation zones with a complex midstorey structure. These areas comprise HE (PCT 1191_Intact, 1191_Shrubland, 1093_Intact and 1093_Shrubland, 727_Intact and 727_Shrubland) and CU (PCT 1093_Fragments, 1093_Shrubland, 1093_Intact, 1191_Intact, 1191_Sparse and 1191_Shrubland).
Polytelis swainsonii (breeding)	Superb Parrot	OR, BA (sth), BA (nth), HE	Hollow bearing trees; Living or dead E. blakelyi, E. melliodora, E. albens, E. camaldulensis, E. microcarpa, E. polyanthemos, E. mannifera, E. intertexta with hollows greater than 5cm diameter; greater than 4m above ground or trees with a DBH of greater than 30cm		Yes	Yes	Yes	N/A		vagrant. The pi own breeding i			N/A	No. Species is	vagrant.			N/A	-	

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	f habitat cor	nstraints and	vagrant sp	p							Step 3 - Iden	tify candidat	e spp for fu	rther assess	ment	Step 4 - Determine presence/absence —of candidate spp	Step 5 - Determine area or count and location of
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	t present in p	pipeline dist	turbance f	ootprint?	Habitat (degraded or vagr	ant species?			Rationale					—or candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Chalinolobus dwyeri	Large-eared Pied Bat		Cliffs; within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels	No	No	No	No	Yes						No. Habitat constraint absent.	Yes. Habitat constraint present.	Assumed present in CU.	Cliffs and rocky areas less than 2km east of the pipeline disturbance footprint in CU. There will be no direct disturbance to these areas. A 2 km buffer has been applied to determine native vegetation that would represent potential foraging habitat for the species. The species polygon comprises this native vegetation which includes PCT 1191_Shrubland and 1191_Sparse.			
Delma impar	Striped Legless Lizard	BA (sth), BA (nth)	-	-	-	-	-	-	N/A	Habitat degraded. Suitable habitat (ie natural grasslands or undisturbed grassy woodlands) are absent).	Habitat degraded. Suitable habitat (ie natural grasslands or undisturber grassy woodlands are absent))	N/A	N/A	No. Habitat degraded	No. Habitat degraded.	N/A	N/A	-	-

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessme		Predicted subregions	Step 2 - assessment of	f habitat const	traints and v	vagrant spp)							Step 3 - Ident	ify candidat	e spp for fu	rther assess	ment	Step 4 - Determine presence/absence –of candidate spp	Step 5 - Determine area or count and location of
Scientific name	Common name	_	Habitat/geographic constraints	Constraint p	present in pi	ipeline dist	urbance foo	otprint?	Habitat d	legraded or vag	rant species?			Rationale					–or candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Lathamus discolor (breeding)	Swift Parrot	•	Mapped important areas	No. The pipeline does not traverse important areas.	No. The pipeline does not traverse important areas.	N/A t	N/A	N/A	-	-	N/A	N/A	N/A	No. Habitat constraint absent.	No. Habitat constraint absent.	N/A	N/A	N/A	-	-
Tyto novaehollandiae (breeding)	Masked Owl	BA (sth), BA (nth), HE, CU	Hollow-bearing trees; Living or dead trees with hollows greater than 20cm diameter	N/A	Yes	No	Yes	Yes	N/A	Habitat degraded. Large forested areas are absent.	-	-		N/A	No. Habitat degraded.	No. Habitat constraint absent.	present	at constraint	Assumed present in HE and CU.	100 m buffer placed around hollow-bearing trees in forested areas where hollows >20 cm diameter. Excluded in fragmented vegetation zones. Suitable hollow-bearing trees are found in HE (PCT 1191_Intact, 1191_Shrubland, 1093_Intact and 1093_Shrubland, 727_Intact and 727_Shrubland) and CU (PCT 1093_Intact, 1093_Shrubland and 1191_Intact).
Anthochaera phrygia	Regent Honeyeater	All	Mapped important areas	No. The pipeline does not traverse important areas.	pipeline does not traverse	No. The pipeline does not traverse importan areas.	pipeline does not traverse	pipeline does not	-	-	-	-	-	No. Habitat constraint absent.	No. Habitat constraint absent.	No. Habitat constraint absent.	No. Habitat constraint absent.	No. Habitat t constraint absent.	-	-

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat constr	raints and	vagrant spp								Step 3 - Identi	ify candidat	e spp for fu	rther assessi	ment	Step 4 - Determine presence/absence —of candidate spp	Step 5 - Determine area or count and location of
Scientific name	Common name	_	Habitat/geographic constraints	Constraint pr	resent in p	ipeline dist	urbance :	footprint?	Habitat de	graded or vagra	ant species?			Rationale					—or candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Callocephalon fimbriatum (breeding)	Gang-gang Cockatoo	All	Hollow bearing trees; eucalypt tree species with hollows greater than 9 cm diameter	Yes	Yes	Yes	Yes	Yes	Habitat degraded. Tall moist forests (breeding habitat) is absent.		_	Habitat degraded. Tall moist forests (breeding habitat) is absent.	-	No. Habitat degraded.	No. Habitat degraded.	No. Habitat degraded.	No. Habitat degraded.	Yes. Suitable breeding habitat present.	Assumed present in CU.	200 m buffer placed around hollow-bearing trees in tall moist forest areas (PCT 1197) where hollows >9 cm diameter.
Hieraeetus morphnoides	Little Eagle	All	Other; nest trees - live (occassionally dead) large old trees within vegetation)	No. Suitable r absent.	nest trees	were			-	-	-	-	-	No. Suitable n absent.	est trees				-	-
Lophoictinia isura (breeding)	Square- tailed Kite	All	Other; nest trees.	No. Suitable rabsent.	nest trees	were			-	-	-	-	-	No. Suitable n absent.	est trees				-	-
Miniopterus orianae oceanensis	Large Bentwing Bat	All	Caves; cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records with microhabitat code "IC - in cave; observation type code "E nestroost with numbers of individuals >500				absent.	Mines are	-	-	-	-	-	No. Habitat cc	onstraints ab	osent.				-

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions		f habitat constraints and	vagrant sp	р							Step 3 - Iden	tify candida	te spp for fu	rther assess	ment	Step 4 - Determine presence/absence	
Scientific name	Scientific name Common name		Habitat/geographic constraints	Constraint present in p	ipeline dis	turbance	footprint?	Habitat d	legraded or vagi	rant species?			Rationale					—of candidate spp	location of suitable habitat for candidate spp
				OR BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Myotis macropus	Southern Myotis	BA (nth)	Hollow-bearing trees within 200 m of riparian zone Other Bridges, caves or artificial structures within 200 m of riparian zone Waterbodies. This include rivers, creeks, billabongs, lagoons, dams and other waterbodies on or within 200m of the site	N/A No. Habit constrain		N/A	N/A	N/A			N/A	N/A	N/A	No. Habit absent.	at constraint	: N/A	N/A		
Ninox connivens (breeding)	Barking Ow		Hollow-bearing trees; Living or dead trees with hollows greater than 20 cm diameter and greater than 4m above the ground	Yes. Potentially suitable habitat present.	Habitat		tentially e habitat t.	-	Habitat degraded. Suitable breeding habitat along vegetated creek corridors is absent.	N/A	Habitat degraded. Suitable breeding habitat along vegetated creek corridors is absent.	-	Yes. Habitat constraint present.	No. Habitat degraded	N/A	No. Habitat degraded.	Yes. Habitat constraint present.	Assumed present in OR and CU.	100 m buffer placed around hollow-bearing trees along vegetated creeks and waterways where hollows are > 20 cm diameter. Such hollows occur in OR (PCT 277_Intact and 277_Moderate) and CU (PCT 1191_Intact).

Table 5.12 Candidate threatened species assessment – pipeline development

Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat cons	traints and	vagrant sp	p							Step 3 - Ident	tify candida	e spp for fu	rther assess	ment	Step 4 - Determine presence/absence	
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	present in p	pipeline dist	turbance fo	ootprint?	Habitat	t degraded or va	grant species	?		Rationale					—of candidate spp	suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Ninox strenua (breeding)	Powerful Owl	All	Hollow-bearing trees; Living or dead trees with hollow greater than 20cm diameter	Yes. Habitat present.	constraint	No. Habitat constrair absent.		oitat int present.		Habitat degraded. Suitable habitat (ie large tracts connected forest) are absent.	N/A of	Habitat degraded. Suitable habitat (ie large tract of connected forest) are absent.	s	Yes. Habitat constraint present.	No. Habitat degraded	N/A	No. Habitat degraded	Yes. Habitat . constraint present.	Assumed present in OR and CU.	100 m buffer placed around hollow-bearing trees in forested areas where hollows >20 cm diameter. Excluded in fragmented vegetation zones. Suitable hollow-bearing trees are found in HE (PCT 1191_Intact, 1191_Shrubland, 1093_Intact and 1093_Shrubland, 727_Intact and 727_Shrubland) and CU (PCT 1093_Intact, 1093_Shrubland and 1191_Intact).
Petrogale penicillata	Brush-tailed Rock Wallaby	d BA (sth), BA (nth), CU	Other; Land within 1 km of rocky escarpments, gorges, steep slopes, boulder piles, rock outcrops or clifflines	N/A	No. Habit constrain			Yes. Habitat constrain present ir buffer area.		-	-	-	-	N/A	No. Habit absent.	at constrain	t	Yes. Habitat constraint present in buffer area.	Assumed present in CU given presence of rocky outcrops and ridgelines north and east of the pipeline route. No direct disturbance to these areas.	to Brush-tailed Rock Wallaby habitat which occurs east of the pipeline disturbance

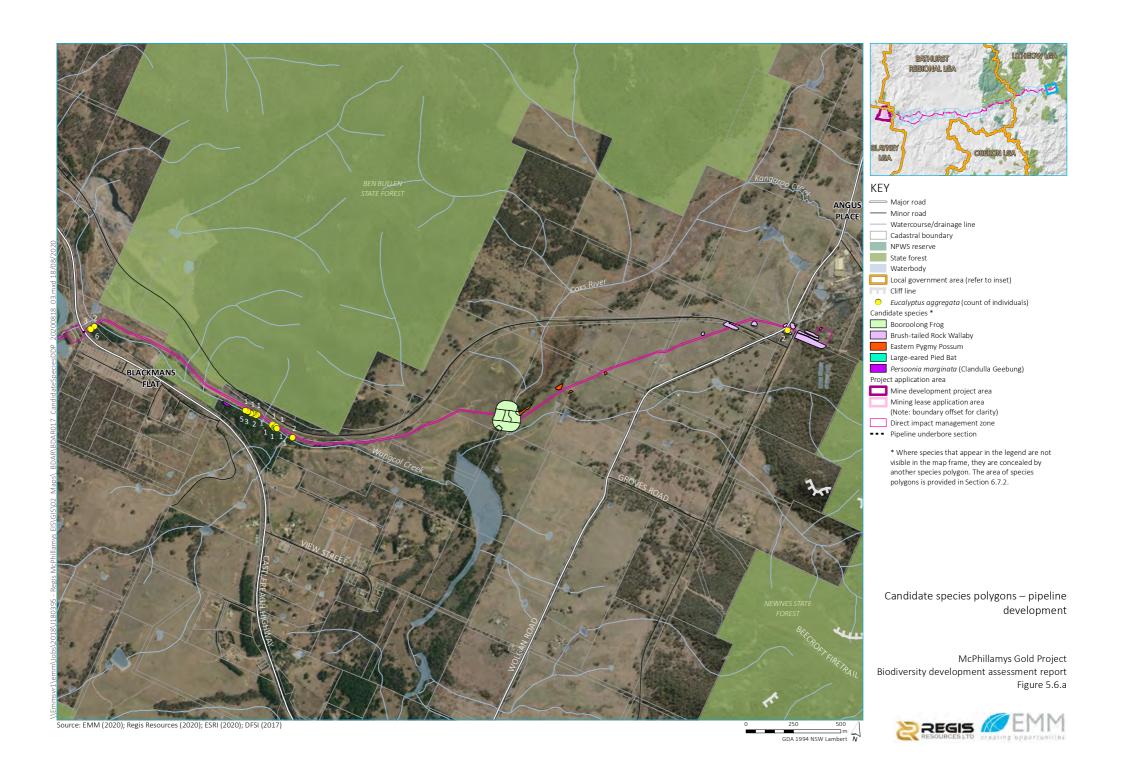
Table 5.12 Candidate threatened species assessment – pipeline development

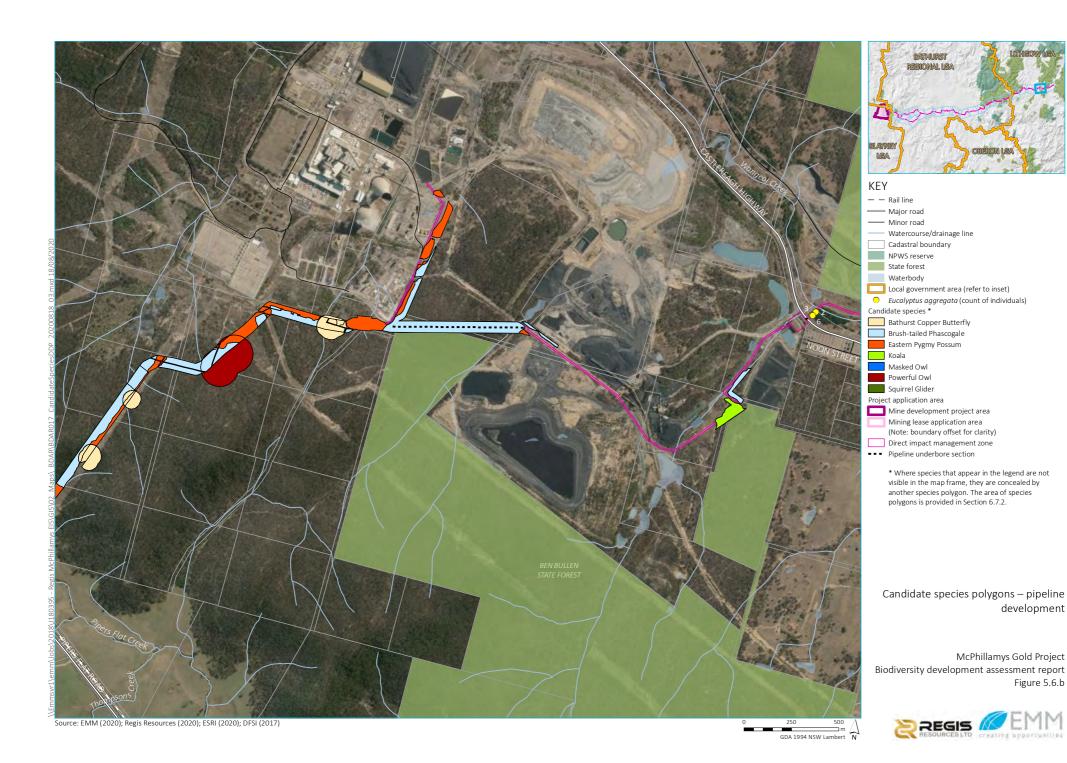
	Step 1 - Identify candidate Predicted Step 2 - assessm subregions Scientific name Common Habitat/geograp				straints and	vagrant spp	р							Step 3 - Iden	tify candidat	te spp for fu	rther assess	ment	Step 4 - Determine presence/absence	
Scientific name	Common name	_	Habitat/geographic constraints	Constraint	present in p	ipeline dist	curbance fo	ootprint?	Habitat (degraded or vag	grant species?			Rationale					—of candidate spp	location of suitable habitat for candidate spp
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Phascogale tapoatafa	Brush-tailed Phascogale	All	-	N/A	N/A	N/A	N/A	N/A	-	-	-	-	-	Yes. Potentially suitable habitat present.	No. Dry scleophyll forests (preferred habitat) are absent.	forests	suitable	Yes. y Potentially suitable habitat present.	Assumed present in OR, HE and CU.	
Pteropus poliocephalus	Grey- headed Flying-fox	All	Other; breeding camps	s No	No	No	No	No	-	-	-	-	-	No. Habitat c	onstraint ab	sent.			-	-
Haliaeetus leucogaster (breeding)	White- bellied Sea Eagle		Other; living or dead mature trees within suitable vegetation within 1km of rivers, lakes, large dams or creeks, wetlands and coastlines	Yes	Yes	Yes	Yes	Yes	-					No. Species n	not recorded	during targ	eted surveys		-	-
Helioporus australiacus	Giant Burrowing Frog	CU	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Habitat degraded. Suitable breeding habitat (soaks or pools in small streams) are absent given high degree of waterway modification.		N/A	N/A	N/A	No. Habitat degraded.	-	-

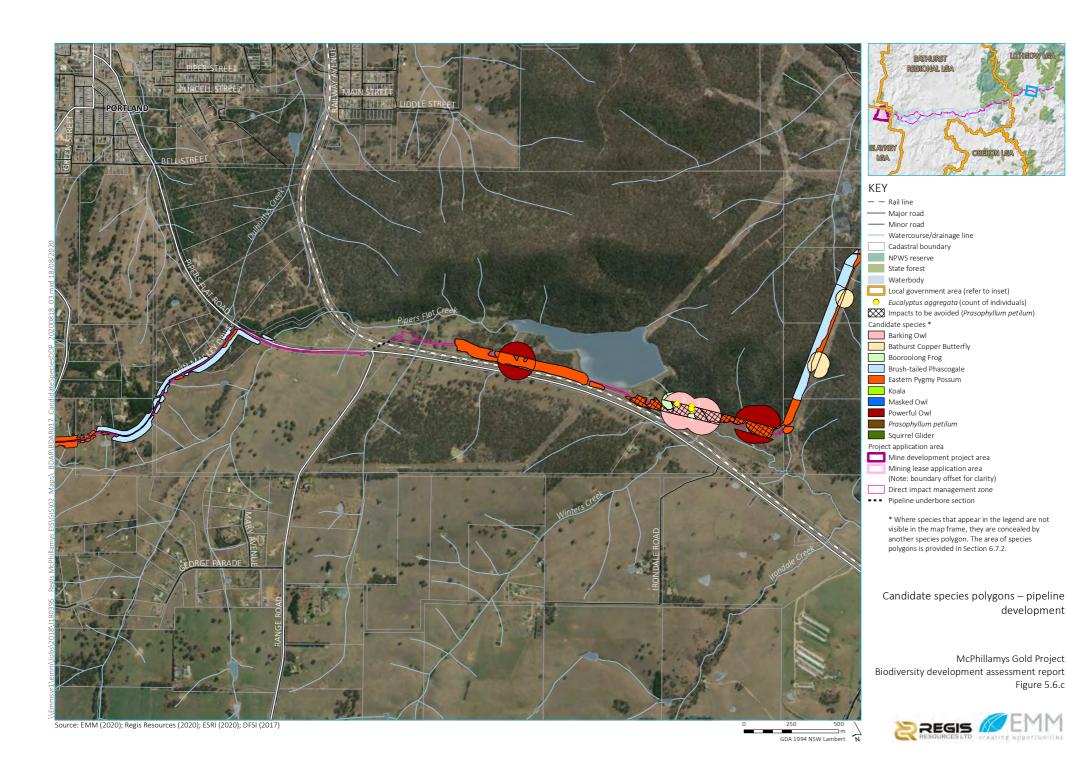
Table 5.12 Candidate threatened species assessment – pipeline development

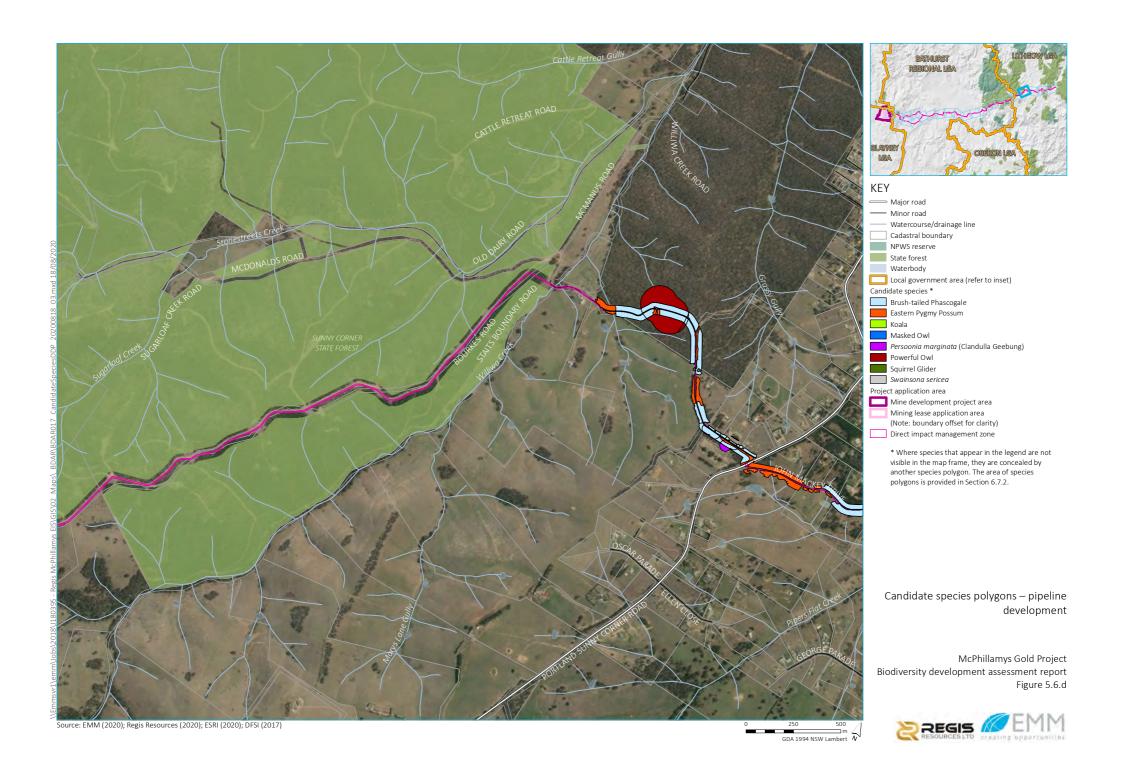
Step 1 - Identify spp for assessm		Predicted subregions	Step 2 - assessment of	habitat cons	straints and	vagrant spp)							Step 3 - Iden	tify candidat	te spp for fu	irther assess	sment	Step 4 - Determine presence/absence	
Scientific name	Common name	_	Habitat/geographic constraints Constraint present in pipeline disturbance footprint? Habitat degraded or vagrant species? Rationale OR BA (sth) BA (nth) HE CU OR BA (sth) BA (nth) HE CU OR BA (sth) BA (nth) HE CU										——of candidate spp	location of suitable habitat for candidate spp						
				OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU	OR	BA (sth)	BA (nth)	HE	CU		
Litoria aurea	Green and Golden Bell Frog		Semi- permanent/ephemeral wet areas within 1km of wet areas, swamps and waterbodies	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	Habitat degraded. Small ponds are located within a large tract of pine forest, over 1 km away from native vegetation		N/A	N/A	N/A	No. Habitat degraded	N/A		

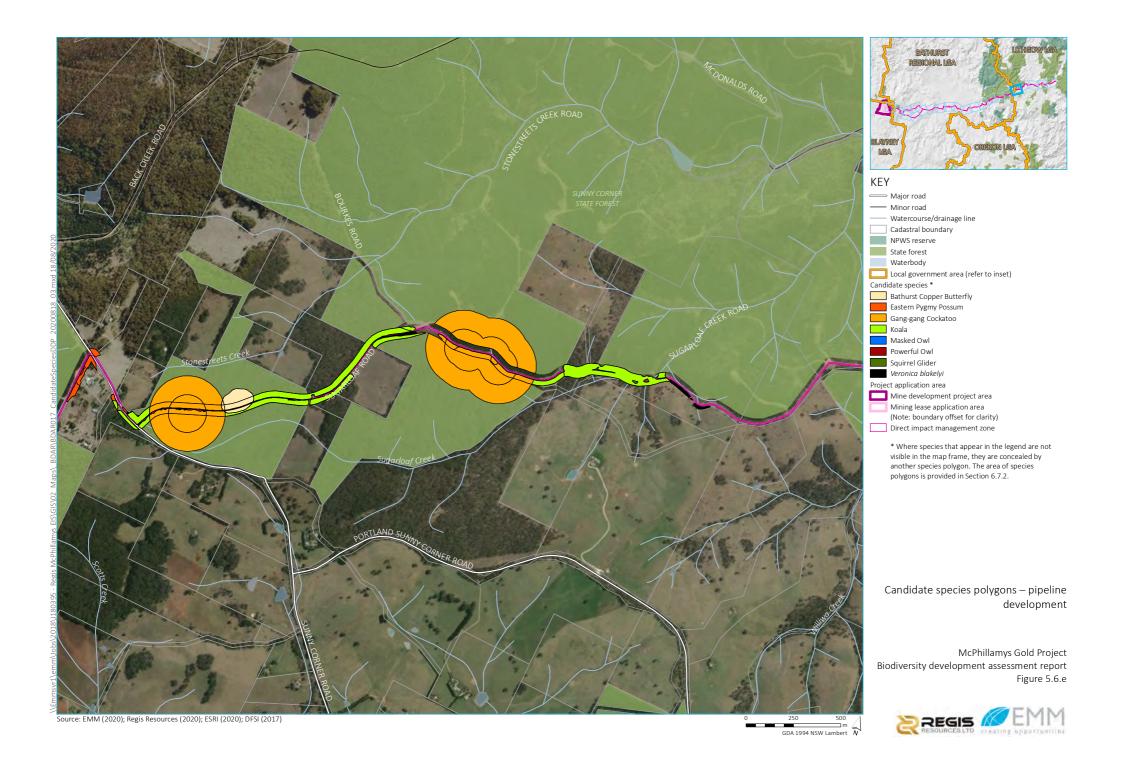
Notes: OR = Orange IBRA subregion, BA (sth) = Bathurst IBRA subregion (southern option), BA (nth) = Bathurst IBRA subregion (northern option), HE = Hill End IBRA subregion, CU = Capertee Uplands IBRA subregion

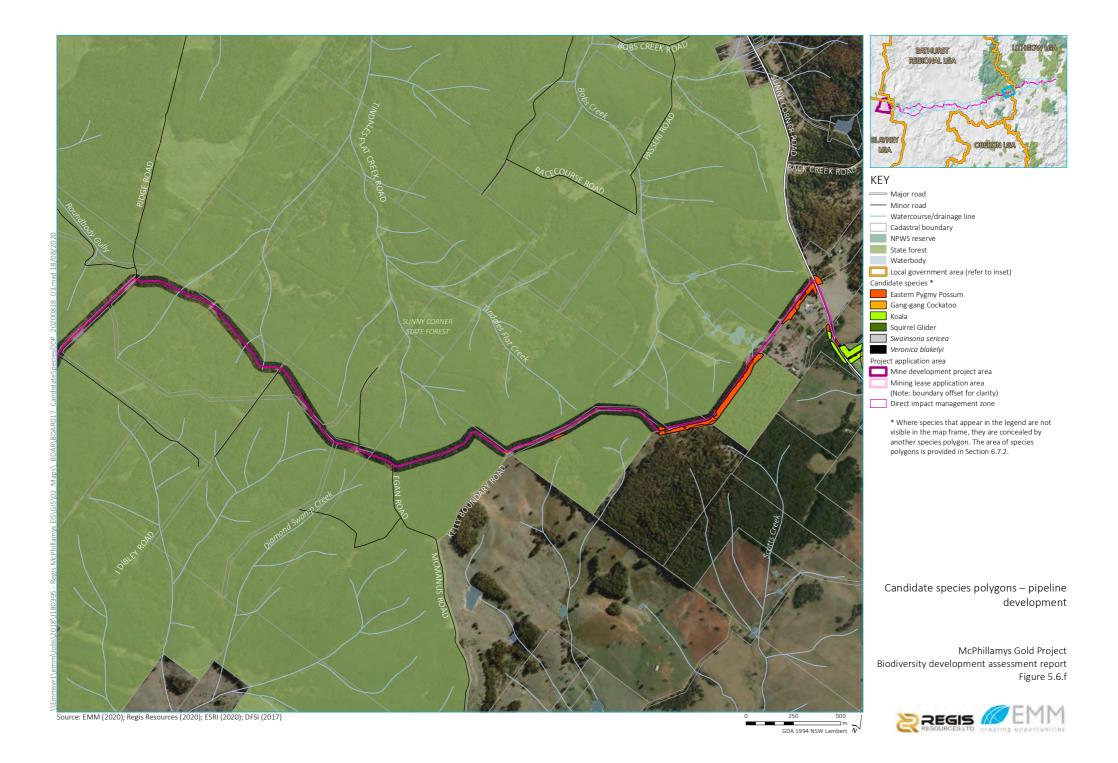






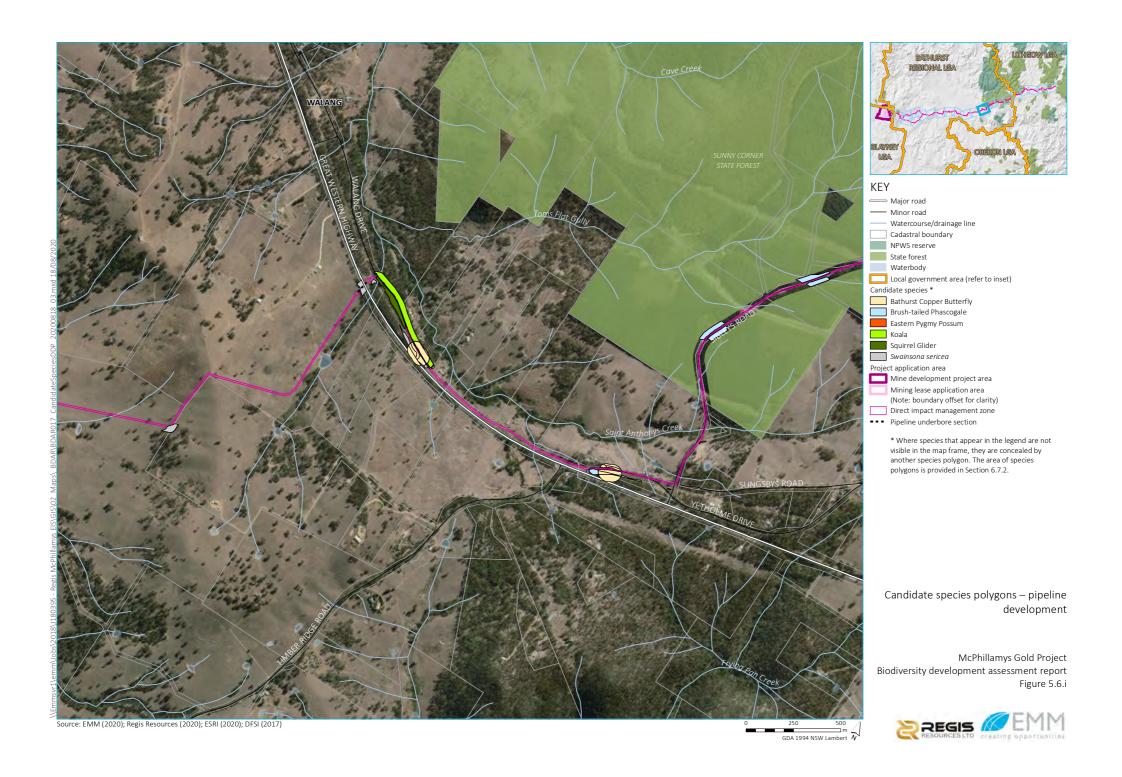


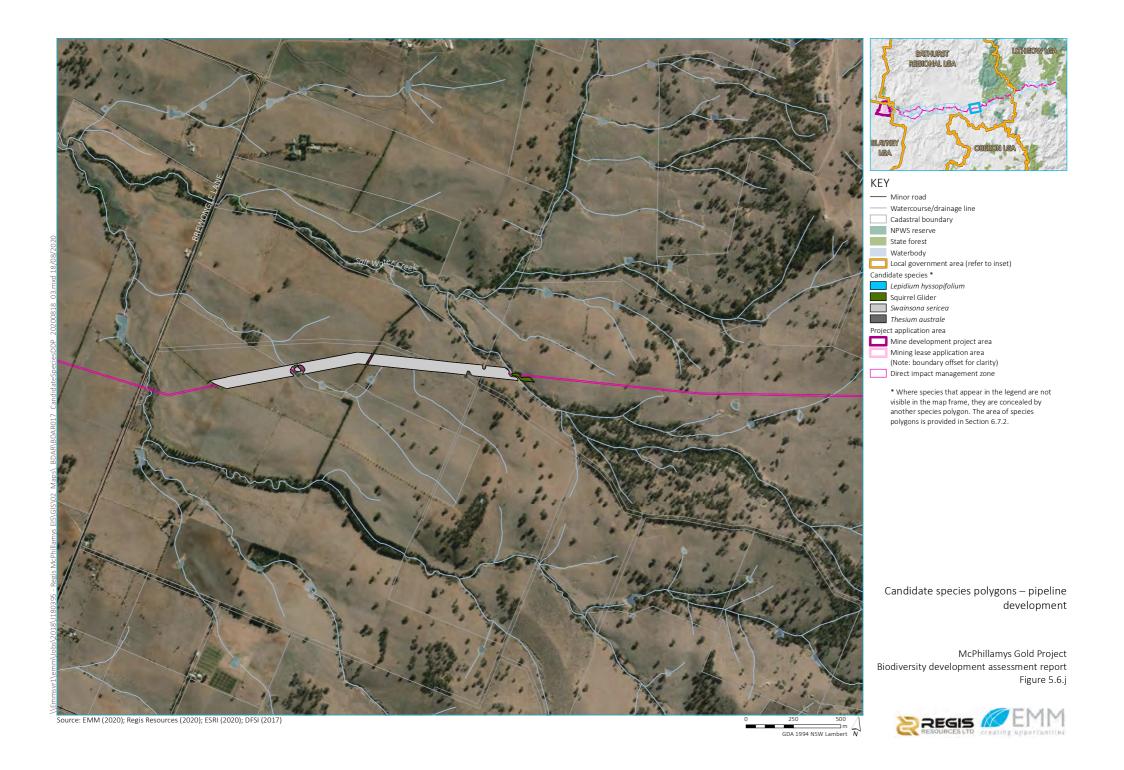


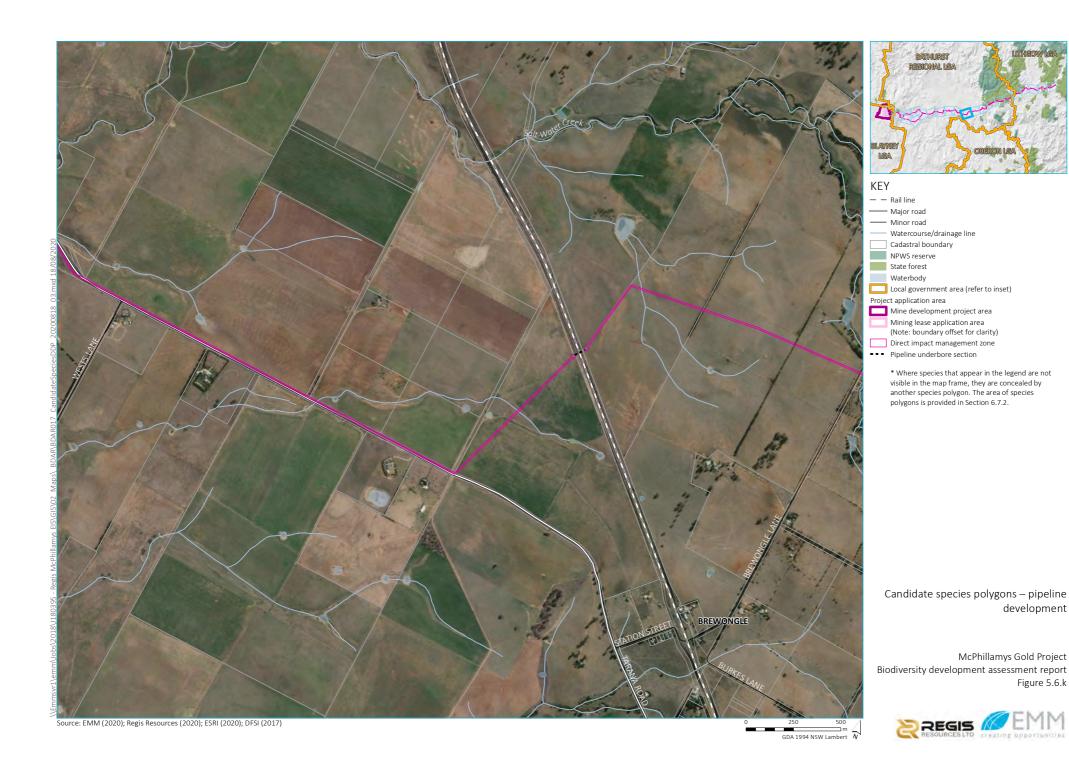




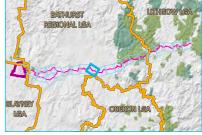












Watercourse/drainage line

Local government area (refer to inset)

Mine development project area Mining lease application area

(Note: boundary offset for clarity)

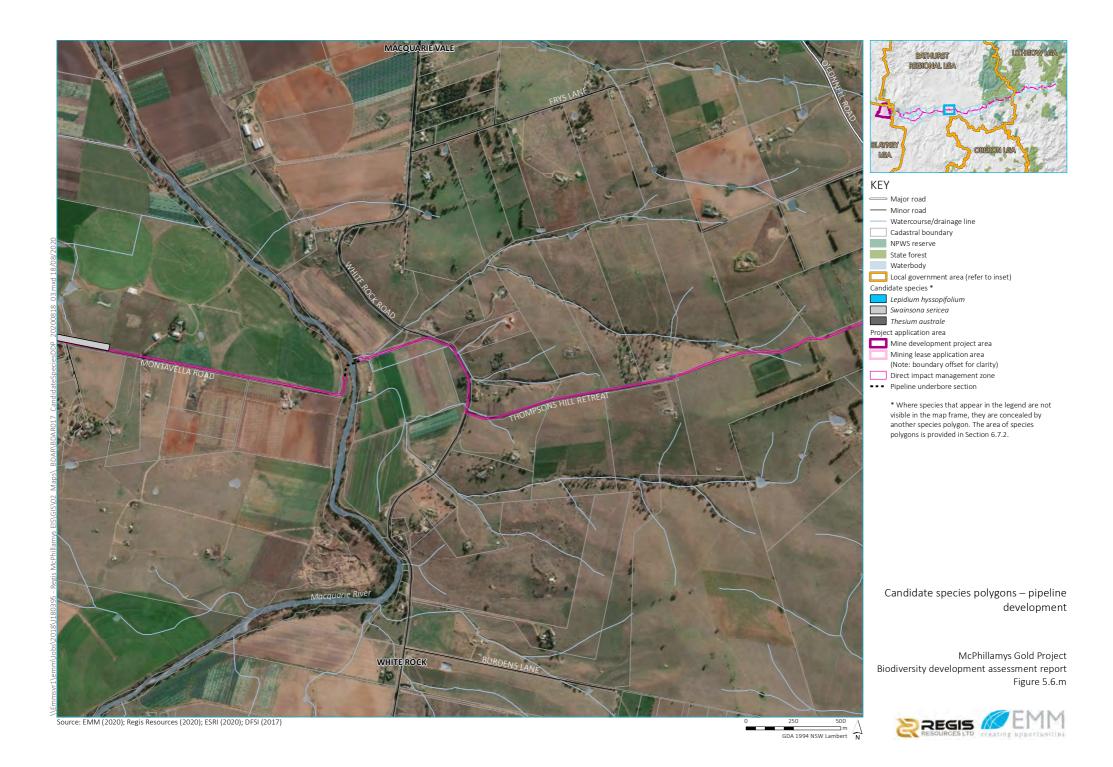
Direct impact management zone

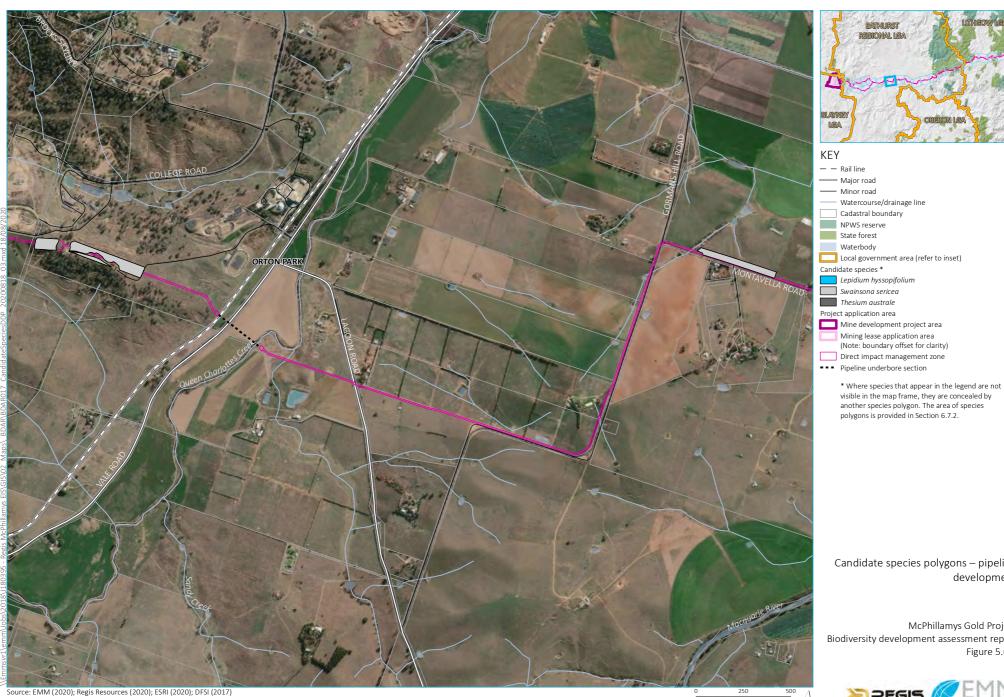
* Where species that appear in the legend are not visible in the map frame, they are concealed by another species polygon. The area of species polygons is provided in Section 6.7.2.

Candidate species polygons – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 5.6.l







Candidate species polygons – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 5.6.n



GDA 1994 NSW Lambert N



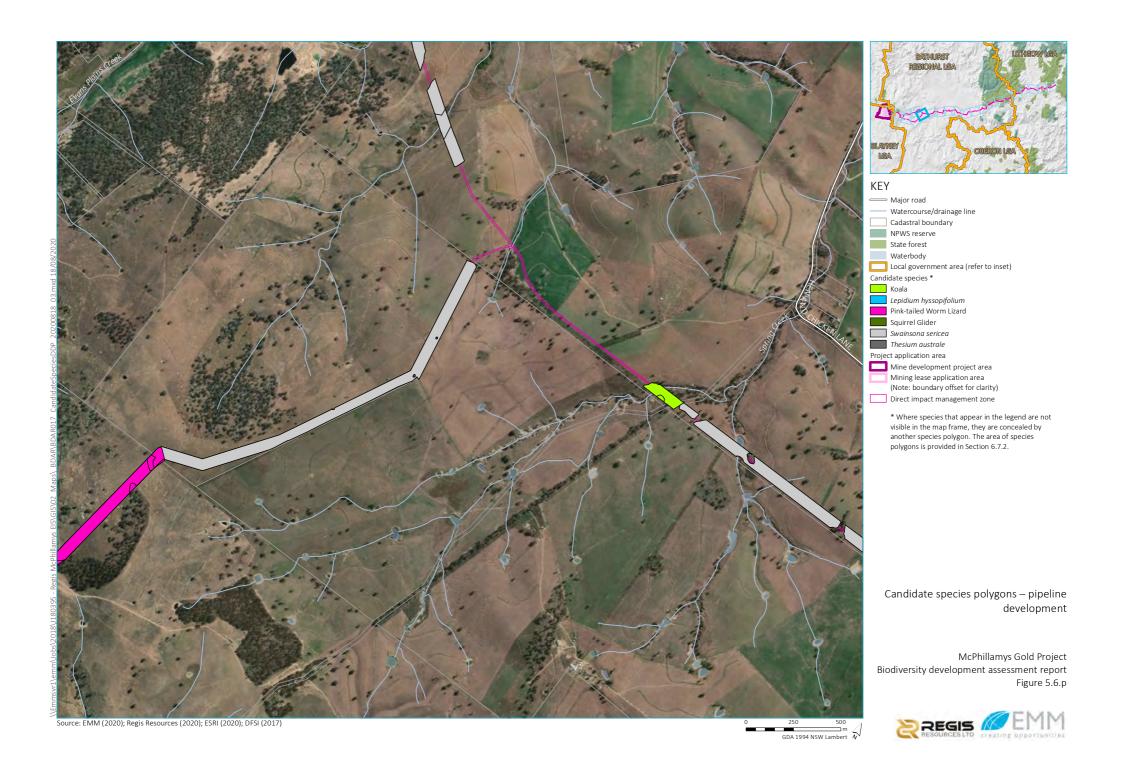
* Where species that appear in the legend are not visible in the map frame, they are concealed by another species polygon. The area of species

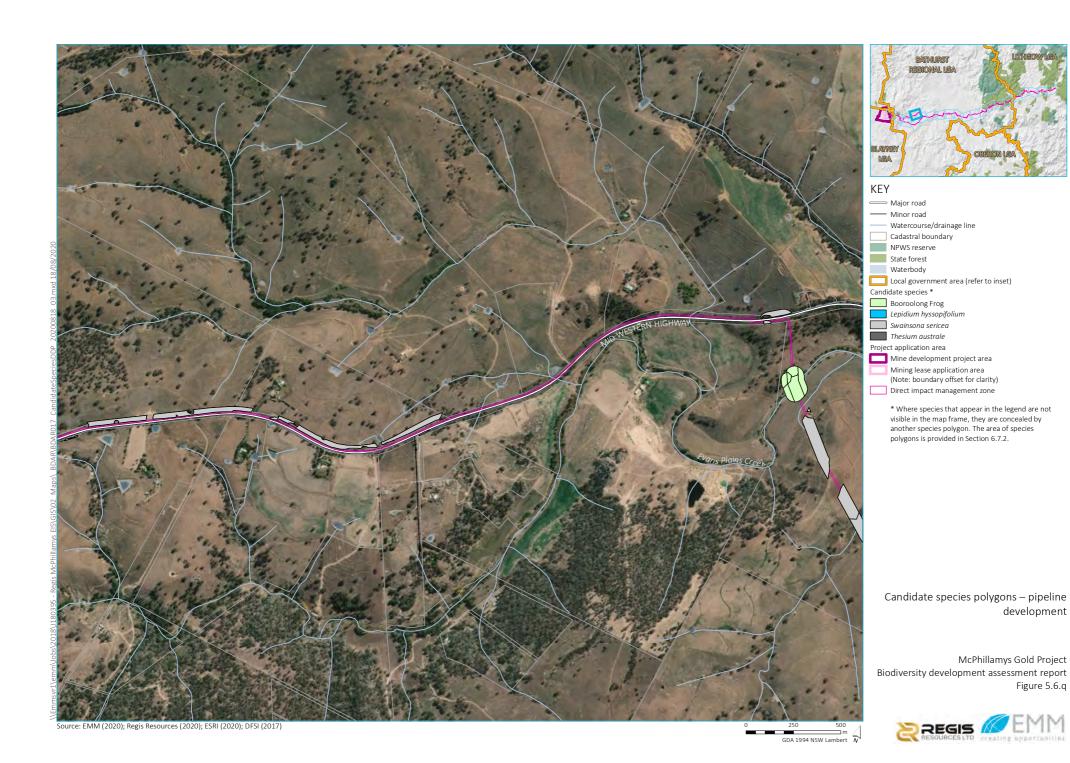
Candidate species polygons – pipeline development

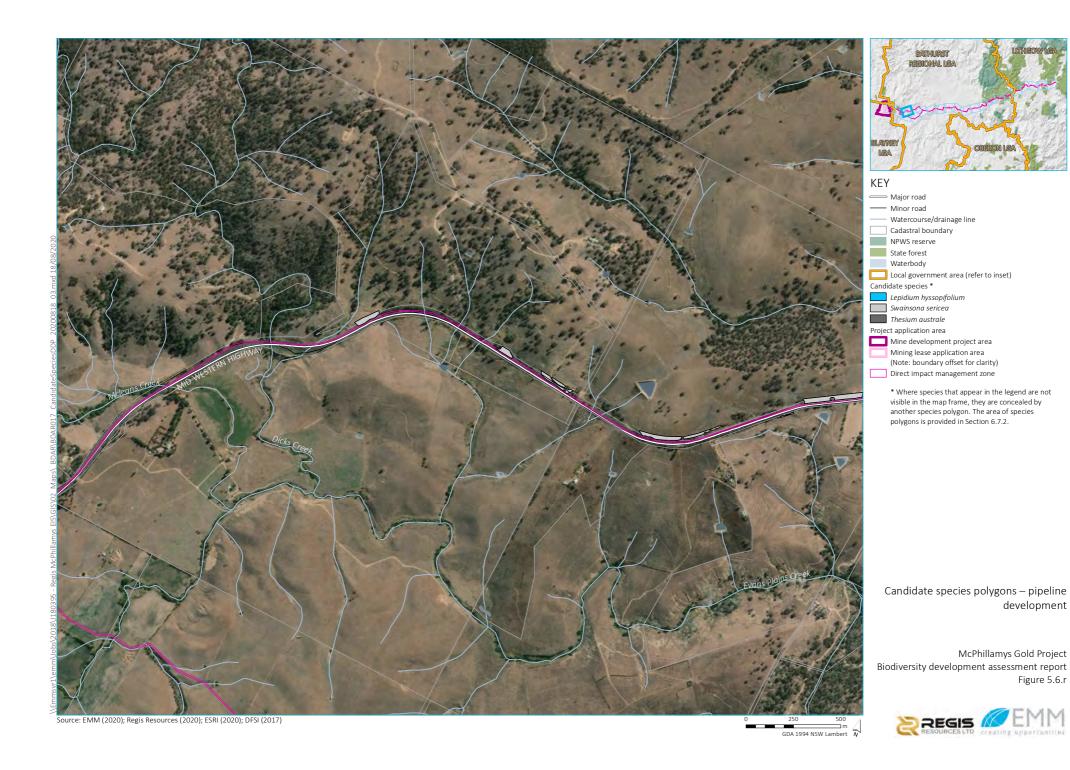
McPhillamys Gold Project Biodiversity development assessment report Figure 5.6.o

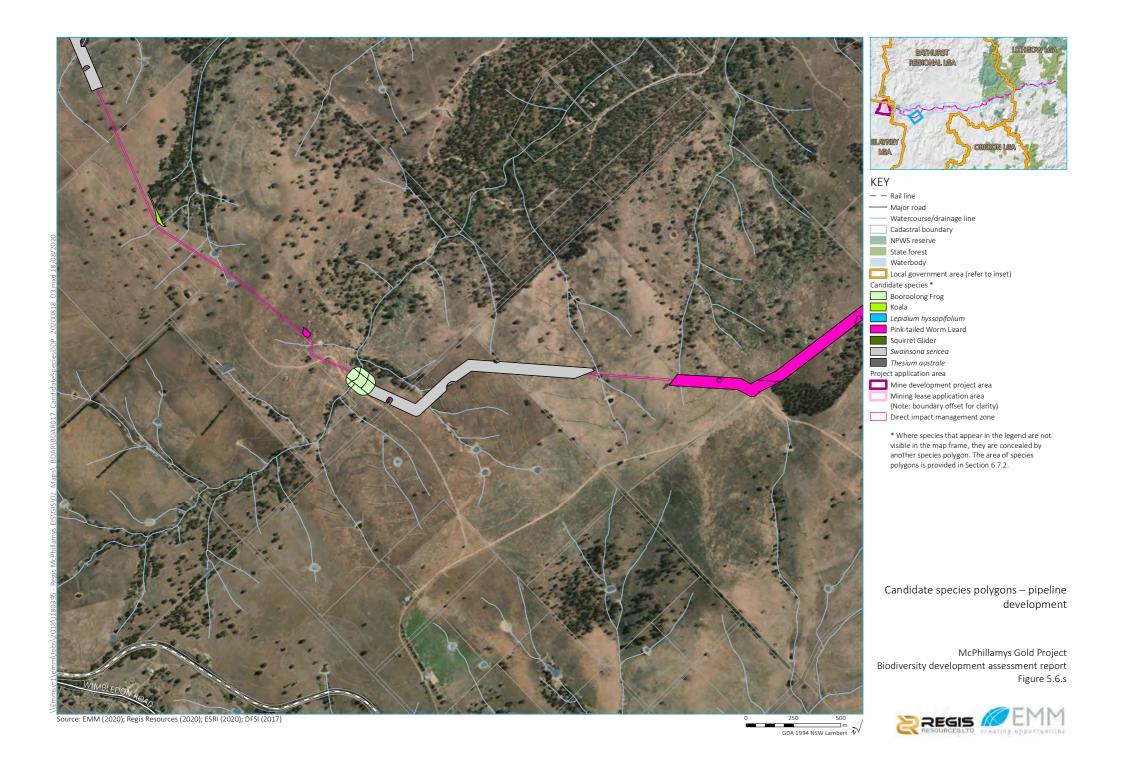


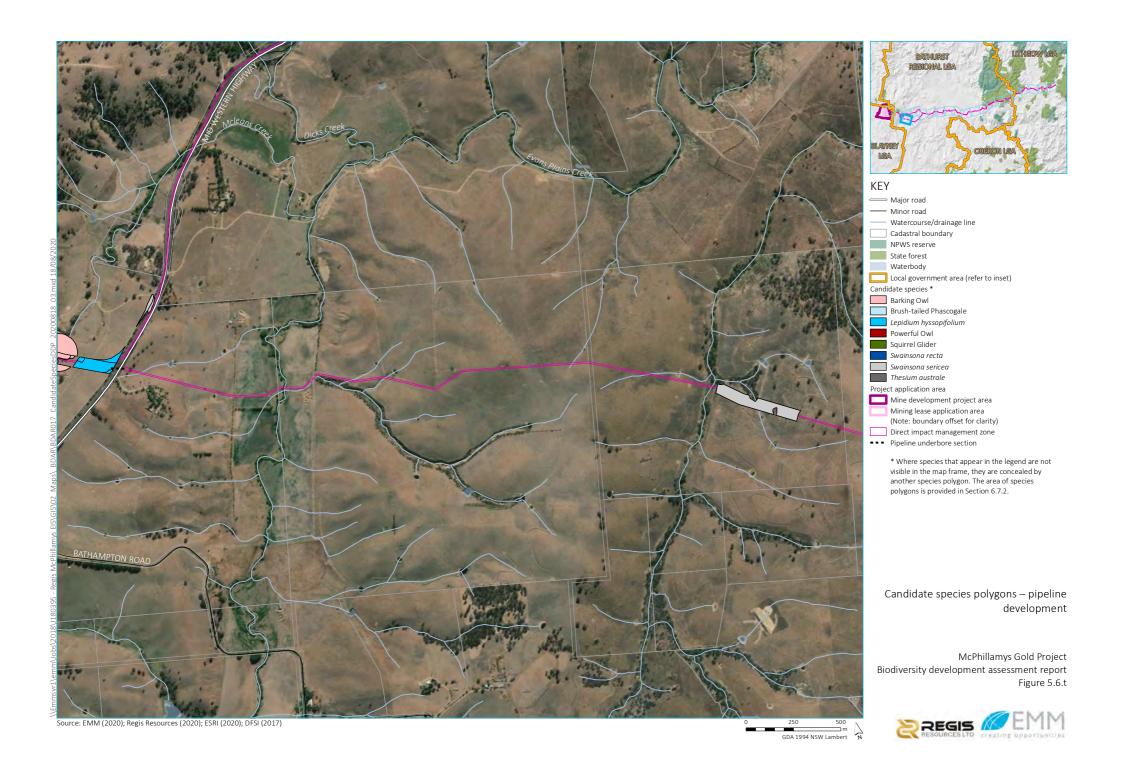
GDA 1994 NSW Lambert N

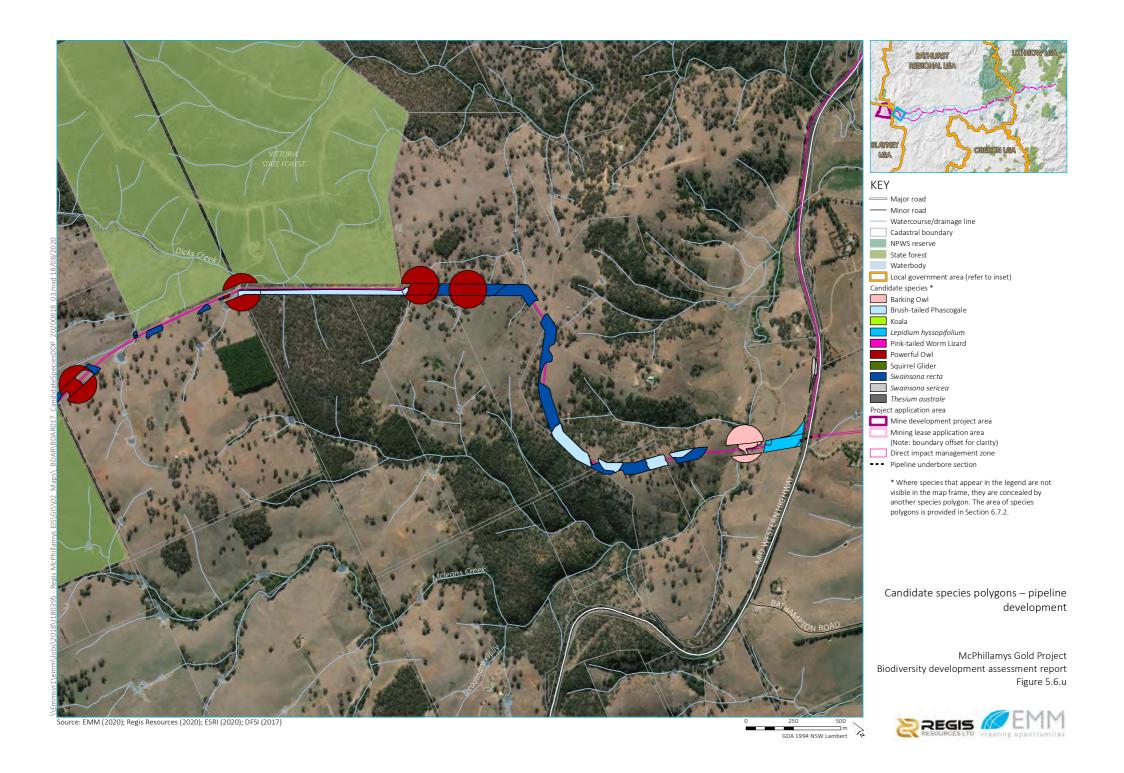


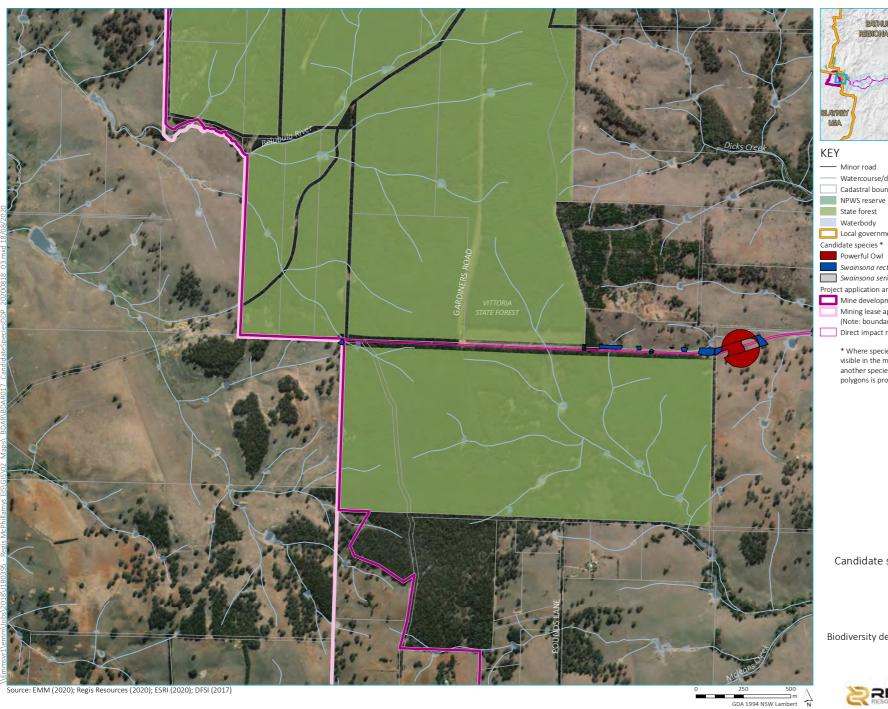














--- Minor road

Watercourse/drainage line

Cadastral boundary

State forest

Waterbody

Local government area (refer to inset)

Candidate species *

Powerful Owl

Swainsona recta

Swainsona sericea Project application area

Mine development project area

Mining lease application area

(Note: boundary offset for clarity) Direct impact management zone

* Where species that appear in the legend are not visible in the map frame, they are concealed by another species polygon. The area of species polygons is provided in Section 6.7.2.

Candidate species polygons – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 5.6.v



Stage 2 – Impact assessment

6 Impact assessment

This chapter identifies the potential impacts of amended project on the identified biodiversity values associated with the mine and pipeline developments. Measures taken to date to avoid and minimise impacts through the project design are summarised in the below sections. Recommendations to assist in design development that further avoids, minimises and mitigates impacts are also provided.

6.1 Potential direct and indirect impacts – mine and pipeline developments

Without any measures to avoid, minimise or mitigate impacts, the mine and pipeline developments associated with the amended project would result in the following impacts on biodiversity:

- direct impacts:
 - loss of native vegetation; and
 - loss and degradation of native fauna habitats;
- indirect impacts:
 - alteration to hydrology for groundwater dependent ecosystems (mine development only);
 - erosion and sedimentation;
 - weed introduction and spread;
 - feral animal invasion into retained habitats;
 - potential inadvertent disturbance of retained habitats;
 - removal of habitat resources for threatened fauna;
 - removal of hollow-bearing trees;
 - increased noise, vibration and dust levels resulting in disturbance of fauna species, and consequent abandonment of habitat, or changes in behaviour (including breeding behaviour);
 and
 - lighting for night works, resulting in disturbance to fauna species and changes in occupancy or behaviour.

Wherever possible, direct impacts have been avoided and/or minimised through the design of the mine and pipeline disturbance footprints. Impacts will be further managed and mitigated through the development of a biodiversity management plan, using the measures recommended in the below sections. Any residual impacts would be compensated through implementation of the biodiversity offset framework (Section 6.7).

6.2 Prescribed and uncertain impacts

An assessment of prescribed and uncertain impacts relevant to the mine and pipeline developments associated with the amended project are provided in Table 6.1.

 Table 6.1
 Assessment of prescribed and uncertain impacts

Prescribed/uncertain impact	Mine development	Pipeline development
Impacts of development on the hab	itat of threatened species or ecological communities associated with:	
 karst, caves, crevices, cliffs and other geological features of significance; 	The mine development does not contain geologically significant features, rocky areas, human-made structures or non-native vegetation that represent habitat for threatened species or ecological communities.	The pipeline development does not intersect geologically significant features or human-made structures that would represent habitat for threatened species or ecological communities.
rocks; or		The pipeline corridor intersects areas of granite outcropping that represent potential
 human-made structures; or 		habitat for Pink-tailed Worm Lizard in the Bathurst IBRA subregion. The pipeline disturbance footprint has minimised impacts on this area of granite outcropping, and a
 non-native vegetation. 		species polygon has been created (Figure 5.6) for Pink-tailed Worm Lizard in PCT 1330, encompassing these rocky areas to compensate for direct impacts. Additional measures will be implemented to manage this prescribed impact during construction (Table 6.6). No operational impacts are expected.
		A species polygon has also been created for Booroolong Frog in the Bathurst IBRA subregion (northern and southern options) and Capertee Uplands IBRA subregion. These species polygons intersect areas of non-native vegetation and therefore will not generate species credits under the BAM. Strategies to manage this potential prescribed impact during construction are discussed in Table 6.6 and Table 6.7. No operational impacts are expected.
		Five Black Gum trees occur in areas of non-native vegetation. Three of these individuals would be directly impacted, while two would be potentially indirectly impacted by tree root damage (ie are present in the TRWIMZ). Strategies to manage this prescribed impact are described in Table 6.7.

 Table 6.1
 Assessment of prescribed and uncertain impacts

Prescribed/uncertain impact	Mine development	Pipeline development
Impacts of development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	Native vegetation and fauna habitats are highly fragmented in the mine disturbance footprint. Ecosystem and species credit species predicted to occur in the mine project area predominantly comprise highly mobile birds and bats, and therefore most species will not be impacted by fragmentation. However, species dependent on the retention of vegetated corridors recorded in the mine footprint (Koala and Squirrel Glider) and predicted to occur in the mine footprint (Brown Treecreeper and Spotted-tail Quoll) may be impacted by fragmentation. Management of this prescribed impact on the aforementioned species is discussed in Table 6.6 and Table 6.7.	The pipeline predominantly traverses non-native vegetation but intersects four large and contiguous areas of native vegetation. In these areas of contiguous native vegetation, the pipeline corridor has been placed on existing roads and tracks to minimise fragmentation impacts. As the pipeline will be buried, fragmentation impacts will be temporary and mainly limited to the construction period. There is potential for nocturnal animals (eg Koala) to become trapped in the trench if sections are left open overnight. Management of this prescribed impact on threatened species during construction is discussed in Table 6.6 and Table 6.7. Minor operational impacts may occur if pipeline maintenance is required.
Impacts of development on movement of threatened species that maintains their life cycle	Species dependent on the retention of vegetated corridors recorded in the mine footprint (Koala and Squirrel Glider) and predicted to occur in the mine footprint (Brown Treecreeper and Spotted-tail Quoll) may be impacted by fragmentation. These species would depend upon maintenance of connectivity during the breeding season to find mates. Management of this prescribed impact on the aforementioned species is discussed in Table 6.6.	The main impact to threatened species life cycles is fragmentation, as species like Koalas and Squirrel Gliders need some level of connectivity in vegetation to access mates during the breeding season. As fragmentation impacts are temporary and restricted to the construction period, potential life-cycle impacts will be managed through managing connectivity. Management of this prescribed impact on threatened species during construction is discussed in Table 6.6 and Table 6.7. No operational impacts are expected.
Impacts of development on water quality, water bodies and hydrological processes that sustain threatened species and threatened ecological communities (including from subsidence or upsidence resulting from underground mining)	Impacts on groundwater dependent ecosystems that represent threatened ecological communities and threatened species habitats are discussed in Section 8, with management measures provided in	The trench for the pipeline is not expected to intersect groundwater given its shallow depth, therefore impacts on groundwater dependent ecosystems are not expected. Additionally, large waterways like the Macquarie River are being underbored. Therefore, impacts on threatened species and ecological communities as a result of changes in water quality, water bodies and hydrological processes are not expected during construction or operation. Accordingly, management of this prescribed impact is not required.
Impacts of wind turbine strikes on protected animals	The mine development does not include wind turbines; therefore this prescribed impact is not relevant to the project. Accordingly, management of this prescribed impact is not required.	The pipeline development does not include wind turbines; therefore this prescribed impact is not relevant to the project. Accordingly, management of this prescribed impact is not required.

 Table 6.1
 Assessment of prescribed and uncertain impacts

Prescribed/uncertain impact	Mine development	Pipeline development
Impacts of vehicle strikes or on animals that are part of a threatened ecological community	The mine development traffic impact assessment (Constructive Solutions 2019) and Traffic and Transport Addendum (Constructive Solutions 2020) predicted a minor increase in traffic on the local road network as a result of the project, with a 15% increase noted for the Mid-Western Highway.	The pipeline development traffic impact assessment (Ason Group 2019) and Chapter 6 of the McPhillamys Gold Project Amendment Report (EMM 2020a) concluded that the pipeline would result in minor increases of approximately 30 vehicle movements in the morning and afternoon peak periods from existing traffic levels during the construction period and no material impacts during the operational period. Therefore, the pipeline development is not predicted to significantly increase animal vehicle strikes above existing levels. Accordingly, management of this prescribed impact is not required.
Indirect impacts on Black Gum in native vegetation	-	Three Black Gum individuals may be potentially impacted by tree root damage (ie are present in the TRWIMZ) and 11 by weeds (ie present in the WIMZ). Strategies to manage this uncertain impact are described in Table 6.7.
Indirect impacts on Tarengo Leek Orchid	-	Regis have committed to avoiding all direct impacts on Tarengo Leek Orchid (Table 6.6) and implementing a 5 m buffer around any recorded individuals to minimise indirect impacts. Strategies to manage this uncertain impact are described in Table 6.6 and Table 6.7.

6.3 Comparison of predicted EIS impacts with amended project

6.3.1 Mine development

Impacts on biodiversity have changed for the mine development, primarily relating to a change in the mine disturbance footprint. Table 6.2 compares the PCT predicted impacts as presented in the EIS with those associated with the amended project. Overall, the amended project will reduce direct impacts on PCTs by 1.97 ha.

Table 6.2 Comparison of mine development PCT impacts

Plant community type/species credit species	Residual direct impact - EIS (ha)	Residual direct impact - Amended project (ha)	Change
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (High)	4.75	2.84	-1.91
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Medium)	34.55	35.54	0.99
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Poor)	14.25	10.40	-3.85
951 - Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion – Moderate/Good (Poor)	31.55	32.73	1.18
766 - Carex sedgeland of the slopes and tablelands – Moderate/Good (Poor)	3.04	3.04	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion— Moderate/Good (High)	1.47	1.47	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Medium)	17.03	18.96	1.93
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Other)	0.76	0.76	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Poor)	24.96	24.65	-0.31
Total	132.36	130.39	-1.97

Table 6.3 compares the species impacts as presented in the EIS with the amended project. As the method of Koala habitat mapping has changed with the introduction of SEPP (Koala Habitat Protection) 2019, the direct residual impacts of the EIS and amended project are provided for the Koala in Table 6.3, using both methods for calculating Koala habitat, comprising:

- Koala habitat as presented in the EIS, calculated based on SEPP 44 and the feed tree species for the central and southern tablelands koala management area in the Koala Recovery Plan (DECC 2008); and
- Koala habitat as presented in this BDAR, calculated based on the feed tree species for the central and southern tablelands koala management area in SEPP (Koala Habitat Protection) 2019.

Accordingly, the amended project would increase direct Koala impacts by 2.8 ha using the Koala species polygon as presented in the EIS and increase by 1.89 ha using the Koala species polygon as presented in this BDAR.

In the EIS, direct impacts on the Squirrel Glider were 129.32 ha. The amended project would reduce direct Squirrel Glider impacts by 1.97 ha to 127.35 ha.

Table 6.3 Comparison of direct mine development species impacts

Candidate species	Residual direct impact - EIS (ha)	Residual direct impact - Amended project (ha)	Change
Koala - SEPP 44 and Koala recovery plan mapping method presented in EIS	75.77	78.57	2.80
Koala - SEPP (Koala Habitat Protection) 2019) mapping method presented in this BDAR	115.06	116.95	1.89
Squirrel Glider	129.32	127.35	-1.97

6.3.2 Pipeline development

Impacts on biodiversity have changed for the pipeline development, partly relating to a change in the pipeline disturbance footprint and the addition of two pipeline options in the Bathurst IBRA subregion. The impacts on biodiversity have mainly changed due to the revision of PCT mapping, additional targeted survey and habitat assessment results.

Table 6.4 compares the impacts on PCTs as presented in the EIS with the amended project and changes to the biodiversity assessment results. As vegetation zones have been revised the total area of the PCT has been combined to provide a comparison of the changes. Overall, the impact on PCTs have increased by 10.22 ha for the southern option and 7.54 ha for the northern option.

Table 6.5 compares the impacts on candidate species as presented in the EIS with the amended project and changes to the biodiversity assessment results. The number of candidate species assessed has greatly increased when compared with the EIS; however, this is due mainly to a change in how candidate species have been assessed.

In the EIS, the candidate species assessment was only completed in the dominant IBRA subregion, namely Bathurst, while separate candidate species have been completed for each IBRA subregion the pipeline intersects, in response to BCD's submission. In addition, the increase in native PCTs mapped within the project footprint has increased the area of habitat impacted for threatened species when comparing the amended project to the EIS. Overall, species impacts have increased by 13.57 ha for the southern option and 12.5 ha for the northern option. It should be noted that some of these impacts are combined, as multiple species in some cases can occupy the same area of habitat.

 Table 6.4
 Comparison of pipeline development PCT impacts

Plant community type	Residual impact EIS (ha)	Residual impact - Amended project: southern option (ha)	Residual impact - Amended project: northern option (ha)	Change (southern option)	Change (northern option)
85 - River Oak forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands Bioregion	0.10	0.00	0.00	-0.10	-0.10
277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	0.00	2.37	2.37	2.37	2.37
287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion	0.70	0.00	0.00	-0.70	-0.70
654 - Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion	0.60	0.00	0.00	-0.60	-0.60
679 - Black Gum grassy woodland of damp flats and drainage lines of the eastern Southern Tablelands, South Eastern Highlands Bioregion	0.40	0.00	0.00	-0.40	-0.40
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	0.00	0.03	0.03	0.03	0.03
731 - Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion	2.50	0.00	0.00	-2.50	-2.50
732 - Broad-leaved Peppermint - Ribbon Gum grassy open forest in the north east of the South Eastern Highlands Bioregion	1.10	0.00	0.00	-1.10	-1.10
765 - Carex - Juncus sedgeland/wet grassland of the South Eastern Highlands Bioregion	0.00	0.00	0.00	0.00	0.00
1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	2.10	3.24	3.24	1.14	1.14
1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands and slopes, South Eastern Highlands Bioregion	0.00	2.11	2.11	2.11	2.11
1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	0.30	0.96	0.96	0.66	0.66

 Table 6.4
 Comparison of pipeline development PCT impacts

Plant community type	Residual impact EIS (ha)	Residual impact - Amended project: southern option (ha)	Residual impact - Amended project: northern option (ha)	Change (southern option)	Change (northern option)
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	0.50	9.80	7.13	9.30	6.63
Total	8.30	18.51	15.84	10.21	7.54

 Table 6.5
 Comparison of pipeline species impacts

Species	EIS impacts (ha)	Amended project	t impacts (ha)		Change	
		Southern option Northern option		n Notes	Southern option Northern option	
Flora						
Silky Swainson-pea	0.46	0.57	0.57	Revised vegetation mapping has increased and changed the area of habitat.	0.11	0.11
Austral Toadflax	0.27	0.09	0.09	Revised vegetation mapping has refined the area of habitat.	-0.18	-0.18
Acacia meiantha	0	3.83	3.83	New candidate species predicted by BAMC during 2020 assessment.	3.83	3.83
Black Gum	0	0.42	0.42	New candidate species predicted by BAMC during 2020 assessment.	0.42	0.42
Lepidium hyssopifolium	0	0.09	0.09	New candidate species predicted by BAMC during 2020 assessment.	0.09	0.09
Clandulla Geebung	0	0.19	0.19	New candidate species predicted by BAMC during 2020 assessment.	0.19	0.19
Small Purple-pea	0	0.39	0.39	New candidate species predicted by BAMC during 2020 assessment.	0.39	0.39
Veronica blakelyi	0	0.87	0.87	New candidate species predicted by BAMC during 2020 assessment.	0.87	0.87
Fauna						
Eastern Pygmy Possum	7.4	4.67	4.67	Revised vegetation mapping has refined the area of habitat.	-2.73	-2.73
Southern Myotis	0.2	0.00	0.00	Species habitat now classified as degraded.	-0.20	-0.20
Barking Owl	0.27	0.41	0.41	Additional hollow trees recorded have increased the habitat area.	0.14	0.14
Powerful Owl	0.27	2.34	2.34	Additional hollow trees recorded have increased the habitat area.	2.07	2.07
Bathurst Copper Butterfly	0.29	0	0	The route now avoids direct impacts on potential host plants for the species	0.29	-0.29

 Table 6.5
 Comparison of pipeline species impacts

Species	EIS impacts (ha)	Amended projec	t impacts (ha)		Change	
		Southern option	Northern option	on Notes	Southern option	Northern option
Squirrel Glider	4.42	4.56	4.56	Revised vegetation mapping has increased and changed the area of habitat.	0.14	0.14
Brush-tailed Phascogale	2.9	2.15	2.15	Revised vegetation mapping has refined the area of habitat.	-0.75	-0.75
Booroolong Frog	0	0.37	0.38	New candidate species predicted by BAMC during 2020 assessment.	0.37	0.38
Brush-tailed Rock Wallaby	0	0.13	0.13	New candidate species predicted by BAMC during 2020 assessment.	0.13	0.13
Bush Stone-curlew	0	1.15	1.15	New candidate species predicted by BAMC during 2020 assessment.	1.15	1.15
Gang-gang Cockatoo	0	1.66	1.66	New candidate species predicted by BAMC during 2020 assessment.	1.66	1.66
Koala	0	4.77	4.77	New candidate species predicted by BAMC during 2020 assessment.	4.77	4.77
Large-eared Pied Bat	0	0.15	0.15	New candidate species predicted by BAMC during 2020 assessment.	0.15	0.15
Pink-tailed Worm Lizard	0	1.25	0.16	New candidate species predicted by BAMC during 2020 assessment.	1.25	0.16
Total	16.48	30.05	28.98	-	13.57	12.50

6.4 Avoidance, minimisation and management

6.4.1 Avoidance and minimisation strategy for direct and indirect impacts

i Mine development

The project includes the mining of a gold resource. Thus, location and design of the pit area is highly restricted. The project's associated surface infrastructure has been designed, where possible, to avoid sensitive biodiversity areas.

Regis has carried out annual biodiversity surveys within the mine project area since acquiring Exploration Licence (EL) 5760 in 2013. These surveys have been carried out in parallel with, and have informed the evolution of, the mine development design. This process has ensured the avoidance of environmental constraints, including impacts on White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands (Box Gum Woodland) and threatened species habitat, as far as practicable. As shown in Figure 1.2, the mining lease application area is relatively constrained within the mine project area. The mining lease application area was reduced to avoid potential biophysical strategic agricultural land (BSAL) in the western portion of the mine project area.

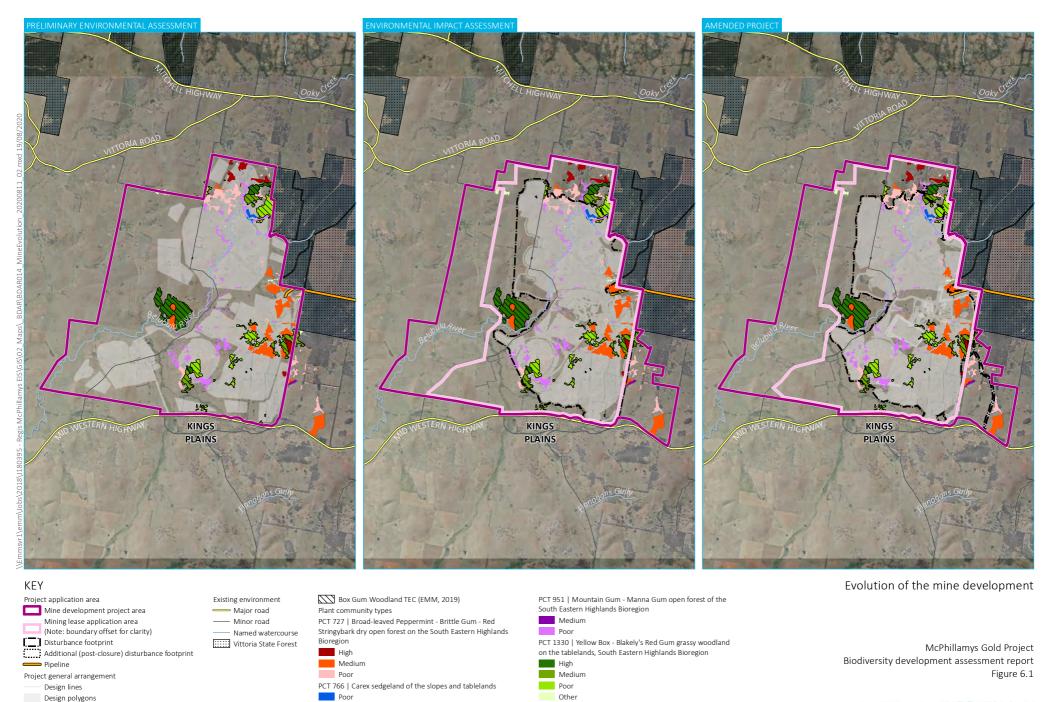
Iterative project planning, informed by the baseline studies outlined above, has allowed a range of impacts to be avoided and others to be minimised throughout the life of the project. To compensate for unavoidable disturbance, biodiversity offsets will be provided.

Key avoidance measures that have been implemented by Regis comprise:

- avoidance of the majority of White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands CEEC in High condition apart from a small area (1.47 ha) in the direct footprint of the open cut mine and tailings dam;
- minimisation of impacts to PCT 1330 Medium condition wherever feasible; and
- development of a tailings storage facility which avoids almost all White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands CEEC (EPBC Act) identified within the TSF investigation area identified in the Preliminary Environmental Assessment (PEA).

The anticipated impact of the mine development on a listed ecological community, namely Box Gum Woodland CEEC (EPBC Act) at the time of the pre-referral meeting with the then DoEE was approximately 33.5 ha. This was a conservative figure based on the preliminary biodiversity assessment results. Since the pre-referral meeting, additional field work has been completed to refine the area of Box Gum Woodland in the mine project area. Further to this, the tailings storage facility location and mine development project boundary were modified to minimise impacts on Box Gum Woodland. The optimised design will minimise impacts on Box Gum Woodland, with a residual impact of approximately 20.43 ha. Box Gum Woodland (PCT 1330) also provides habitat to the Koala (listed as a vulnerable species under the EPBC Act). Accordingly, the reduction in impact on Box Gum Woodland also reduces the impact on Koala habitat.

Figure 6.1 shows the mine development during the PEA, EIS and current mine development and demonstrates how the design has evolved to avoid and or minimise impacts on threatened biodiversity. Table 6.6 summarises the avoidance and minimisation measures already incorporated into the mine development's design and the additional measures to minimise the potential for unacceptable mine development-related impacts on biodiversity.



The above avoidance, minimisation and mitigation measures were developed with consideration of recovery strategies and actions for Box Gum Woodland and the Koala and other threatened species that would be impacted by the mine. The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Woodland (DECCW 2010a) identifies the protection of key sites as a recovery strategy. The patches of PCT 1330 in moderate to good (High) condition and moderate to good (Medium) condition represent key sites for the community. Accordingly, the avoidance and minimisation of clearing these areas for the project aligns with the recovery strategy to protect key sites.

The Commonwealth's Approved Conservation Advice for Koala (TSSC 2012) identifies a priority management action applicable to the Project: develop and implement options of vegetation recovery and re-connection in regions containing fragmented koala populations, including inland regions in which Koala populations were diminished by drought and coastal regions where development pressures have isolated Koala populations.

A Koala revegetation project is proposed in areas of retained Koala habitat. The revegetation project will aim to reconnect fragmented patches of Koala habitat surrounding the mine and create links with larger areas of native vegetation to the north and east. The Koala revegetation project directly addresses the priority management action of re-connecting fragmented Koala populations.

ii Pipeline development

The pipeline has been designed, where possible, to avoid sensitive biodiversity areas. Regis has invested significant time and expense in revising vegetation mapping, conducting targeted surveys and assessing habitat for threatened species in response the BCD's concerns with the EIS pipeline biodiversity assessment.

The additional surveys and assessments have been carried out in parallel with, and have informed the evolution of, the pipeline corridor design. This process has ensured the avoidance of environmental constraints, including impacts on Box Gum Woodland and threatened species habitat, as far as practicable.

Key avoidance measures that have been implemented by Regis comprise:

- selection of a pipeline route that maximises use of existing roads and non-native vegetation and minimises disturbance to native vegetation;
- reducing the pipeline disturbance footprint from 20 m as presented in the EIS to 8 m width, with a further restriction to 6 m width where the pipeline intersects EPBC Act-listed Box Gum Woodland;
- underboring large waterways including the Macquarie River to avoid impacts on aquatic habitats and species;
- avoiding direct impacts on Bathurst Copper Butterfly host plants; and
- avoiding direct and indirect impacts on potential Tarengo Leek Orchid habitat (to be informed by the outcomes of a targeted survey in November 2020).

6.4.2 Impact avoidance and minimisation strategy

Table 6.6 details the avoidance and minimisation measures already incorporated into the mine and pipeline development's design and the additional measures to minimise the potential for unacceptable impacts on biodiversity.

Table 6.6 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Project components	Intended outcome	Timing	Responsibility
Reduction in habitat critical to the survival of Box Gum Woodland	Avoid majority of impacts on high condition Box Gum Woodland and minimise impacts on moderate condition areas through careful mine design	development in	High-quality Box Gum Woodland impacts mainly avoided, impacts on moderate condition minimised	Design	Client
	Minimise pipeline disturbance footprint width to 6 m where it intersects EPBC Act-listed Box Gum Woodland		(completed)		
Reduction in clearing Werriwa Tablelands Cool Temperate Grassy Woodland and native PCTs	erriwa Tablelands ol Temperate Grassy oodland and native		Impacts on Werriwa Tablelands Cool Temperate Grassy Woodland and native PCTs minimised (completed)	Design	Client
Reduction in habitat critical to the survival of Koala	Shift location of tailings storage facility into cleared land and minimise footprint such that Koala corridors along the Belubula River are retained	Mine development	Retention of Koala habitat prioritised, minimise impact on habitat resulting from project (completed)	Design	Client
Impacts on threatened species and ecological	Place access roads and other infrastructure in cleared land	Mine development	Impacts on threatened species and communities minimised (completed)	Design	Client
communities	Select pipeline route that maximises use of existing roads and non-native vegetation	Pipeline development	Impacts on threatened species and communities minimised (completed)	Design	Client
	Retain native vegetation and habitats where not required for mine infrastructure	Mine development	Retention of native vegetation and threatened species habitats	Prior to and during clearing operations	Environmental manager
	Retain and protect the area of native vegetation and Koala habitat north of the waste emplacement area	Mine development	Retention of native vegetation and Koala habitat	During mining	Environmental manager
	Identify the limit of approved disturbance areas on the ground through the use of suitable visible markers and ensure that all ground disturbing activities are only undertaken within approved areas	Mine development, pipeline development	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist

Table 6.6 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Project components	Intended outcome	Timing	Responsibility
	Carefully remove vegetation in such a way that avoids damage to surrounding vegetation	Mine development, pipeline development	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist
	Undertake a pre-clearing inspection to identify and, where practicable, remove nesting or roosting fauna	Mine development, pipeline development	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist
	Develop specific procedures for Koala pre-clearing inspections and safe relocation outside the clearing area	Mine development, pipeline development	Prevent injury and mortality of Koalas during clearing operations by relocating into adjacent retained habitat	Prior to and during clearing operations	Environmental manager, Project ecologist
	Undertake a revegetation project targeted at Koalas	Mine development	Increase the connectivity of fragmented patches of Koala habitat within the mine project area, and outside the mine disturbance footprint	To be determined as part of BMP development	Environmental manager, Project ecologist
	Undertake a staged clearing of native vegetation and fauna habitat to minimise impacts to native fauna species	Mine development	Allow fauna to gradually self-relocate outside of project footprint	During clearing operations	Environmental manager, Project ecologist
	Stockpile vegetation onsite for use during rehabilitation operations, where practicable. Larger vegetation may be retained whole for use in rehabilitation operations on site	Mine development	Retain important structural habitat features in the mine project area for use in rehabilitation and/or at offset site	During clearing operations	Environmental manager, Project ecologist
	implement a weed and pathogen monitoring program	Mine development	Monitor weed impacts to retained vegetation outside the mine disturbance footprint, but within the mine project area to target weed control efforts	Prior to and during clearing operations and mine operation	Environmental Manager, weed contractor

Table 6.6 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Project components	Intended outcome	Timing	Responsibility
	Undertake weed management and pest control programs in consultation with surrounding landholders, based on the results of the weed and pathogen monitoring program	Mine development	Maintain or improve condition of retained native vegetation	Prior to and during clearing operations and mine operation	Environmental Manager, weed contractor
	Undertake progressive rehabilitation	Mine development	Retain native vegetation and fauna habitats for as long as possible	In stages as the mine progresses	Environmental Manager, rehabilitation consultant and restoration ecologist
	Underbore large waterways where required. Trenching of watercourses will be carried out in accordance with Policy and Guidelines for fish habitat conservation and management (DPI 2013)	Pipeline development	Avoid impacts on aquatic species and habitats	Concept Design	Client
	Minimise corridor to avoid direct impacts on Bathurst Copper Butterfly host plants	Pipeline development	Further avoid direct impacts on newly recorded Bathurst Copper Butterfly host plants	Concept Design	Client

Table 6.6 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Project components	Intended outcome	Timing	Responsibility
	Conduct targeted pre-clearance survey for Tarengo Leek Orchid during the peak flowering season (October to November 2020) in the 0.62 ha of potential habitat to determine presence or absence of the species. If the species is present, the following procedures will be implemented:	Pipeline development	If found, the route will be microsited such that direct impacts are avoided, and indirect impacts are appropriately managed.	Detailed design	Environmental manager, Project ecologist
	 the route will be microsited such that direct impacts to individuals are avoided; 				
	 protective fencing will be established prior to trenching in the species habitat with a 5 m buffer around each individual or group of individuals; and 				
	 existing hydrological conditions will be determined in the area where individuals have been recorded, with this hydrology maintained during the construction period. 				
	Conduct pre-clearance surveys for Basalt Peppercress and Hoary Sunray during their flowering season (concurrent with Tarengo Leek Orchid surveys in October/November 2020) in potential habitats.	Pipeline development	If found, the route will be microsited such that the least possible number of individuals of each species are impacted.	Detailed design	Environmental manager, Construction Manager, Project ecologist
	A pre-clearance inspection will be conducted prior to trenching potential Booroolong Frog habitat near Coxs River (and Evans Plains Creek if the northern option is selected), surrounding the candidate species polygons shown on Figure 5.6p, q, s and u. During the pre-clearance inspection, Booroolong Frogs (if present) will be salvaged and safely relocated outside of the trenching area and into adjacent retained habitats. The project ecologist will be present for the duration of trenching through the abovementioned areas to undertake salvage and relocation.	Pipeline development	Avoid damage to upstream and downstream vegetation and rocks (potential Booroolong Frog habitat) and minimise frog injury/mortality.	Prior to and during trenching operations	Environmental manager, Project ecologist

Table 6.6 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Project components	Intended outcome	Timing	Responsibility
	The route will be microsited such that impacts on large trees, hollow-bearing trees and recorded individuals of Black Gum, Clandulla Geebung are minimised where possible. Protective fencing (eg parawebbing) will be placed around retained individuals for their protection during trenching.	Pipeline development	Maintain or improve condition of retained native vegetation	Prior to and during clearing operations and mine operation	Environmental Manager, weed contractor
	The route will be microsited through the area of potentially suitable rocky habitat for Pink-tailed Worm Lizard, delineated by the species polygons shown on Figure 5.6 p, q, s and u. A preclearance inspection will be completed to salvage and safely relocate Pink-tailed Worm Lizards (if present) outside the trenching area and into adjacent retained habitats. The project ecologist will be present for the duration of trenching through the abovementioned areas to undertake salvage and relocation.	Pipeline development	The route will be microsited such that the least area of potential habitat is impacted during trenching and minimise reptile injury/mortality during trenching.	Prior to and during clearing operations and mine operation	Environmental manager, Project ecologist
	Trenches while left open will be subject to daily inspection and escape measures or shelter provided (eg ramps or material under which animals can shelter). If species are trapped in the trench they will be freed by a trained and competent individual.	Pipeline development	Animal injury is minimised during trenching.	Daily inspections in active (open) trenching areas	Environmental manager, Project ecologist

6.4.3 Adaptive management strategy for prescribed and uncertain impacts

An adaptive management strategy has been developed for the project to monitor and respond to prescribed and uncertain biodiversity impacts (Table 6.7).

Table 6.7 Adaptive management strategy for prescribed and uncertain biodiversity impacts

Prescribed/uncertain biodiversity impact	Project component	Monitoring/management strategy	Trigger for management	Response
Impacts on potential Booroolong Frog habitat in non-native vegetation	Pipeline development	A pre-clearance inspection will be conducted prior to trenching through potential habitat (at the locations specified in the BDAR).	Frogs are present in trenching area	Place frogs in upstream/downstream habitats out of trenching area, in accordance with Hygiene guidelines: Protocols to protect priority biodiversity areas in NSW from Myrtle Rust (Phytophthora cinnamomi), amphibian chytrid fungus and invasive plants (EES 2020).
Impacts on potential Pink-tailed Worm Lizard habitat	Pipeline development	A pre-clearance inspection will be conducted prior to trenching through potential habitat (at the locations specified in the BDAR).	Lizards are present in trenching area.	Place lizards in retained rocky habitats out of trenching area.
Direct and indirect impacts on Black Gum in non-native vegetation	Pipeline development	Protective fencing (eg parawebbing) will be placed around retained individuals for their protection during trenching, where required. The condition of the fencing will be monitored during trenching. The condition of the two Black Gum in the TRWIMZ will be assessed prior and following trenching to determine if an impact has occurred.	Protective fencing is breached (where installed). The health of the two trees declines when compared to baseline arboricultural assessment	Repair fencing (where required). Mitigate damage in accordance with arborist's recommendations
Indirect impacts on Black Gum in native vegetation in TRWIMZ and WIMZ	Pipeline development	The condition of the three Black Gum in the TRWIMZ and 11 in the WIMZ will be assessed by an arborist prior to, during and following trenching to determine if an impact has occurred.	The health of the 14 trees declines when compared to baseline arboricultural assessment	Mitigate damage in accordance with arborist's recommendations

Table 6.7 Adaptive management strategy for prescribed and uncertain biodiversity impacts

Prescribed/uncertain biodiversity impact	Project component	Monitoring/management strategy	Trigger for management	Response
Indirect impacts on Tarengo Leek Orchid	Pipeline development	If Tarengo Leek Orchids are recorded during targeted survey, the route will be microsited such that direct impacts are avoided. Indirect impacts will be managed through providing a 5 m buffer of protective fencing around recorded individuals (or groups of individuals) and implementing controls that maintain existing hydrological conditions during construction.	Protective fencing is breached Hydrological controls are breached	
Fragmentation of vegetated corridors in the mine project area	Mine development	Monitor increases in tree cover against benchmark values for the target PCTs (to be selected during development of the Biodiversity Management Plan, see Section 6.4.4).	Tree cover does not achieve 25% of the benchmark values by Year 10 of mining.	Conduct additional tree planting to increase tree cover
Potential entrapment of fauna during pipeline trenching	Pipeline development	Daily inspections of open trenches for trapped fauna and condition of escape and shelter measures provided.	Animal is trapped in open trench and/or condition of escape and shelter measures are breached	Rescue and release fauna from open trench, unless injured or juvenile. Injured or juvenile fauna will be taken to a vet or wildlife carer.

6.4.4 Biodiversity management plan

The biodiversity management measures outlined in Section 6.4 would be documented and fully detailed in a biodiversity management plan, to be prepared following project approval in consultation with relevant government agencies and stakeholders.

6.5 Serious and irreversible Impacts

Section 10.2.2 of the BAM requires additional impact assessment for threatened species and ecological communities that are also listed as candidate entities for Serious and Irreversible Impacts (SAII) under the BC Act. The project will impact two candidate entities for SAII, namely:

- White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland (mine and pipeline development); and
- Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions (pipeline development only).

These SAII candidate entities are assessed against the assessment criteria provided in Section 10.2.2 of the BAM and Table 6.9, and total area of each has been assessed in the pipeline corridor to allow a cumulative assessment.

It should be noted that Table 6.8 assesses White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland, as listed under the BC Act. The extent of the BC Act-listed community is much larger than the similarly named community listed under the EPBC Act due to the higher condition thresholds. The EPBC Act-listed ecological community is assessed separately in Section 7.1.

Table 6.8 SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands

Ass	essment question	Mine development	t			Pipeline develop	ment				
a)	What is the action and what measures have been taken to avoid direct and indirect impacts on the SAII candidate entity	The action is to con infrastructure) and avoid direct and inc 6.4.	a water supply pip	eline (Section 1.6).	Measures to	The action is to coinfrastructure) are direct and indirect	nd a water :	supply pipeli	ne (Section :	1.6). Measur	
b)	What is the area (ha) and condition (ie	Vegetation zone D	Pirect impacts (ha)	Indirect impacts (ha) VI score	Vegetation zone	Southern	option	Northern	option	VI score
	vegetation integrity score for each vegetation zone) of the TEC to be	1330_High	1.47	0.16	39.4		Direct	Indirect	Direct	Indirect	_
	directly and indirectly impacted by the proposed development?	1330_Medium	18.96	2.05	55.0		impacts (ha)	impacts (ha)	impacts (ha)	impacts (ha)	
		1330_Other	0.76	-	26.4	1330_DNG	7.53	13.12	4.09	7.89	17.4
		1330_Poor	24.65	0.65	43.2	1330_Fragments		0.10	0.51	0.95	3.8
		Total	45.84	2.87	-	1330_Intact	0.42	1.19	0.76	1.75	19.2
						1330_Shrubland	0.05	0.15	0.05	0.15	51.2
						1330_Sparse	1.79	3.25	1.74	3.12	20.1
						277_DNG	0.74	1.31	0.74	1.31	3.5
						277_Intact	0.32	0.78	0.32	0.78	27.8
						277_Moderate	1.31	2.55	1.31	2.55	31.6
						Total	12.16	22.45	9.5	18.51	-
<i>c)</i>	To what extent does the impact exceed the threshold for the candidate entity in Guidance to assist a decision-maker to determine a serious and irreversible impact?	assist a decision-maker			munity.	There are no thre	esholds spe	cified for the	e ecological (community.	

Table 6.8 SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands

Ass	sessment question	Mine development	Pipeline development
d)	What is the extent and overall condition of the TEC within a 1,000 ha and 10,000 ha buffer of the development footprint?	The extent of the TEC within a 1,000 ha and 10,000 ha buffer of the mine development is 62.05 ha and 812.85 ha, respectively (OEH 2018). The TEC is highly fragmented in the region, and varies between high and poor condition patches, depending on the level of agricultural disturbance.	The extent of the TEC within a 1,000 ha and 10,000 ha buffer of the pipeline development footprint is 18.65 ha and 420.22 ha for the southern option, respectively and 33.64 and 520.85 for the northern option, respectively (OEH 2018). The TEC is highly fragmented in the region, and varies between high and poor condition patches, depending on the level of agricultural disturbance.
e)	What is the extant area and overall condition of the TEC remaining in the	The estimated extant area (OEH 2018) of the TEC in the Orange IBRA subregion is 24,145.38 ha. Following the mine development, it is	The extant area of the TEC in each IBRA subregion was estimated by combining spatial datasets from OEH (2015), OEH (2018) and DPIE (2019).
	IBRA subregion before and after the proposed development?	estimated to reduce to 24,099.78.	The estimated extant area of the TEC in the Orange IBRA subregion is 24,531.07 ha. Following the pipeline development, it is estimated to reduce to 24,528.88 ha for the southern option and northern options.
			The estimated extant area of the TEC in the Bathurst IBRA subregion is 24,145.38 ha. Following the pipeline development, it is estimated to reduce to 24,136.27 ha for the southern option and 24, 139.68 ha for the northern option.
			The estimated extant area of the TEC in the Hill End IBRA subregion is 25,490.78 ha. Following the pipeline development, it is estimated to reduce to 25,489.93 ha for the southern option and northern options.
			The estimated extant area of the TEC in the Capertee Uplands IBRA subregion is 1,354.92 ha. It is absent from the pipeline disturbance footprint in this region and therefore the extant area will not change as a result of the pipeline development.

Table 6.8 SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands

Ass	sessment question	Mine development	Pipeline development	
f)	How much (ha) of the TEC is reserved within the IBRA region and IBRA subregion?	It is estimated that 440.99 ha of the TEC (OEH 2018) is reserved in the Orange IBRA subregion, and 12,318 ha is reserved in the South-eastern Highlands IBRA subregion (DPIE 2019;OEH 2015; OEH 2018).	It is estimated that 440.99 ha of the TEC is reserved in the Orange IBRA subregion, 876.55 in the Bathurst IBRA subregion, 305.13 ha in the Hill End IBRA subregion and 27.89 ha in the Capertee Uplands IBRA subregion (OEH 2015; OEH 2018).	
			It is estimated that 12,318 ha is reserved in the South-eastern Highlands IBRA subregion (DPIE 2019;OEH 2015; OEH 2018).	
Wh	nat is the development's impact on:			
g)	abiotic factors critical to the long-term survival of the TEC (eg how much the impact will lead to a reduction of groundwater levels or alter surface flow patterns)?	Abiotic factors including soil and surface hydrology will be modified in the mine project area, and therefore represents a permanent impact. The listed community occurs directly north and south-west of the mine disturbance footprint, within the mine project area. An assessment of changes to groundwater availability and quality that these retained patches would use opportunistically was conducted. The assessment concluded that retained patches of the community would not be adversely affected by the project (Chapter 8).	Abiotic factors including soil will be modified during trenching in the pipeline disturbance footprint. This soil would be reinstated following completion of trenching, and therefore abiotic factors necessary for the ecological community's survival will not be destroyed.	
h)	characteristic and functionally important species through impacts including, but not limited to, inappropriate fire/flooding regimes, removal of understorey species or plant harvesting?	The project will remove 45.6 ha of habitat for the ecological community within the mine disturbance footprint. Retained areas of the ecological community outside the mine disturbance footprint will be designated as no-go zones (with the exception of entry for environmental management). Weed management measures will also be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine project area.	The pipeline development will clear 12.15 ha of the listed community for the southern option and up to 9.49 ha for the northern option. Within these areas, impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of mature trees where practicable. As the disturbed soil would be reinstated following the completion of trenching, a substantial change in species composition is not expected.	

Table 6.8 SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands

Assessment question	Mine development	Pipeline development
	The project will remove all areas of this community within the mine disturbance footprint; consequently, there will be no residual risk within the mine project area. The condition of retained vegetation in the mine project area will increase with management.	Areas of the community will be removed within the pipeline disturbance footprint. Following trenching and soil stabilisation, it is expected that some of the groundcovers and potentially tree species would regenerate. Minor disturbances would occur to the groundlayer should maintenance be required
	Areas outside of the mine project area have been subjected to the indirect impacts of agriculture for a long period of time, eg the potential importation of invasive species. This does not appear to have significantly impacted the CEEC to date. The majority of weed species within the CEEC are exotic pasture species associated with previous agricultural land uses.	during operation. The ecological community in the pipeline corridor has been subjected to agricultural activities for a long period of time and therefore is in poorer condition with lower VI scores compared with the mine project area. The majority of weed species within the CEEC are exotic pasture species associated
	Weed management measures will be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine project area.	with current agricultural land uses. Weed management measures will be developed and implemented in retained areas of the community outside the pipeline disturbance footprint, but within
	The development of the weed and pest species management plan has the potential to result in improvements to areas of retained vegetation within the mine lease area.	the pipeline corridor.

Table 6.8 SAII assessment for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands

Ass	sessment question	Mine development	Pipeline development
i)	Will an important area of the TEC be directly or indirectly fragmented or isolated?	A national recovery plan has been developed (DECCW 2010a) for this community, which states that all areas of the listed community which meet the minimum condition criteria outlined in Section 3 of the plan, should be considered critical to the survival of this listed ecological community. This is defined as a canopy dominated or co-dominated by White Box, Yellow Box or Blakelys Red Gum, have a predominantly native understorey (i.e. more than 50% of the perennial native groundcover) with a patch size greater than 0.1 ha and must contain 12 or more understorey species, with at least one important species. If the patch does not meet the above criteria, it must be part of a patch greater than 2 ha in size and have an average of 20 or more mature trees per ha or natural regeneration of the canopy eucalypts.	A national recovery plan has been developed (DECCW 2010a) for this community, which states that all areas of the listed community which meet the minimum condition criteria outlined in Section 3 of the plan, should be considered critical to the survival of this listed ecological community. This is defined as a canopy dominated or co-dominated by White Box (<i>Eucalyptus albens</i>), Yellow Box (<i>E. melliodora</i>) or Blakelys Red Gum (<i>E. blakelyi</i>), have a predominantly native understorey (ie more than 50% of the perennial native groundcover) with a patch size greater than 0.1 ha and must contain 12 or more understorey species, with at least one important species. If the patch does not meet the above criteria, it must be part of a patch greater than 2 ha in size and have an average of 20 or more mature trees per ha or natural regeneration of the canopy eucalypts.
		Approximately 20.43 ha of vegetation in the mine disturbance footprint meets the above criteria. According to the PCT mapping (OEH 2018), there is approximately 1,129 ha of PCTs that represent the listed community within a 5 km radius of the project. The project would reduce the extent of critical habitat in the locality by approximately 1.8%.	Approximately 0.81 ha of vegetation in the footprint meets the above criteria. According to the PCT mapping (OEH 2018) there is approximately 344.2 ha of PCTs that represent the listed community within a 5 km radius of the pipeline corridor. The project would reduce the extent of critical habitat in the locality by approximately 0.2%, which does not represent an adverse impact.
j)	What measures are proposed to assist with the TEC's recovery in the IBRA subregion?	Avoidance and minimisation measures relating to the project are detailed in Offsets will be provided in accordance with the BAM to assist with the TEC's	

Table 6.9 SAII assessment for Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions

Ass	essment question	Pipeline developm	nent					
a)	What is the action and what measures have been taken to avoid direct and indirect impacts on the SAII candidate entity	The action is to construct an open cut gold mine (and associated infrastructure) and a water supply pipeline (Section 1.6). Measures to avoid direct and indirect impacts on the community are detailed in Section 6.4.						
b)	What is the area (ha) and condition (ie	Vegetation zone	Southern option		Northern option	Northern option		
	vegetation integrity score for each vegetation zone) of the TEC to be directly		Direct impacts (ha)	Indirect impacts (ha)	Direct impacts (ha)	Indirect impacts (ha)		
	and indirectly impacted by the proposed	1191_DNG	0.11	0.24	0.11	0.24	32.6	
	development?	1191_Fragments	0.12	0.27	0.12	0.27	31.6	
		1191_Intact	1.40	2.81	1.40	2.81	51.3	
		1191_Shrubland	0.37	0.89	0.37	0.89	64.5	
		1191_Sparse	0.11	0.47	0.11	0.47	3.4	
		1197_DNG	0.00	0.16	0.00	0.16	20.4	
		1197_Intact	0.87	3.56	0.87	3.56	71.8	
		1197_Shrubland	0.04	0.31	0.04	0.31	28.2	
		1197_Sparse	0.04	0.24	0.04	0.24	26.8	
		Total	3.07	8.92	3.07	8.92	-	
c)	To what extent does the impact exceed the threshold for the candidate entity in Guidance to assist a decision-maker to determine a serious and irreversible impact?	There are no thres	holds specified for the ec	ological community.				

Table 6.9 SAII assessment for Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions

Ass	essment question	Pipeline development
d)	What is the extent and overall condition of the TEC within a 1,000 ha and 10,000 ha buffer of the development footprint?	The extent of the TEC within a 1,000 ha and 10,000 ha buffer of the pipeline development footprint is 29.72 ha and 293.97 ha for the southern option, respectively and 15.64 ha and 295.82 ha for the northern option, respectively (OEH 2018). The TEC is highly fragmented in the region, and varies between high and poor condition patches, depending on the level of agricultural disturbance.
e)	What is the extant area and overall condition of the TEC remaining in the IBRA	The extant area of the TEC in each IBRA subregion was estimated by combining spatial datasets from OEH (2015), OEH (2018) and DPIE (2019). The TEC is not impacted by the pipeline disturbance footprint in the Orange or Bathurst IBRA subregions.
	subregion before and after the proposed development?	The estimated extant area of the TEC in the Hill End IBRA subregion is 4,789.63 ha. Following the pipeline development, it is estimated to reduce to 4,788.49 ha for the southern option and northern options.
		The estimated extant area of the TEC in the Capertee Uplands IBRA subregion is 675.18 ha. Following the pipeline development, it is estimated to reduce to 673.25 ha for the southern option and northern options.
f)	How much (ha) of the TEC is reserved	It is estimated that 667.95 ha in the Hill End IBRA subregion and 0 ha in the Capertee Uplands IBRA subregion (OEH 2015; OEH 2018).
	within the IBRA region and IBRA subregion?	It is estimated that 50,117 ha is reserved in the South-eastern Highlands IBRA subregion (DPIE 2019; OEH 2015; OEH 2018).
		Abiotic factors including soil will be modified during trenching in the pipeline disturbance footprint. This soil would be reinstated following completion of trenching, and therefore abiotic factors necessary for the ecological community's survival will not be destroyed.
		Within the areas to be removed, impacts to the ecological community will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of mature trees where practicable. As the disturbed soil would be reinstated following the completion of trenching, a substantial change in species composition is not expected.
		Areas of the community will be removed within the pipeline disturbance footprint. Following trenching and soil stabilisation, it is expected that some of the groundcovers and potentially tree species would regenerate.
		The ecological community in the pipeline corridor has been subjected to agricultural activities for a long period of time and therefore is in poorer condition with lower VI scores compared with the mine project area. The majority of weed species within the CEEC are exotic pasture species associated with current agricultural land uses.
		Weed management measures will be developed and implemented in retained areas of the community outside the pipeline disturbance footprint, but within the mine project area.

Table 6.9 SAII assessment for Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions

Ass	essment question	Pipeline development				
g)	Will an important area of the TEC be directly or indirectly fragmented or isolated?	Important areas of the TEC have not been designated.				
h)	What measures are proposed to assist with the TEC's recovery in the IBRA subregion?	Avoidance and minimisation measures relating to the project are detailed in Section 6.4. Offsets will be provided in accordance with the BAM to assist with the TEC's recovery in the IBRA subregion.				

6.6 Impacts not requiring offsets

Areas not requiring assessment in accordance with Section 10.4 of the BAM (OEH 2017) include:

- existing roads;
- cleared and highly disturbed land, particularly associated with past mining activities (eg mullock heaps); and
- watercourses.

Areas not requiring offset are shown on Figure 6.2 and Figure 6.3.

In accordance with Section 10.3 of the BAM (OEH 2017), impacts on vegetation zones and threatened species habitat do not require offsets where:

- a vegetation zone representative of a critically endangered or endangered ecological community has a vegetation integrity score less than 15/100; and/or
- a vegetation zone representative of a vulnerable ecological community and/or threatened species habitat has a vegetation integrity score less than 17/100; and/or
- a vegetation zone that is not listed has a vegetation integrity score less than 20/100; and/or
- threatened species habitat where the vegetation integrity score is less than 17/100.

Table 6.11 provides a summary of the vegetation zones that do not trigger the above thresholds, relating to the pipeline development. All vegetation and threatened species impacts for the mine development require offset.

Table 6.10 Summary of native vegetation impacts not requiring offsets – pipeline development

Vegetation zone numbe	•	etation zone Area e	Current vegetation integrity score	Change in vegetation integrity score	Total change in vegetation integrity score	Credits required
Orange						
3	277 - Blakely's Red Gum - Yellow Box grassy tall woodland 277_ of the NSW South Western Slopes Bioregion	DNG 1.6	3.5	-3.5	-1.2	0
Bathurst – so	outhern option					
1	277 - Blakely's Red Gum - Yellow Box grassy tall woodland 277_ of the NSW South Western Slopes Bioregion	_DNG 0.4	3.5	-3.5	-1.4	0
Bathurst – no	orthern option					
1	277 - Blakely's Red Gum - Yellow Box grassy tall woodland 277_ of the NSW South Western Slopes Bioregion	DNG 0.5	3.5	-3.5	-1.3	0
4	1330 - Yellow Box - Blakely's Red Gum grassy woodland on 1330 the tablelands, South Eastern Highlands Bioregion	_Fragments 1.4	3.8	-3.8	-1.4	0
Hill End						
9	1191 - Snow Gum - Candle Bark woodland on broad valley 1191 flats of the tablelands and slopes, South Eastern Highlands Bioregion	_Sparse 0.3	3.4	-3.4	-0.5	0
15	1330 - Yellow Box - Blakely's Red Gum grassy woodland on 1130 the tablelands, South Eastern Highlands Bioregion	_Fragments 0.1	3.8	-3.8	-0.0	0
Capertee						
8	1191 - Snow Gum - Candle Bark woodland on broad valley 1191 flats of the tablelands and slopes, South Eastern Highlands Bioregion	_Sparse 0.3	3.4	-3.4	-0.8	0
Total		-		-	-	0

Table 6.11 Summary of threatened species impacts not requiring offsets – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Orange							
Barking Owl	277_Intact	0.09	10.2	0	-10.2	No	0
Powerful Owl	277_Intact	0.09	10.2	0	-10.2	No	0
Powerful Owl	1093_Intact	0.12	4.8	0	-4.8	No	0
Squirrel Glider	277_Intact	0.09	10.2	0	-10.2	No	0
Squirrel Glider	1093_Intact	0.12	4.8	0	-4.8	No	0
Bathurst (southern option)							
Pink-tailed Worm Lizard	1330_Intact	0.02	7.4	0	-7.4	No	0
Pink-tailed Worm Lizard	1330_Sparse	0.05	8.9	0	-8.9	No	0
Booroolong Frog	1330_Intact	0.11	7.4	0	-7.4	No	0
Aromatic Peppercress	277_Moderate	0.02	1.5	0	-1.5	No	0
Aromatic Peppercress	277_Intact	0.44	1.4	0	-1.4	No	0
Bathurst (northern option)							
Aromatic Peppercress	277_Moderate	0.02	1.5	0	-1.5	No	0
Aromatic Peppercress	277_DNG	0.48	1.3	0	-1.3	No	0
Hill End							
Bush Stone-curlew	1197_Shrubland	0.02	7.5	0	-7.5	No	0
Gang-gang Cockatoo	727_Shrubland	0.12	3.1	0	-3.1	No	0
Gang-gang Cockatoo	1197_Shrubland	0.04	7.5	0	-7.5	No	0
Eastern Pygmy Possum	1093_Shrubland	0.03	11.4	0	-11.4	No	0
Eastern Pygmy Possum	1191_Sparse	0.32	0.5	0	-0.5	No	0
Powerful Owl	727_Intact	0.16	6.0	0	-6.0	No	0

Table 6.11 Summary of threatened species impacts not requiring offsets – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Powerful Owl	727_Shrubland	0.03	3.1	0	-3.1	No	0
Powerful Owl	727_Shrubland	0.02	11.4	0	-11.4	No	0
Powerful Owl	727_Shrubland	0.02	7.5	0	-7.5	No	0
Bathurst Copper Butterfly	1093_DNG	0.06	4.9	0	-4.9	No	0
Bathurst Copper Butterfly	1093_Fragments	0.01	19.0	0	-19.0	No	0
Bathurst Copper Butterfly	1093_Shrubland	0.05	11.4	0	-11.4	No	0
Bathurst Copper Butterfly	1330_DNG	0.05	7.3	0	-7.3	No	0
Bathurst Copper Butterfly	1330_Intact	0.15	4.6	0	-4.6	No	0
Squirrel Glider	1191_Sparse	0.06	0.5	0	-0.5	No	0
Squirrel Glider	1197_Shrubland	0.02	7.5	0	-7.5	No	0
Masked Owl	727_Intact	0.16	6.0	0	-6.0	No	0
Masked Owl	727_Shrubland	0.03	3.1	0	-3.1	No	0
Masked Owl	1093_Shrubland	0.02	11.4	0	-11.4	No	0
Masked Owl	1197_Shrubland	0.02	7.5	0	-7.5	No	0
Capertee Uplands							
Eastern Pygmy Possum	1191_Sparse	0.17	0.8	0	-0.8	No	0
Large-eared Pied Bat	1191_Sparse	0.17	0.8	0	-0.8	No	0
Booroolong Frog	1191_DNG	0.03	12.2	0	-12.2	No	0
Booroolong Frog	1191_Sparse	0.26	0.8	0	-0.8	No	0
Brush-tailed Rock-wallaby	1191_Sparse	0.1	0.8	0	-0.8	No	0

6.7 Impacts requiring offset

This section provides an assessment of the impacts requiring offsetting in accordance with Section 10 of the BAM (OEH 2017).

6.7.1 Mine development

i Impacts on native vegetation

Impacts on native vegetation requiring offsets and a summary of the ecosystem credits required for all vegetation zones, including changes in vegetation integrity score, are provided in Table 6.12. A total of 2,541 ecosystem credits are required to offset the residual impacts of the mine development. A credit report is provided in Appendix D.

Offsets will be provided in accordance with the biodiversity offset framework outlined in Section 6.8.

Table 6.12 Summary of ecosystem credits required for all vegetation zones – mine development

Vegetatio zone number	on PCT	Vegetation zone name	Vegetation zone (ha)¹	Current vegetation integrity score	Total change in vegetation integrity score	Credits required
1	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	727_High	3.9	41.0	-31.6	54
2	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	727_Poor	12.1	42.0	-36.4	193
3	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	727_Medium	36.7	45.4	-44.1	708
4	Carex sedgeland of the slopes and tablelands	766_Poor	3.0	17.4	-17.4	26
5	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	951_Poor	33.7	28.3	-27.6	464
6	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Other	0.8	26.4	-26.4	10
7	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_High	1.6	39.4	-35.9	29
8	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Medium	21.0	55.0	-49.8	523
9	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Poor	25.3	43.2	-42.2	534
Total						2,541

Notes: 1. The vegetation zone area comprises the mine disturbance footprint and weed impact management zone, as depicted on Plate 4.1.

ii Impacts on threatened species

Impacts to threatened species habitat requiring offsets and a summary of the species credits required for all vegetation zones occupied by the threatened species, including changes in vegetation integrity score, are provided in Table 6.13. A total of 5,082 ecosystem credits are required to offset the residual impacts of the mine development. A credit report is provided in Appendix D.

Offsets will be provided in accordance with the biodiversity offset framework outlined in Section 6.8.

 Table 6.13
 Summary of threatened species credits – mine development

Species	Vegetation zone name	Area (ha)/individual (HL) ¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Squirrel Glider	951_Poor	33.68	27.6	0.0	-27.6	No	464
Squirrel Glider	1330_High	1.63	35.9	0.0	-35.9	No	29
Squirrel Glider	1330_Medium	21.01	49.8	0.0	-49.8	No	523
Squirrel Glider	1330_Poor	25.30	42.2	0.0	-42.2	No	534
Squirrel Glider	1330_Other	0.76	26.4	0.0	-26.4	No	10
Squirrel Glider	727_High	3.89	31.6	0.0	-31.6	No	62
Squirrel Glider	727_Medium	36.74	44.0	0.0	-44.0	No	809
Squirrel Glider	727_Poor	12.08	36.4	0.0	-36.4	No	220
Koala	951_Poor	33.68	27.6	0.0	-27.6	No	464
Koala	1330_High	1.63	35.9	0.0	-35.9	No	29
Koala	1330_Medium	21.01	49.8	0.0	-49.8	No	523
Koala	1330_Poor	25.30	42.2	0.0	-42.2	No	534
Koala	1330_Other	0.76	26.4	0.0	-26.4	No	10
Koala	727_High	3.90	31.6	0.0	-31.6	No	62
Koala	727_Medium	36.74	44.0	0.0	-44.0	No	809
Total							5,082

Notes: 1. The area/individuals shown are the sum of areas of habitat/individuals in the mine disturbance footprint and weed impact management zone, depicted on Plate 4.1.

6.7.2 Pipeline development

i Impacts on native vegetation

Impacts on native vegetation requiring offsets and a summary of the ecosystem credits required for all vegetation zones, including changes in vegetation integrity score, are provided in Table 6.14. A total of 363 ecosystem credits are required to offset the residual impacts of the southern option, while 331 ecosystem credits would be required for the northern option. Credit reports are provided in Appendix D.

Offsets will be provided in accordance with the biodiversity offset framework outlined in Section 6.8.

Table 6.14 Summary of ecosystem credits required for all vegetation zones – pipeline development

Vegetation zone number	n PCT	Vegetation zone name	Vegetation zone (ha)¹	Current vegetation integrity score	Total change in vegetation integrity score	Credits required
Orange						
2	277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	277_Intact	1.1	27.8	-10.2	6
4	277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	277_Moderate	3.8	31.6	-11.8	23
1	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Intact	0.5	77.1	-4.8	1
Bathurst (southern option)					
2	277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	277_Moderate	0.0	31.6	-1.5	1
3	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_DNG	18.9	17.4	-7.6	72
4	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Intact	0.8	19.2	-7.4	3
5	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Shrubland	0.1	51.2	-22.9	1
6	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Sparse	4.8	20.1	-8.9	21
Bathurst (northern option)					
2	277 - Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	277_Moderate	0	31.6	-1.5	1
3	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_DNG	10.2	17.4	-7.2	37
5	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Intact	1.7	19.2	-7.6	6
6	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Shrubland	0.1	51.2	-22.9	1

Table 6.14 Summary of ecosystem credits required for all vegetation zones – pipeline development

Vegetatio zone number	n PCT	Vegetation zone name	Vegetation zone (ha)¹	Current vegetation integrity score	Total change in vegetation integrity score	Credits required
7	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Sparse	4.7	20.1	-9.0	21
Hill End						
1	727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	727_Intact	0.3	79.0	-6.0	1
2	727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	727_Shrubland	0.5	44.1	-3.1	1
3	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_DNG	0.2	43.4	-4.9	1
4	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Fragments	0.4	60.9	-19.0	3
5	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Intact	1.0	77.1	-16.3	7
6	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Shrubland	0.6	44	-11.4	3
7	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands ar slopes, South Eastern Highlands Bioregion	nd 1191_Fragments	0.1	31.6	-10.0	1
8	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands ar slopes, South Eastern Highlands Bioregion	nd 1191_Intact	0.6	51.3	-10.6	4
10	1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	1197_DNG	0.2	20.4	-2.6	1
11	1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	1197_Intact	4.4	71.8	-17.2	48
12	1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	1197_Shrubland	0.4	28.2	-7.5	2
13	1197 - Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion	1197_Sparse	0.3	26.8	-7.0	1

Table 6.14 Summary of ecosystem credits required for all vegetation zones – pipeline development

Vegetation zone number	on PCT	Vegetation zone name	Vegetation zone (ha)¹	Current vegetation integrity score	Total change in vegetation integrity score	Credits required
14	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_DNG	1.8	17.4	-7.3	6
16	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Intact	0.9	19.2	-4.6	2
17	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Shrubland	0.1	51.2	-9.3	1
18	1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	1330_Sparse	0.2	20.1	-7.4	1
Capertee	Uplands					
1	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Fragments	0.9	60.9	-18.7	7
2	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Intact	5.3	77.1	-24.9	58
3	1093 - Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion	1093_Shrubland	2.6	44.0	-18.3	21
4	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands an slopes, South Eastern Highlands Bioregion	d 1191_DNG	0.3	32.6	-12.2	3
5	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands an slopes, South Eastern Highlands Bioregion	d 1191_Fragments	0.3	31.6	-13.5	2
6	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands an slopes, South Eastern Highlands Bioregion	d 1191_Intact	3.6	51.3	-20.1	45
7	1191 - Snow Gum - Candle Bark woodland on broad valley flats of the tablelands an slopes, South Eastern Highlands Bioregion	d 1191_Shrubland	1.3	64.5	-20.8	16
Total (so	uthern option)	-	-	-	-	363
Total (no	rthern option)	-	-	-	-	331

Notes: 1. The vegetation zone is the sum of the area within the pipeline disturbance footprint, tree root and weed impact management zone and weed impact management zone, as depicted on Plate 4.1.

ii Impacts on threatened species

Impacts to threatened species habitat requiring offsets and a summary of the species credits required for all vegetation zones occupied by the threatened species, including changes in vegetation integrity score, are provided in Table 6.15. A total of 968 species credits are required to offset the residual impacts of the pipeline development (southern option) and 833 to offset the pipeline development (northern option). A credit report is provided in Appendix D.

Offsets will be provided in accordance with the biodiversity offset framework outlined in Section 6.8.

Table 6.15 Summary of threatened species credit required for threatened species – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Orange							
Brush-tailed Phascogale	277_Intact	1.1	10.2	0	-10.2	No	6
Brush-tailed Phascogale	1093_Intact	0.54	4.8	0	-4.8	No	1
Koala	277_Intact	1.01	10.2	0	-4.8	No	5
Koala	1093_Intact	0.4	4.8	0	-4.8	No	1
Pink-tailed Worm Lizard	277_Intact	0.53	10.2	0	-10.2	No	3
Powerful Owl	277_Moderate	0.99	11.8	0	-11.8	No	6
Silky Swainson-pea	277_Intact	1	10.2	0	-10.2	No	5
Silky Swainson-pea	277_Moderate	3.84	11.8	0	-11.8	No	23
Small Purple-pea	277_Intact	1	10.2	0	-10.2	No	5
Small Purple-pea	277_Moderate	3.84	11.8	0	-11.8	No	23
Squirrel Glider	277_Intact	1.1	10.2	0	-10.2	No	6
Squirrel Glider	1093_Intact	0.54	4.8	0	-4.8	No	1
Sub-total Orange							85
Bathurst (southern option)							
Pink-tailed Worm Lizard	1330_DNG	2.93	7.6	0	-7.6	No	11
Aromatic Peppercress	1330_DNG	18.88	7.6	0	-7.6	No	72
Aromatic Peppercress	1330_Intact	0.29	7.4	0	-7.4	No	1
Aromatic Peppercress	1330_Shrubland	0.1	22.9	0	-22.9	No	1
Booroolong Frog	1330_Intact	0.3	7.4	0	-7.4	No	1
Booroolong Frog	1330_Shrubland	0.49	8.9	0	-8.9	No	2
Squirrel Glider	1330_Intact	0.43	7.4	0	-7.4	No	2
Squirrel Glider	1330_Shrubland	0.07	22.9	0	-22.9	No	1

Table 6.15 Summary of threatened species credit required for threatened species – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Squirrel Glider	1330_Sparse	0.25	8.9	0	-8.9	No	1
Koala	1330_Intact	0.43	7.4	0	-7.4	No	2
Koala	1330_Sparse	0.25	8.9	0	-8.9	No	1
Silky Swainson-pea	1330-DNG	18.88	7.6	0	-7.6	No	72
Silky Swainson-pea	1330_Intact	0.29	7.4	0	-7.4	No	1
Silky Swainson-pea	1330_Shrubland	0.07	22.9	0	-22.9	No	1
Austral Toadflax	1330-DNG	18.88	7.6	0	-7.6	No	54
Austral Toadflax	1330_Intact	0.29	7.4	0	-7.4	No	1
Austral Toadflax	1330_Shrubland	0.07	22.9	0	-22.9	No	1
Sub-total Bathurst (southern option)							225
Bathurst (northern option)							
Aromatic Peppercress	1330_DNG	10.21	7.2	0	-7.2	No	37
Aromatic Peppercress	1330_Intact	0.29	7.6	0	-7.6	No	1
Aromatic Peppercress	1330_Shrubland	0.07	22.9	0	-22.9	No	1
Booroolong Frog	1330_Intact	0.3	7.6	0	-7.6	No	1
Booroolong Frog	1330_Sparse	0.26	9.0	0	-9.0	No	1
Squirrel Glider	1330_Intact	0.43	7.4	0	-7.4	No	2
Squirrel Glider	1330_Shrubland	0.07	22.9	0	-22.9	No	1
Squirrel Glider	1330_Sparse	0.25	8.9	0	-8.9	No	1
Koala	1330_Intact	0.43	7.4	0	-7.4	No	2
Koala	1330_Sparse	0.25	8.9	0	-8.9	No	1
Silky Swainson-pea	1330_DNG	10.21	7.2	0	-7.2	No	37
Silky Swainson-pea	1330_Intact	0.29	7.4	0	-7.4	No	1

Table 6.15 Summary of threatened species credit required for threatened species – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Silky Swainson-pea	1330_Shrubland	0.07	22.9	0	-22.9	No	1
Austral Toadflax	1330_DNG	0.07	22.9	0	-22.9	No	1
Austral Toadflax	1330_Intact	0.29	7.4	0	-7.4	No	1
Austral Toadflax	1330_Shrubland	0.29	7.4	0	-7.4	No	1
Sub-total Bathurst (northern option)							90
Hill End							
Gang-gang Cockatoo	727_Intact	0.29	6.0	0	-6.0	No	1
Gang-gang Cockatoo	1197_Intact	1.2	17.2	0	-17.2	No	10
Eastern Pygmy Possum	727_Intact	0.29	6.0	0	-6.0	No	1
Eastern Pygmy Possum	1093_Intact	0.91	16.3	0	-16.3	No	7
Eastern Pygmy Possum	1191_Intact	0.6	10.6	0	-10.6	No	3
Powerful Owl	1093_Intact	0.41	16.3	0	-16.3	No	3
Powerful Owl	727_Intact	0.55	17.2	0	-17.2	No	5
Bathurst Copper Butterfly	1197_Intact	0.25	17.2	0	-17.2	No	2
Squirrel Glider	1191_Intact	0.24	10.6	0	-10.6	No	1
Squirrel Glider	1197_Intact	3.78	17.2	0	-17.2	No	32
Squirrel Glider	1330_Intact	0.74	4.6	0	-4.6	No	2
Brush-tailed Phascogale	1093_Intact	0.95	16.3	0	-16.3	No	8
Koala	727_Intact	0.29	6.0	0	-6.0	No	1
Koala	1093_Intact	0.95	16.3	0	-16.3	No	8
Koala	1191_Intact	0.6	10.6	0	-10.6	No	3
Koala	1197_Intact	3.78	17.2	0	-17.2	No	32
Koala	1330_Intact	0.47	4.6	0	-4.6	No	1

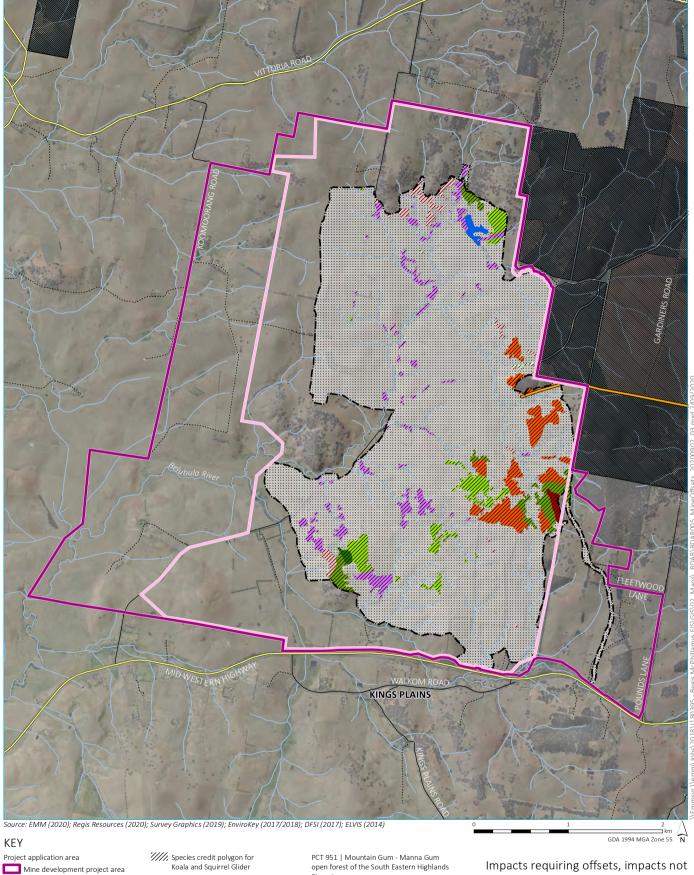
Table 6.15 Summary of threatened species credit required for threatened species – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL) ¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Silky Swainson-pea	1191_Intact	0.6	10.6	0	-10.6	No	3
Silky Swainson-pea	1330_Intact	0.85	4.6	0	-4.6	No	2
Masked Owl	1093_Intact	0.41	16.3	0	-16.3	No	3
Masked Owl	1197_Intact	0.55	17.2	0	-17.2	No	5
Veronica blakelyi	1197_Intact	4.43	17.2	0	-17.2	No	38
Subtotal Hill End							171
Capertee Uplands							
Eastern Pygmy Possum	1093_Fragments	0.83	18.7	0	-18.7	No	8
Eastern Pygmy Possum	1093_Intact	5.2	24.9	0	-24.9	No	65
Eastern Pygmy Possum	1093_Shrubland	1.77	18.3	0	-18.3	No	16
Eastern Pygmy Possum	1191_Intact	3.27	20.1	0	-20.1	No	33
Eastern Pygmy Possum	1191_Shrubland	0.75	20.8	0	-20.8	No	8
Large-eared Pied Bat	1191_Shrubland	0.29	20.8	0	-20.8	No	5
Black Gum	1191_Sparse	1	N/A	N/A	N/A	No	2
Booroolong Frog	1191_Intact	3.11	20.1	0	-20.1	No	31
Barking Owl	1191_Intact	0.58	20.1	0	-20.1	No	6
Powerful Owl	1093_Intact	0.39	24.9	0	-24.9	No	5
Powerful Owl	1093_Shrubland	0.19	18.3	0	-18.3	No	2
Powerful Owl	1191_Intact	0.78	20.1	0	-20.1	No	8
Bathurst Copper Butterfly	1093_Intact	0.43	24.9	0	-24.9	No	5
Bathurst Copper Butterfly	1093_Shrubland	0.18	18.3	0	-18.3	No	2
Clandulla Geebung	1093_Intact	0.24	24.9	0	-24.9	No	3
Clandulla Geebung	1093_Shrubland	0.06	18.3	0	-18.3	No	1

Table 6.15 Summary of threatened species credit required for threatened species – pipeline development

Species	Vegetation zone name	Area (ha)/individual (HL)¹	Current habitat condition	Future habitat condition	Loss of habitat condition	Candidate SAII	Species credits
Squirrel Glider	1093_Intact	5.25	24.9	0	-24.9	No	65
Squirrel Glider	1191_Intact	3.61	20.1	0	-20.1	No	36
Brush-tailed Rock-wallaby	1191_Shrubland	0.29	20.8	0	-20.8	No	5
Brush-tailed Phascogale	1093_Intact	5.25	24.9	0	-24.9	No	65
Koala	1093_Intact	5.25	24.9	0	-24.9	No	65
Koala	1191_Intact	3.61	20.1	0	-20.1	No	36
Masked Owl	1093_Intact	0.39	24.9	0	-24.9	No	5
Masked Owl	1093_Shrubland	0.19	18.3	0	-18.3	No	2
Masked Owl	1191_Intact	0.78	20.1	0	-20.1	No	8
Sub-total Capertee Uplands							487
Total (southern option)							968
Total (northern option)							833

Notes: 1. The area/individuals shown are the sum of areas of habitat/individuals in the pipeline disturbance footprint, tree root and weed impact management zone and weed impact management zone.



Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

Pipeline

Existing environment

— Major road

- Minor road

Vehicular track Watercourse/drainage line

Vittoria State Forest

...... Areas not requiring offset Plant community types

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion

High Medium Poor

PCT 766 | Carex sedgeland of the slopes and tablelands

Bioregion

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

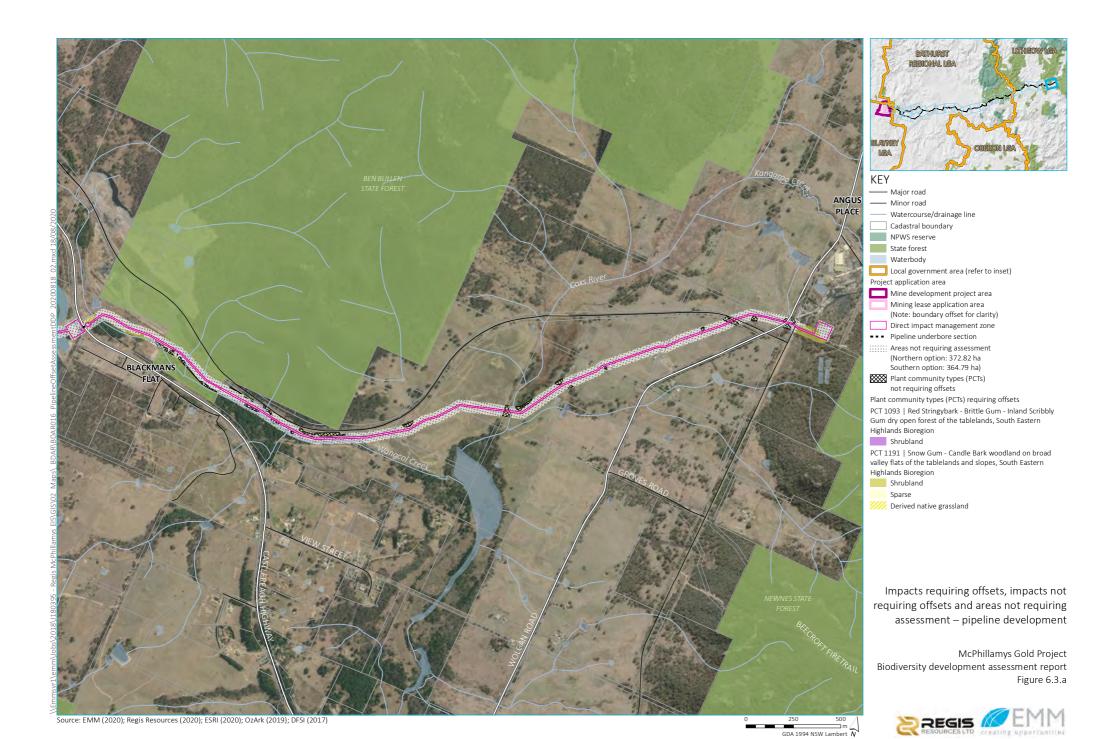
High Medium Poor Other

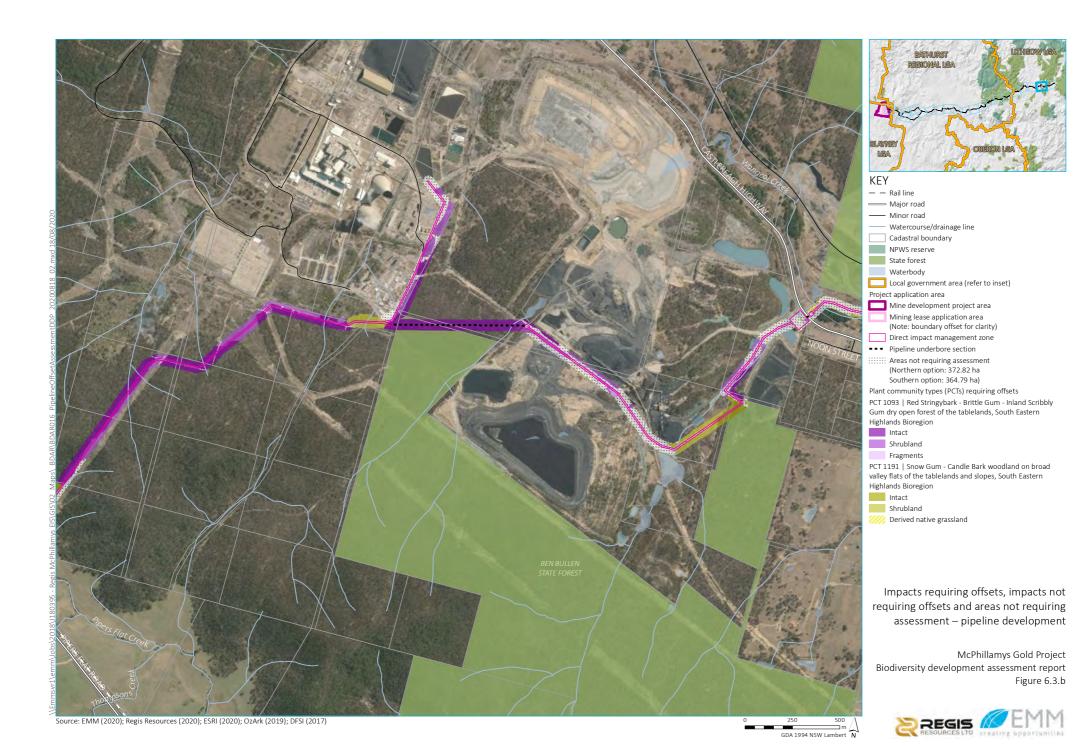
requiring offsets and areas not requiring assessment – mine development

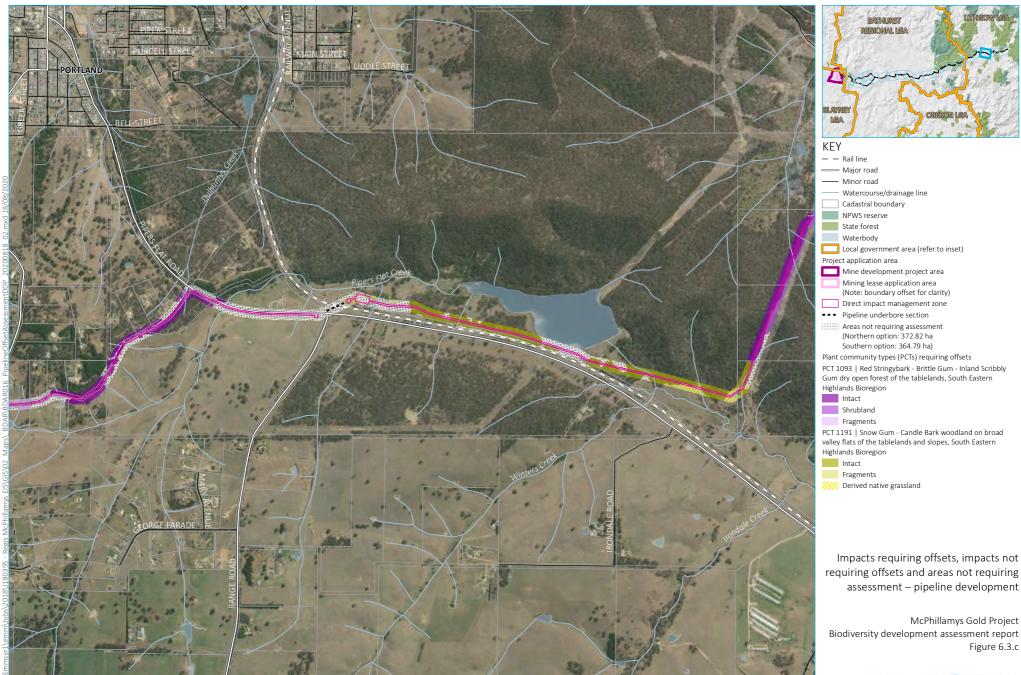
> McPhillamys Gold Project Biodiversity development assessment report Figure 6.2











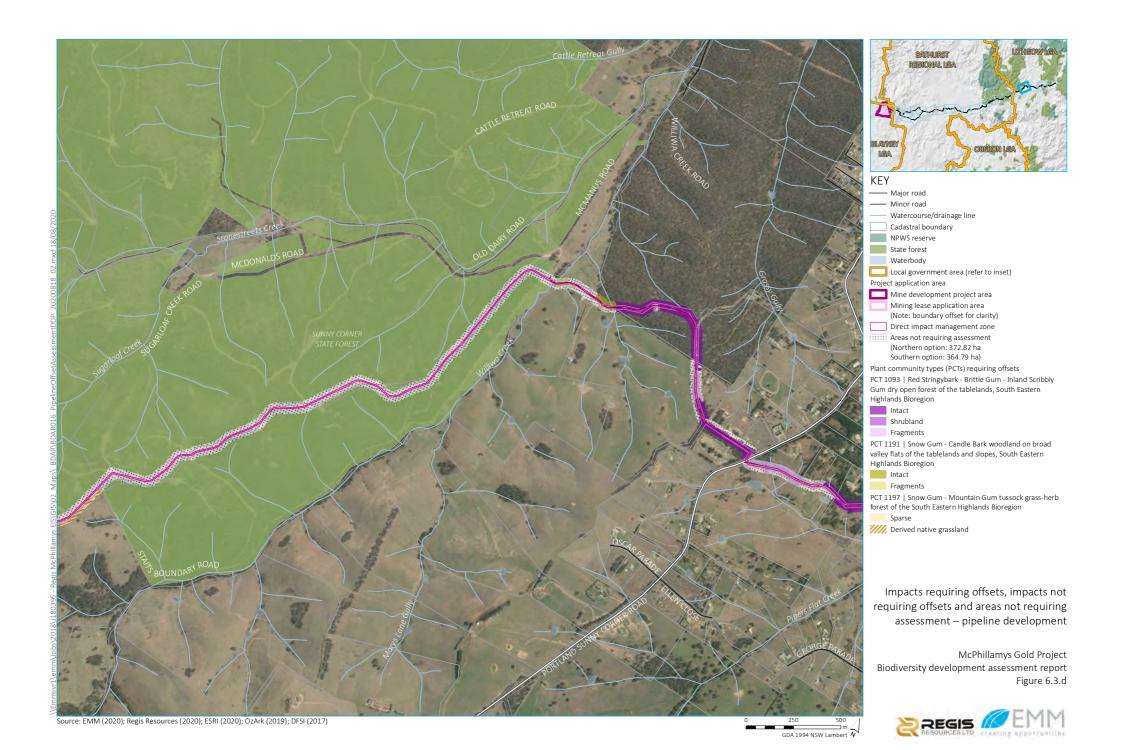
Source: EMM (2020); Regis Resources (2020); ESRI (2020); OzArk (2019); DFSI (2017)

requiring offsets and areas not requiring assessment – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.c



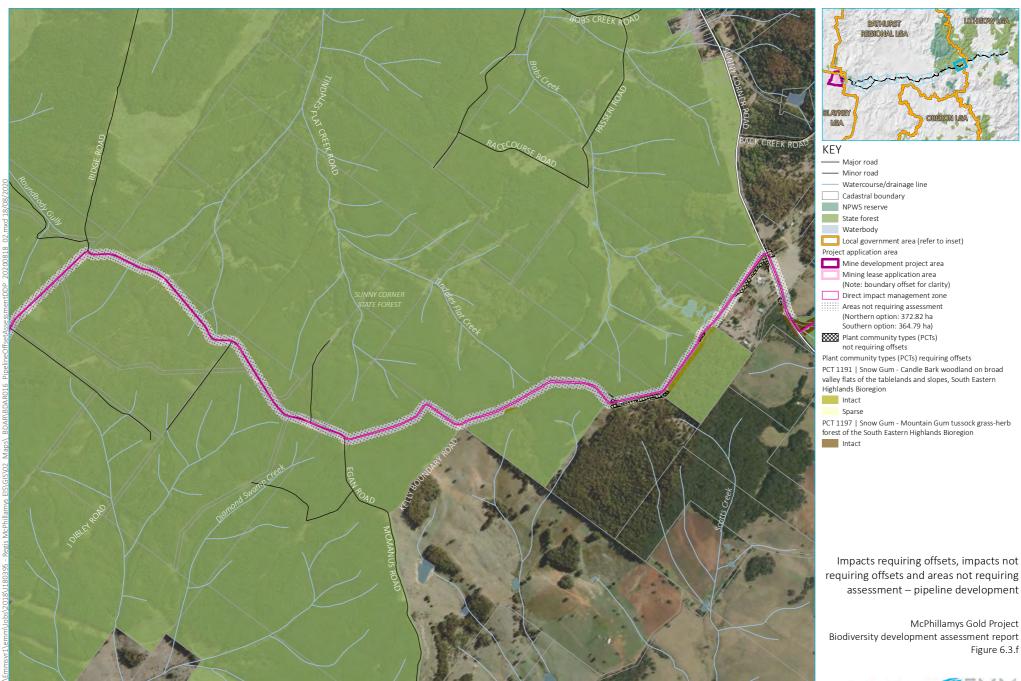
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McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.e





Source: EMM (2020); Regis Resources (2020); ESRI (2020); OzArk (2019); DFSI (2017)

Impacts requiring offsets, impacts not requiring offsets and areas not requiring

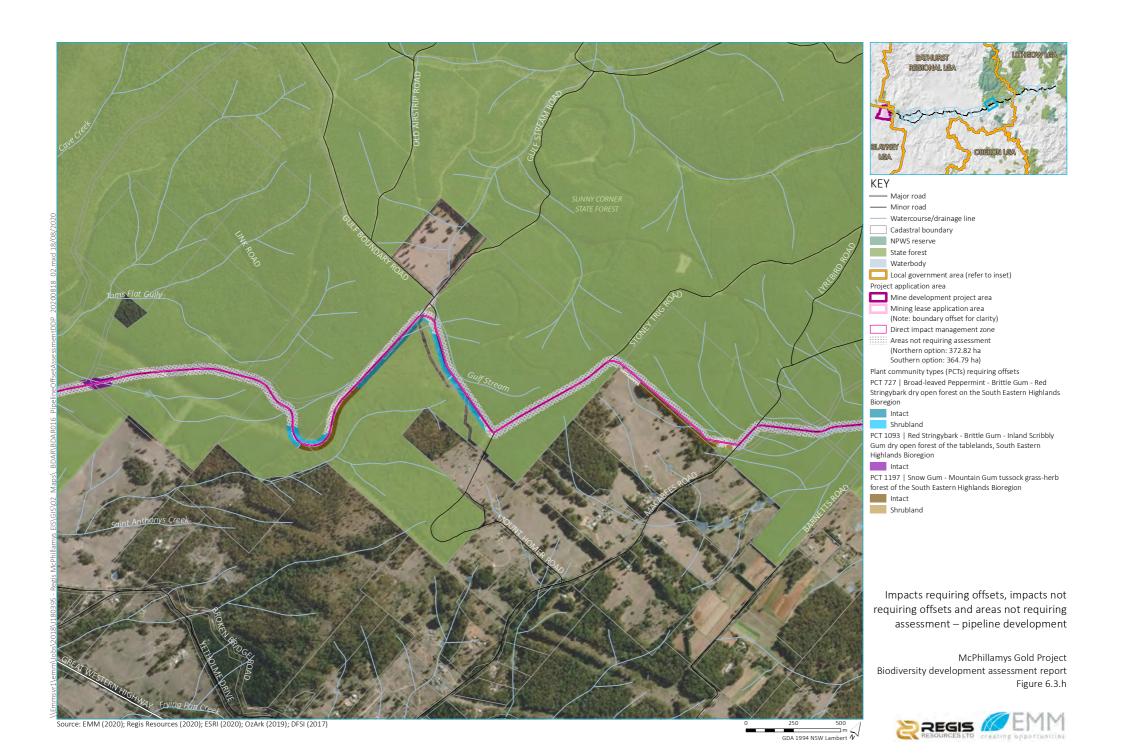
McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.f

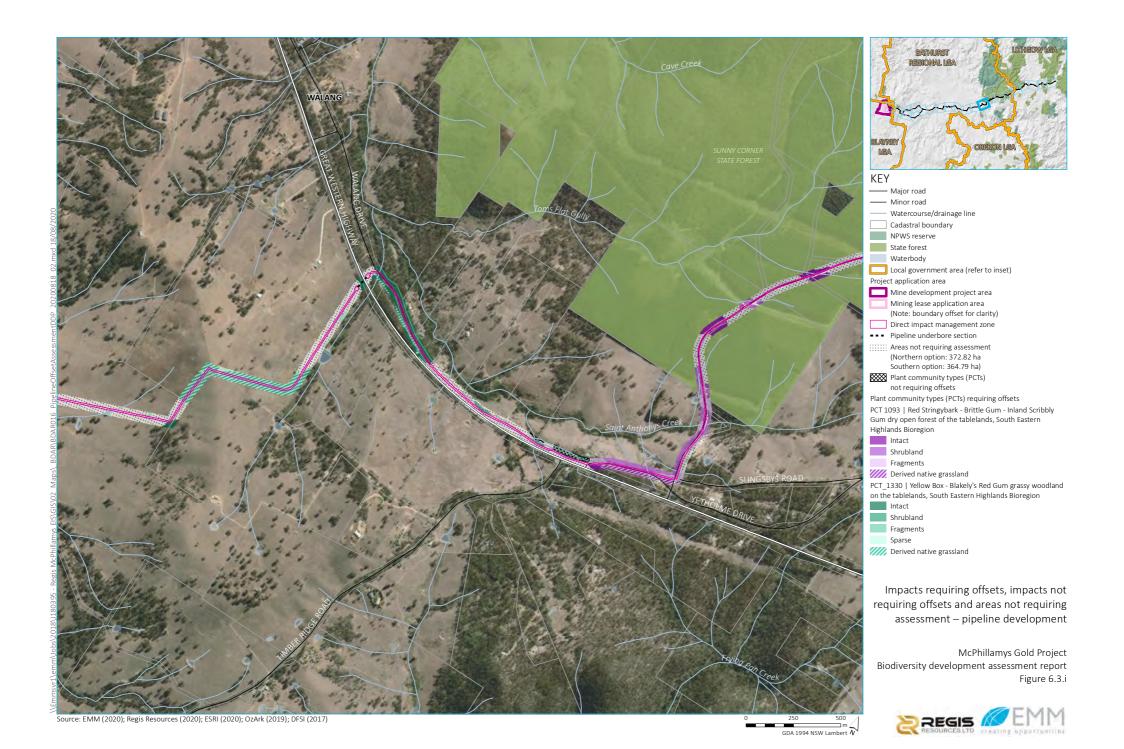


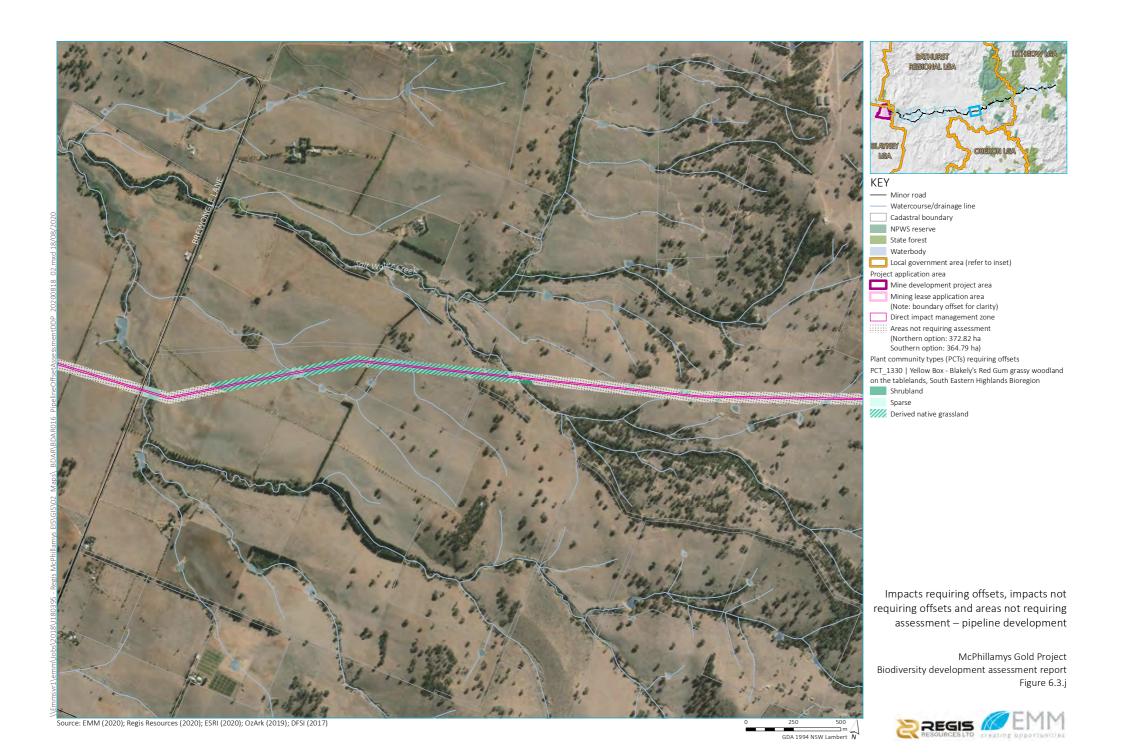


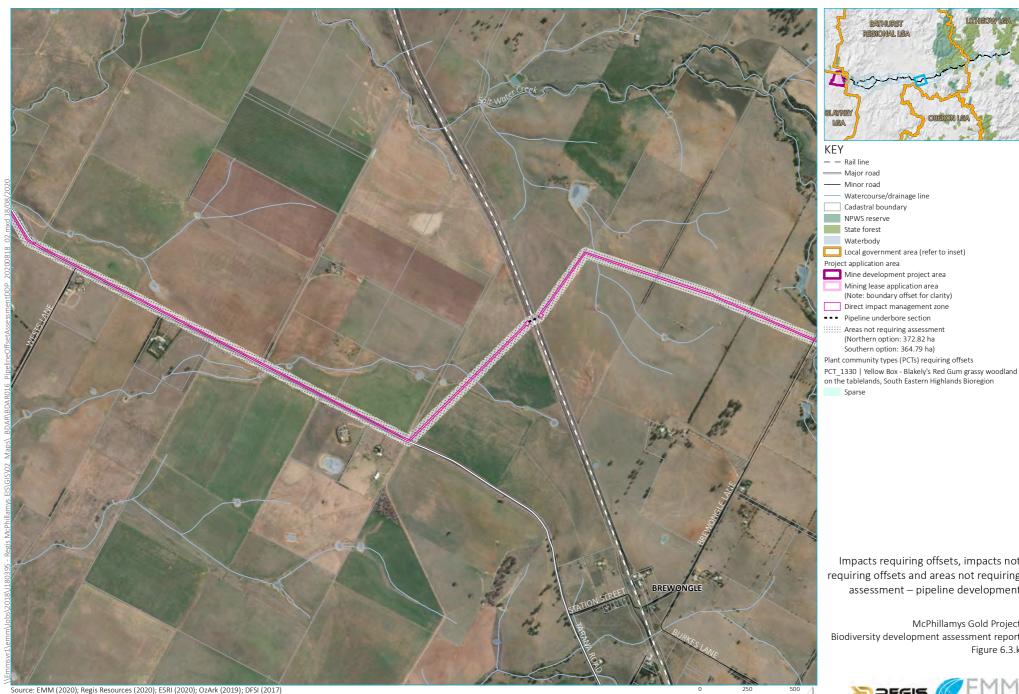
McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.g











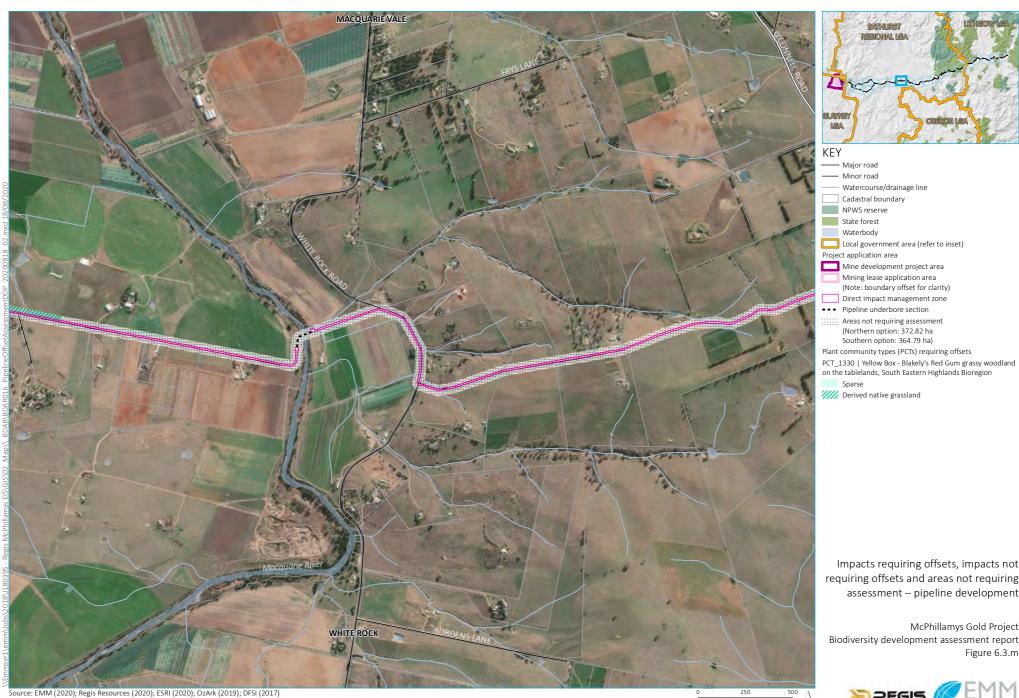
McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.k





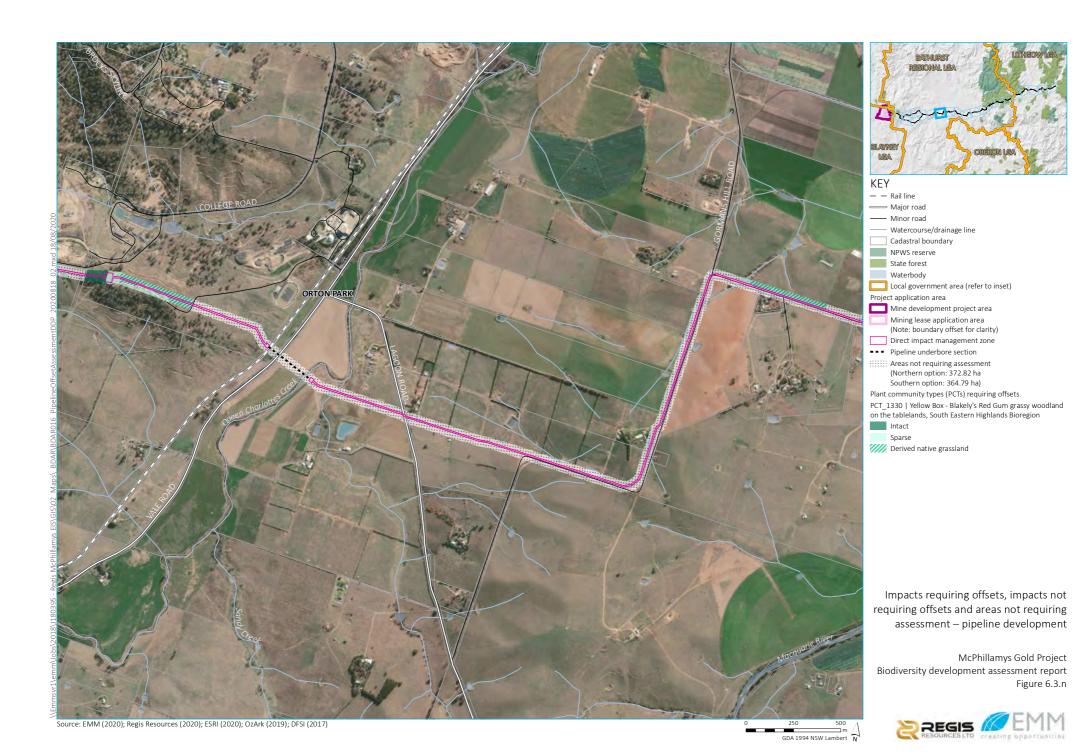
McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.l

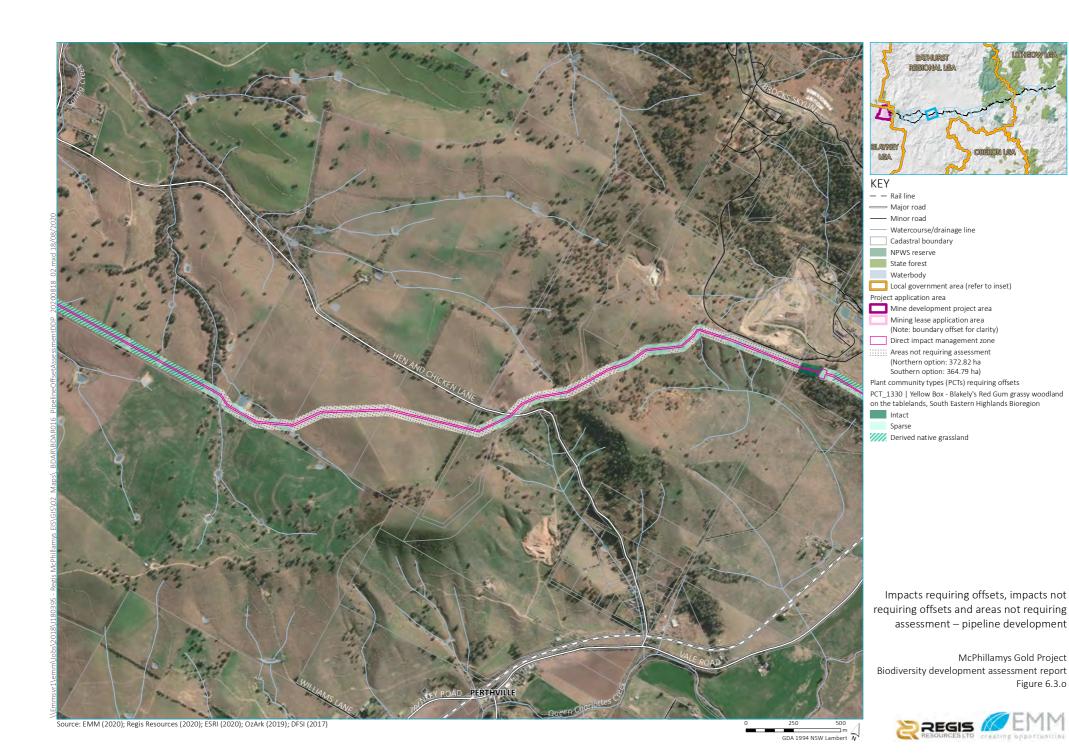




McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.m





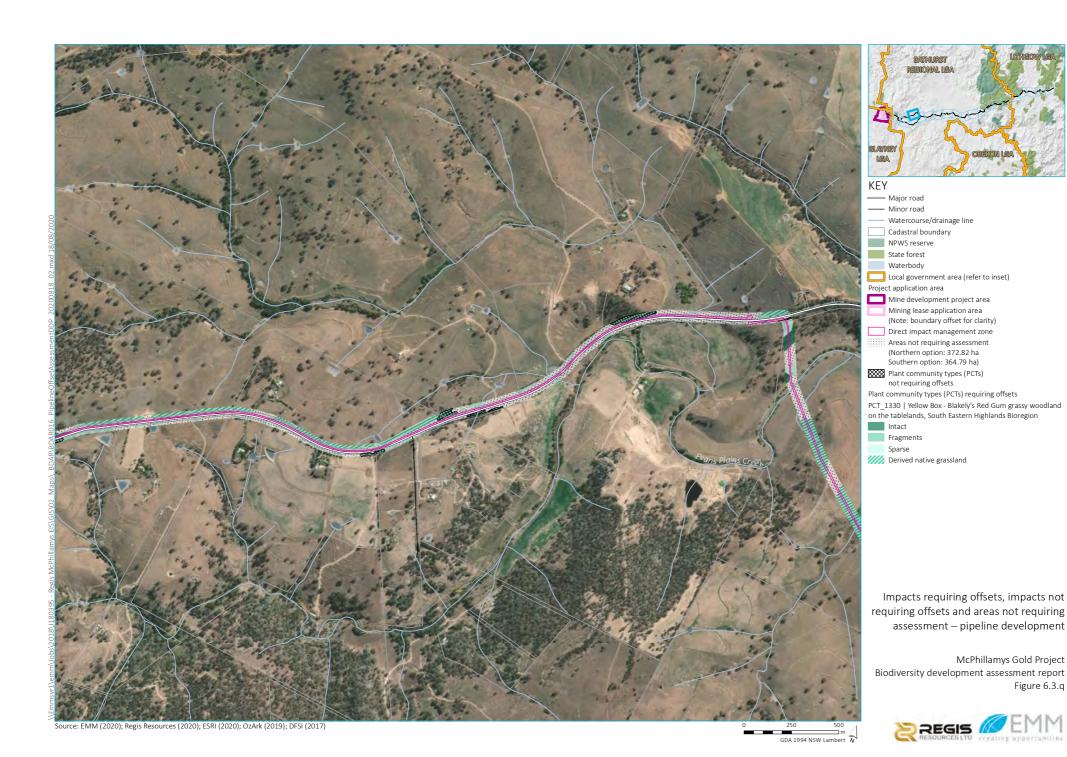


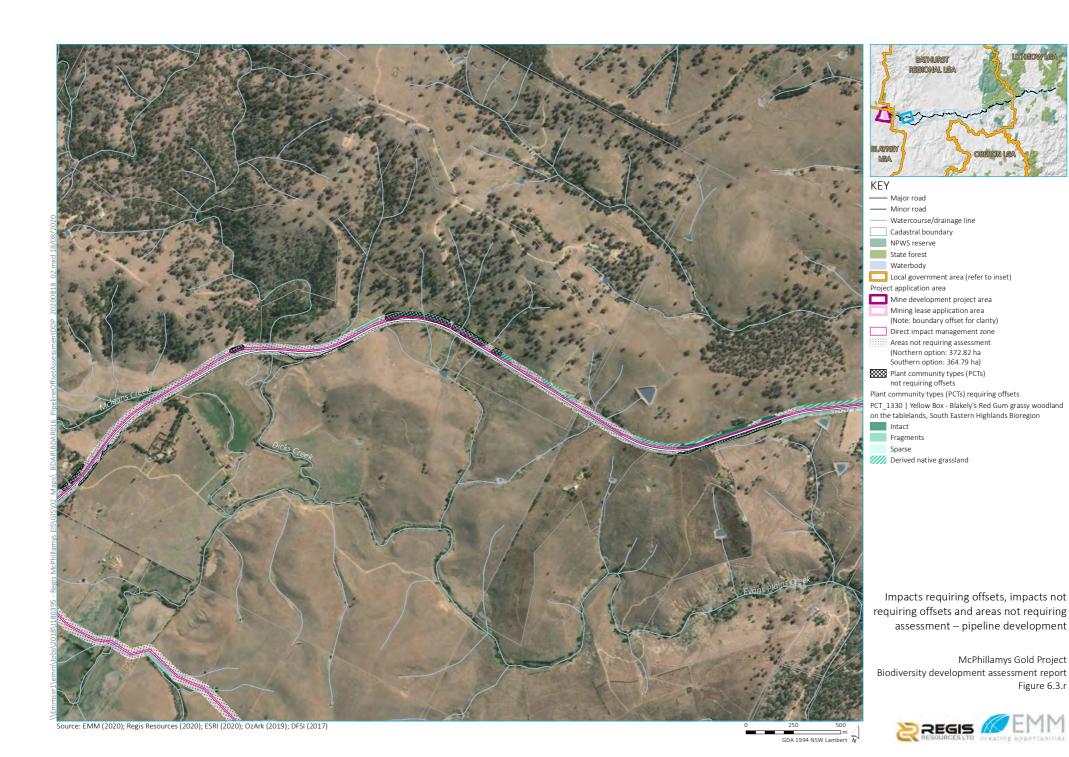


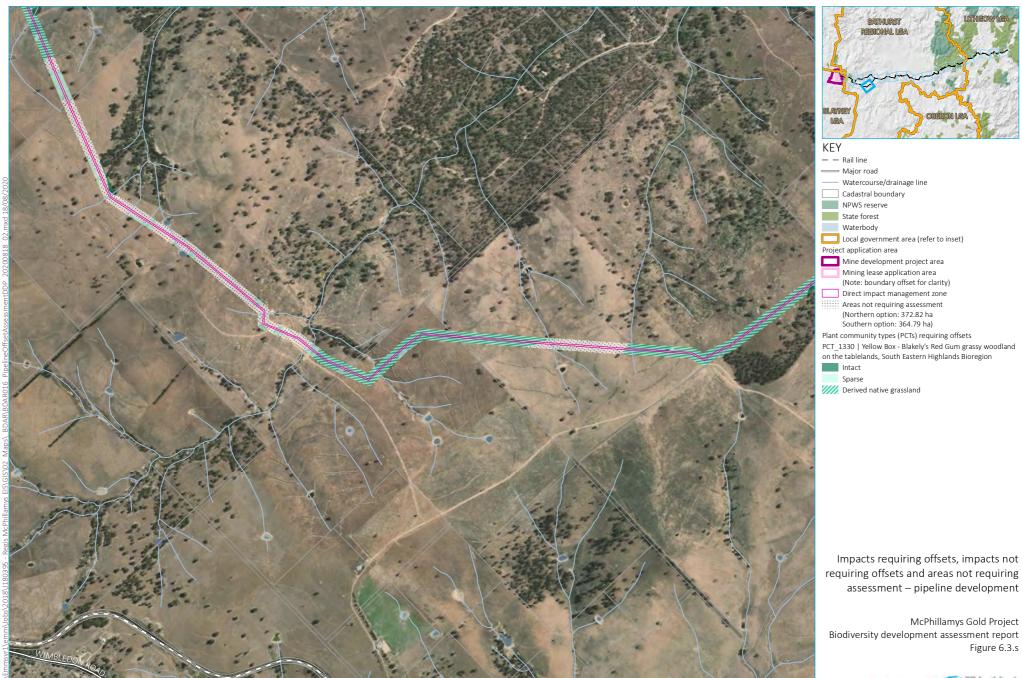
requiring offsets and areas not requiring assessment – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.p







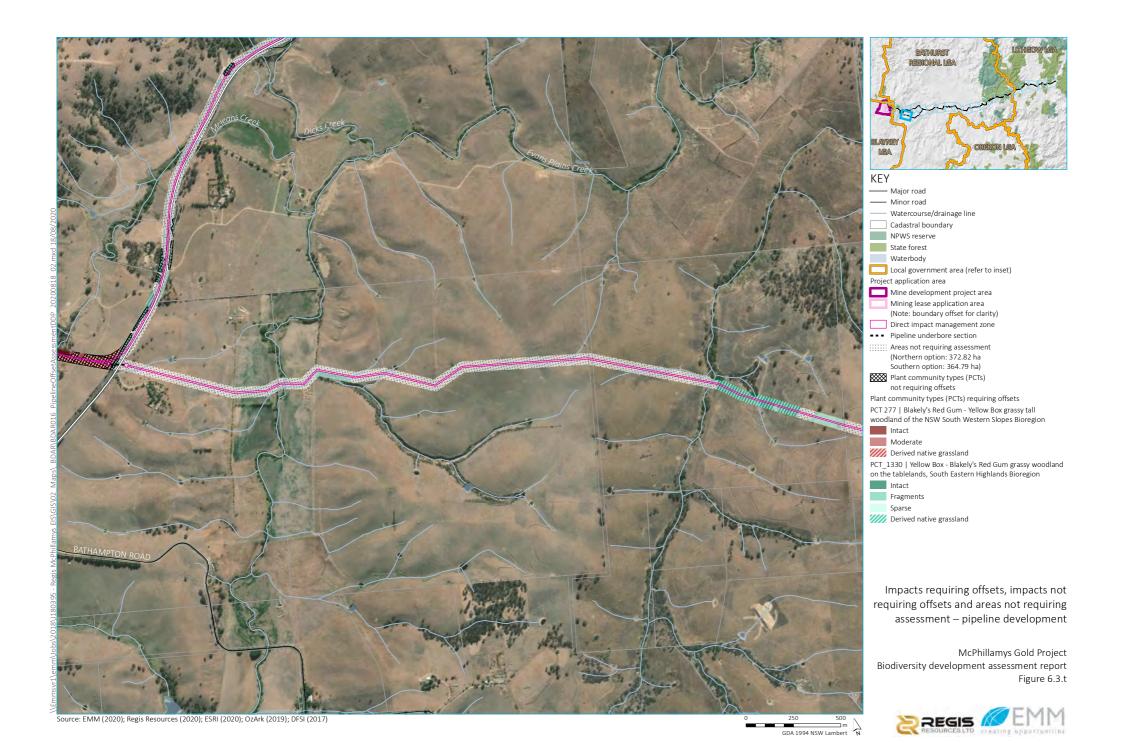


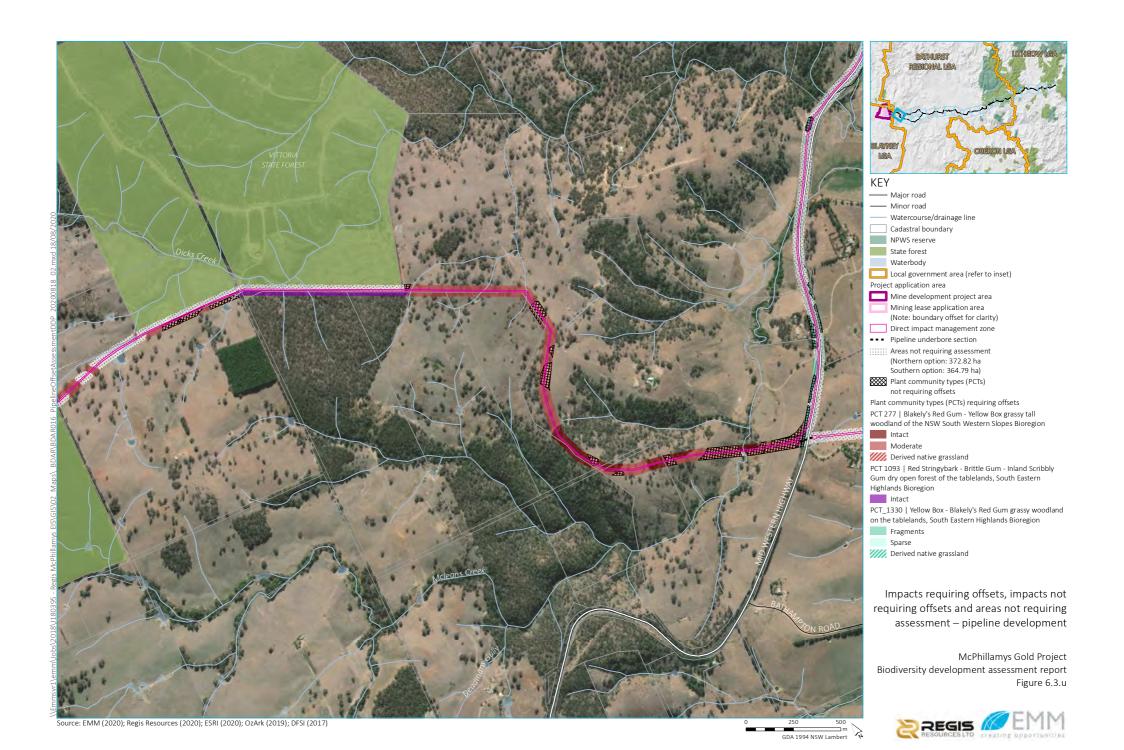
Source: EMM (2020); Regis Resources (2020); ESRI (2020); OzArk (2019); DFSI (2017)

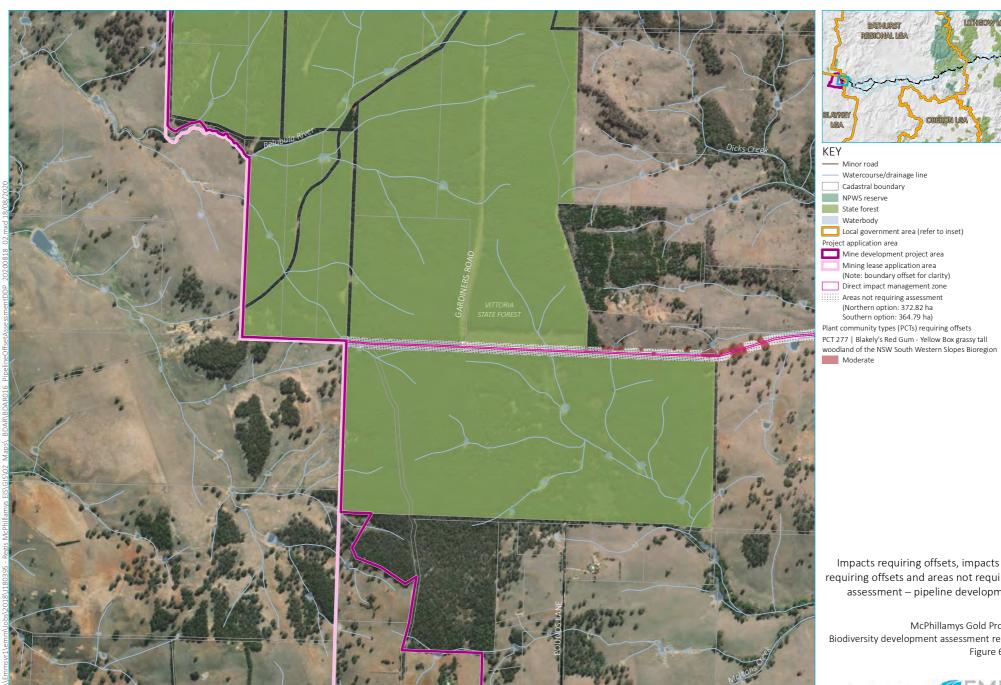
Impacts requiring offsets, impacts not requiring offsets and areas not requiring

Biodiversity development assessment report Figure 6.3.s









Source: EMM (2020); Regis Resources (2020); ESRI (2020); OzArk (2019); DFSI (2017)

Impacts requiring offsets, impacts not requiring offsets and areas not requiring assessment – pipeline development

McPhillamys Gold Project Biodiversity development assessment report Figure 6.3.v



6.8 Biodiversity offset strategy

Under the NSW Biodiversity Offsets Scheme, proponents can meet their offset requirements through one, or a combination of the following actions:

- 1. establishment of a biodiversity stewardship site containing the required ecosystem and species credits;
- 2. purchase and retirement of the required ecosystem and species credits from the biodiversity credit market:
- 3. payment into the Biodiversity Conservation Fund; and
- 4. fund a management action that directly benefits the species and/or ecological communities impacted.

For the pipeline, a corridor has been identified, representing the area in which the pipeline disturbance footprint will sit. Impacts and associated offset requirements have been calculated based on the disturbance footprint, which is based on the concept design. The disturbance footprint may shift within the construction envelope. This is designed to allow Regis with some degree of flexibility to microsite the pipeline to avoid impacts and address construction issues (eg areas of shallow rock) during construction. Following detailed design and construction Regis proposes to recalculate the ecosystem and species credit requirements for the pipeline development, in consultation with DPIE.

The proponent has purchased and conducted detailed studies to assess native PCTs and threatened species at a future stewardship site in Blayney (ie option 1, above). The property is approximately 388 ha and contains some of the required ecosystem and species credits (PCT 951, PCT 1330 and Koala). It is the proponent's intention to secure the property under a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust. The proponent will assess the residual ecosystem and species credits and secure these under one or a combination of options 1 to 3. Option 4 is not available under the ancillary rules for any of the species or communities impacted.

7 Key legislation assessment

7.1 Environment Protection and Biodiversity Conservation Act 1999

This chapter provides an assessment of the amended project's impacts specific to species and communities listed under the EPBC Act. Protected matters are assessed separately for the mine and pipeline developments as it was deemed that the mine development is a controlled action, while the pipeline development is not, as described in Section 2.1 above.

A likelihood of occurrence assessment is presented in Section 7.1.1.

7.1.1 Likelihood of occurrence

i Threatened ecological communities

Four PCTs were predicted to occur within the mine project area and/or pipeline corridor by the Protected Matters Search Tool (PMST):

- White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland;
- Natural Temperate Grassland of the South Eastern Highlands;
- Temperate Highland Peat Swamps of the Sydney Basin Bioregion; and
- Upland Basalt Forests of the Sydney Basin Bioregion.

Table 7.1 assesses the likelihood of these TECs occurring within both the mine project area and pipeline corridor. White Box - Yellow Box - Blakely's Red Gum Grassy Woodland was recorded within both the mine development project area and pipeline corridor. None of the PCTs recorded across either site are consistent with the other TECs predicted to occur, and these TECs are not considered further.

One TEC listed under the EPBC Act, Box Gum Woodland CEEC, was recorded within both the mine development project area and pipeline corridor. Impacts to this TEC are discussed further in Section 7.1.2.

Table 7.1 Likelihood of occurrence for listed ecological communities

Ecological community	EPBC Act Status	Habitat requirements	Likelihood of occurrence Mine development	Pipeline development
White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands	CE	Characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. Tree-cover is generally discontinuous and consists of widely spaced trees of medium height in which the canopies are clearly separated.	Recorded. Up to 20.43 ha directly impacted. Further assessment of this ecological community is provided in Section 7.1.2i.	Recorded. Up to 0.81 ha will be directly impacted if the southern option is selected, or up to 1.34 ha if the northern option is selected. Further assessment provided in Section 7.1.2iii.
Natural Temperate Grassland of the South Eastern Highlands	CE	Characterised by a dominance of native perennial tussock grasses, the tallest stratum of which is typically up to 1.0 m in height, when present. There is usually a second, lower stratum of shorter perennial and annual grasses and forbs growing between the taller tussocks. The major dominant or codominant grass species are: Kangaroo grass, Snowgrass, River Tussock Grass, Kneed Speargrass (Austrostipa bigeniculata), Corkscrew Speargrass, Red grass, various Wallaby grass species (Rytidosperma spp.), Blowngrass (Lachnagrostis filiformis) and Wild Sorghum (Sorghum leiocladum).	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.
Temperate Highland Peat Swamps of the Sydney Basin Bioregion	E	Temporary or permanent swamps occurring on sandstone in the temperate highlands region in NSW (DEH, 2005) from around 600–1100 m above sea level. The wetter parts of the swamps are occupied by sphagnum bogs and fens, while sedge and shrub associations occur in the drier parts (TSSC, 2005). Can occur as hanging swamps on valley sides and swamps along watercourses.	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.
Upland Basalt Forests of the Sydney Basin Bioregion	E	Tall, open eucalypt forest occurring on basalt soils and substrates, between 650 and 1050 m elevation. Contains a mix of eucalypts, most commonly Brown Barrel (<i>Eucalyptus fastigata</i>), and Narrow-leaved Peppermint (<i>E. radiata</i> subsp. <i>radiata</i>). Can also contain Messmate Stringybark (<i>E. obliqua</i>), River Peppermint (<i>E. elata</i>), White-topped Box (<i>E. quadrangulata</i>), Ironbark Peppermint (<i>E. smithii</i>), Blue Mountains Ash (<i>E. oreades</i>), Blaxland Stringybark (<i>E. blaxlandii</i>), Mountain Grey Gum (<i>E. cypellocarpa</i>), Swamp Gum (<i>E. ovata</i>) and River Peppermint (<i>E. piperita</i>).	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.

ii Threatened species

The PMST and/or BAMC predicted that 30 species and 50 species listed under the EPBC Act could occur within the mine and pipeline developments, respectively. The likelihood of occurrence for these species is assessed in 2.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Plants					
Acacia bynoeana	Bynoe's Wattle	V	PMST, BAMC	-	Low. Unlikely to occur as associated canopy species are absent from the pipeline corridor.
Acacia meiantha	-	E	BAMC		Low. Not predicted by PMST but is a predicted candidate species under the BAM. The expert assessment is provided at Appendix E. Targeted surveys were completed by an expert botanist and none were recorded, therefore further assessment has not been conducted.
Boronia deanei	Deane's Boronia	V	PMST	-	Low. Unlikely to occur as high-altitude swamps are absent from the pipeline corridor.
Cryptostylis hunteriana	Leafless Tongue Orchid	V	PMST	-	Low. Unlikely to occur as areas with moist, sandy soils are absent from the pipeline corridor.
Dichanthium setosum	Bluegrass	V	PMST	-	Low. Unlikely as the species has not been recorded from the region, with the closest records in Mudgee.
Eucalyptus aggregata	Black Gum	V	PMST, BAMC	Low. Not recorded during targeted surveys.	Recorded. Up to 4 individuals potentially impacted. Further assessment is provided in Section 7.1.2iii.
Eucalyptus pulverulenta	Silver-leaved Mountain Gum, Silver-leaved Gum	V	PMST, BAMC	Low. Potential to occur in PCT 727 and 1330 due to presence of associated species comprise Brittle Gum, Red Stringybark, Broad-leaved Peppermint and Apple Box. However, targeted surveys in accordance with NSW Guide to Surveying Threatened Plants (OEH 2016) did not record the species.	Low. Historical record at eastern end of pipeline revisited and occurs outside the area of impact. No change to original assessment.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Eucalyptus robertsonii. subsp. hemisphaerica	Robertson's Peppermint	V	PMST, BAMC	-	Low. Although associated species are present in Red Stringy Bark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands, the species is not known to occur in Sunny Corner or Portland where the associated species were recorded. However, targeted surveys in accordance with NSW Guide to Surveying Threatened Plants (OEH 2016) did not record the species.
Euphrasia arguta	-	CE	PMST	Low. Unlikely to occur. Elevations in the mine project area exceed 900 m, while this species occurs up to 700 m asl.	Low. Unlikely to occur. Elevations in the pipeline corridor exceed 700 m, while this species occurs up to 700 m asl.
Lepidium hyssopifolium	Basalt Peppercress	Е	PMST, BAMC	Low. Known only from three populations in Bathurst, Bungendore and Crookwell. The mine development project area is outside the species known and predicted habitat range.	Moderate. The pipeline corridor traverses Perthville where there is a known record of the species. Likely areas for this species were searched following NSW guidelines and the species was not recorded. However, surveys were completed during drought conditions, and therefore its presence could not be discounted.
Leucochrysum albicans var. tricolor	Hoary Sunray, Grassland Paper- daisy	E	PMST	Low. The species was considered during the assessment for the project, with targeted surveys undertaken for this species. The species was not recorded within the mine project area.	Moderate. May occur in Box Gum Woodland and Red Stringy Bark – Brittle Gum – Inland Scribbly Gum dry open forest of the tablelands. Likely areas for this species were searched following NSW guidelines and the species was not recorded. However, surveys were completed during drought conditions, and therefore its presence could not be discounted. Further assessment provided in Section 7.1.2iii.
Persoonia marginata	Clandulla Geebung	V	PMST, BAMC	-	Recorded. Up to 4 individuals potentially impacted. Further assessment provided in Section 7.1.2iii.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Prasophyllum petilum	Tarengo Leek	Е	PMST,	-	Low.
	Orchid		BAMC		Conservatively assessed in accordance with expert report conclusions. Further information on the expert assessment is provided at Appendix E. Although this species has a low likelihood, the risk of impact would be high if recorded. Accordingly, Regis has committed to conducting targeted surveys during the flowering season. If recorded, the route would be microsited such that direct and indirect impacts are avoided.
					Further assessment provided in Section 7.1.2iii.
<i>Prasophyllum</i> sp. Wybong	-	CE	PMST	-	Low. Unlikely to occur as the pipeline development does not traverse the known populations.
Pultenaea glabra	Smooth Bush Pea	V	PMST	-	Low. Unlikely to occur as the route does not traverse the higher Blue Mountains, and associated plant species do not occur in the route.
Swainsona recta	Small Purple Pea	E	PMST, BAMC	Low. Targeted surveys failed to detect the species.	Moderate. Not predicted by PMST but is a predicted candidate species under the BAM. Potential habitat in ungrazed woodlands.
					Further assessment provided in Section 7.1.2iii.
Thesium australe	Austral Toadflax	V	PMST, BAMC	Low. Kangaroo Grass, which the species requires to occur, was rarely to uncommonly recorded in the project area.	Moderate. May occur on ungrazed roadside edges containing Kangaroo Grass. Further assessment provided in Section 7.1.2iii.
Xerochrysum palustre	Swamp Everlasting	V	PMST	-	Low. Unlikely as the pipeline development does not intersect any swamps.
Insects					
Paralucia spinifera	Bathurst Copper Butterfly	V	PMST, BAMC	-	High. Up to four host plants impacted. Further assessment provided in Section 7.1.2iii.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Birds					
Anthochaera phrygia	Regent Honeyeater	CE	PMST, BAMC	Low. Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species. In addition, tree removal (ie potential foraging habitat) will be limited to saplings.	Low. Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species. In addition, tree removal (ie potential foraging habitat) will be limited to saplings.
Botaurus poiciloptilus	Australasian Bittern	E	PMST	-	Low. Potential to occur near Macquarie River; however, this area is being underbored and therefore will not be impacted. No further assessment conducted.
Calidris ferruginea	Curlew Sandpiper	CE	PMST	Low. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.	Low. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.
Falco hypoleucos	Grey Falcon	V	PMST	Negligible. Unlikely to occur given the absence of required habitat types (shrubland, grassland and wooded watercourses of arid and semi-arid regions).	-
Grantiella picta	Painted Honeyeater	V	PMST, BAMC	Low. Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species. In addition, trees did not contain mistletoes (ie potential foraging habitat).	Low. Trees did not contain mistletoes (ie potential foraging habitat).
Hirundapus caudacutus	White-throated Needletail	V	PMST	Low. Unlikely to use habitats onsite as native vegetation is heavily fragmented.	Low. Unlikely to use habitats onsite as native vegetation is heavily fragmented.
Lathamus discolor	Swift Parrot	CE	PMST, BAMC	Low. Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species.	Low. Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name Common Name		EPBC Status	Source Likelihood of occurrence – mine development		Likelihood of occurrence – pipeline development	
Leipoa ocellata	Malleefowl	V	PMST	Negligible. Unlikely to occur due to the absence of required habitat types.	Negligible. Unlikely to occur due to the absence of required habitat types.	
Numenius madagascariensis	Eastern Curlew	CE	PMST	Negligible. Unlikely to occur given the absence of required foraging habitat types (ie mudflats, mangroves, coastal lakes).	Negligible. Unlikely to occur given the absence of required foraging habitat types (ie mudflats, mangroves, coastal lakes).	
Polytelis swainsonii	Superb Parrot	V	PMST, BAMC	Moderate. The species was recorded by Envirokey south of the mine project area, on Kings Plain, and is known to occur in the local area. Potential for the species to forage within the mine project area. Breeding unlikely to occur in the locality, as the species breeds in the Riverina.	Moderate Potential to occur given recent records of the species proximal to the pipeline. The area is likely to provide habitat for the birds during movements to and from breeding areas. Targeted surveys were conducted in suitable habitat during the breeding season. The species was not recorded. Further assessment provided in Section 7.1.2iii.	
Rostratula australis	Australian Painted-Snipe	E	PMST	Eurther assessment provided in Section 7.1.2i. Low. Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.	Low. Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.	
Fish						
Maccullochella macquariensis	Trout Cod	E	PMST	-	Low. May occur in the Macquarie River as it has been stocked with the species. This falls outside the pipeline development as the Macquarie River will be underbored.	
Maccullochella peelii	Murray Cod	V	PMST	Low. Aquatic habitats within the mine project area do not provide suitable habitat for this species	Low. Likely to occur in the Macquarie River. They also potentially occur in larger tributaries, such as Evan's Plains Creek. No further assessment required as these creeks will be underbored.	
Macquaria australasica	Macquarie Perch	E	PMST	Low. Aquatic habitats within the mine project area do not provide suitable habitat for this species.	Low. The pipeline corridor traverses the Macquarie River where the species is known to occur. This falls outside the pipeline development as the Macquarie River will be underbored.	

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Prototroctes maraena	Australian Grayling	V	PMST	-	Low. Not known to occur in the rivers intersected by the pipeline development.
Frogs					
Heleioporus australiacus	Giant Burrowing Frog	V	PMST, BAMC	-	Low. Unlikely as this habitat is absent from the pipeline corridor.
Litoria aurea	Green and Golden Bell Frog	V	PMST, BAMC	-	Low. Unlikely as water bodies affected by the pipeline are not suitable habitat for this species. Those that contained potentially suitable unshaded, shallow pools were inhabited by Gambusia or were flowing streams.
Litoria booroolongensis	Booroolong Frog	Е	PMST, BAMC	Low. The Belubula River within the mine project area does not provide suitable breeding habitat for this species.	Moderate. The Coxs River in the northern and southern options contains a cobblelined stream with potential breeding habitat, while the northern option also contains potential breeding habitat along Evans Plains Creek.
					Further assessment is provided in Section 7.1.2iii.
Litoria castanea	Yellow-spotted Tree Frog	Е	PMST, BAMC	Low. Require large permanent ponds or slow flowing streams with plenty of emergent vegetation such as bulrushes. The only extant population known is in Yass.	Low. Unlikely to occur as the species is locally extinct.
Litoria littlejohni	Littlejohn's Tree Frog	V	PMST	-	Low. Unlikely to occur as coastal forests, woodlands and heath are absent from the pipeline corridor.
Mammals					
Chalinolobus dwyeri	Large-eared Pied Bat	V	PMST, BAMC	Low. Unlikely to occur as the mine project area does not contain and is not proximal to suitable roosting habitat (cliffs).	Low. The pipeline corridor does not intersect any roosting habitat (cliffs). Some potential roosting habitat is located less than 2 km away and therefore the species may occasionally forage in the area.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status	Source	Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Dasyurus maculatus maculatus	Spotted-tail Quoll (SE mainland population)	Е	PMST, BAMC	Low. Unlikely to occur as the species has not been recorded in the former Lachlan CMA area in which the mine project area is located.	Low. Unlikely to occur as the species has not been recorded in the former Lachlan CMA area in which the pipeline is located.
Nyctophilus corbeni	Corben's Long- eared Bat	V	PMST	-	Low. Unlikely to occur as the vegetation types it is more commonly found in are absent from the pipeline development.
Petaurus volans	Greater Glider	V	PMST	Low. Unlikely to occur given the highly degraded nature and open structure of tall moist eucalypt forest. Moderate. May occur in the eastern part of the pipeline. 1.15 ha of impacted. Further assessment provided in Section 7.1.2iii.	
Petrogale penicillata	Brush-tailed Rock Wallaby	V	PMST, BAMC	-	Low. The pipeline does not intersect any rocky habitats.
Phascolarctos cinereus	Koala (NSW, QLD and ACT)	V	PMST, BAMC	Recorded. The species was recorded within the mine project area. Further assessment provided in Section 7.1.2i.	High. Potential to occur. Approximately 5.17 ha of habitat potentially impacted. Further assessment provided in Section 7.1.2iii.
Pseudomys novaehollandiae	New Holland Mouse	V	PMST	-	Low. Unlikely to occur as the required habitat types do not occur in the pipeline corridor.
Pteropus poliocephalus	Grey-headed Flying-fox	V	PMST, BAMC	Low. Unlikely to occur as there are no roosting camps that intersect the pipeline corridor.	Low. Unlikely to occur as there are no roosting camps that intersect the pipeline corridor.
Reptiles				· ·	
Aprasia parapulchella	Pink-tailed Worm Lizard	V	PMST, BAMC	Low. Targeted surveys did not record the species.	Moderate. Potential to occur in granite/rocky areas in Box Gum Woodland. 1.19 ha of habitat potentially impacted. Further assessment provided in Section 7.1.2iii.

 Table 7.2
 Likelihood of occurrence for threatened species

Scientific Name	Common Name	EPBC Status		Likelihood of occurrence – mine development	Likelihood of occurrence – pipeline development
Delma impar	Striped Legless Lizard	V	PMST, BAMC	Low. Unlikely as the species is not known to occur in the region.	Low. Unlikely as the species is not known to occur in the region.
Eulamprus leuraensis	Blue Mountains Water Skink	E	PMST	-	Low. Unlikely to occur as the pipeline development is west of its known range and swamps, its required habitat, are absent.
Hoplocephalus bungaroides	Broad-headed Snake	V	PMST	-	Low. Unlikely to occur as rocky outcrops do not occur in the pipeline corridor.

The Koala was recorded in the mine project area, while the Superb Parrot was recorded to the south. Two species listed as threatened under the EPBC Act (Black Gum and Clandulla Geebung) were recorded as being present in the pipeline corridor. A further 11 species are considered likely to occur in the pipeline corridor:

- Austral Toadflax;
- Basalt Peppercress;
- Hoary Sunray;
- Small Purple Pea;
- Tarengo Leek Orchid;
- Bathurst Copper Butterfly;
- Superb Parrot;
- Booroolong Frog;
- Koala;
- Greater Glider; and
- Pink-tailed Worm Lizard.

These species are discussed further in Section 7.1.2.

iii Migratory species

Fourteen species listed as migratory under the EPBC Act were predicted to occur in the project application area based on database searches undertaken. Table 7.3 provides an assessment of the likelihood of these species utilising habitat within the mine development and pipeline development areas.

Two species listed as migratory under the EPBC Act (Rainbow Bee-eater and Latham's Snipe) were recorded as being present in mine project area and have potential to occur in the pipeline corridor. These species are discussed further below.

 Table 7.3
 Likelihood of occurrence for migratory species

Scientific name	EPBC Status	Source	Potential presence – mine development	Potential presence – pipeline development
Australian Painted-snipe (Rostratula australis)	E, Ma	PMST	Low. Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.	Low. Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.
Black-faced Monarch (<i>Monarcha melanopsis</i>)	Ma, Mi	PMST	-	Low. Unlikely to occur given the absence of wet sclerophyll forests, the species preferred habitat.
Common Sandpiper (Actitis hypoleucos)	Ma	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine project area.	Negligible. Unlikely to occur as wetlands are absent from the pipeline area.
Curlew Sandpiper (Calidris ferruginea)	CE, Mi	PMST	Negligible. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.	Negligible. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.
Eastern Curlew (Numenius madagascariensis)	CE, Ma, Mi	PMST	Negligible. Unlikely to occur given the absence of required foraging habitat types (i.e. mudflats, mangroves, coastal lakes).	Negligible. Unlikely to occur given the absence of required foraging habitat types (ie mudflats, mangroves, coastal lakes).
Fork-tailed Swift (Apus pacificus)	Ma, Mi	PMST	Low.	Low.
			Recorded by EMM in Feb 2019. Unlikely to use habitats onsite as the species is almost exclusively aerial.	Although the species was recorded during surveys, it is unlikely to use habitats onsite as it is almost exclusively aerial.
Latham's Snipe (Gallinago	Ma, Mi	PMST	Recorded.	Moderate.
hardwickii)	,		Observed in the mine project area by EnviroKey (one record). Further assessment of this migratory species is provided below.	Potential to occur in farm dams, however not recorded during surveys.
Pectoral Sandpiper (Calidris melanotos)	Ma, Mi	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine project area.	Negligible. Unlikely to occur as wetlands are absent from the pipeline area.

 Table 7.3
 Likelihood of occurrence for migratory species

Scientific name	EPBC Status	Source	Potential presence – mine development	Potential presence – pipeline development
Rainbow Bee-eater (<i>Merops</i> ornatus)	Mi	PMST	Recorded. Observed in the mine project area by EnviroKey (one record). Further assessment of this migratory species is provided below.	Moderate. Species has a wide distribution and habitat requirements. Further assessment of this migratory species is provided below.
Rufous Fantail (<i>Rhipidura</i> rufifrons)	Ma, Mi, B	PMST	Low. Unlikely to occur as moist, dense forests are absent from the mine project area.	Low. Unlikely to occur as moist, dense forests are absent from the pipeline area.
Satin Flycatcher (<i>Myiagra</i> cyanoleuca)	Ma, Mi, B	PMST	Low. Unlikely to occur as tall wet sclerophyll forests and rainforests are absent from the mine project area.	Low. Unlikely to occur as tall wet sclerophyll forests and rainforests are absent from the pipeline area.
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	Ma, Mi, B C, J, R	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine project area.	Negligible. Unlikely to occur as wetlands are absent from the pipeline area.
White-throated Needletail (Hirundapus caudacutus)	Ma, Mi, C, J, R, V	PMST	Low. May occur overhead only. Unlikely to use habitats onsite as native vegetation is heavily fragmented	Low. Unlikely to use habitats onsite as native vegetation is heavily fragmented.
Yellow Wagtail (<i>Motacilla flava</i>)	Mig (EPBC Act)	PMST	Low. Unlikely as well watered open grasslands and wetlands are absent from the mine project area.	Low. Unlikely as well watered open grasslands and wetlands are absent from the pipeline corridor.mine

7.1.2 Significant impact assessment

i Mine Development

White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland and the Koala were recorded within the mine project area, while the Superb Parrot was considered a moderate likelihood of occurrence following targeted surveys. Two species (the Rainbow Bee-eater and Latham's Snipe) listed under the migratory provisions of the EPBC Act were also recorded within the mine project area.

Impacts to this TEC, two threatened species and two migratory species are assessed below.

a White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

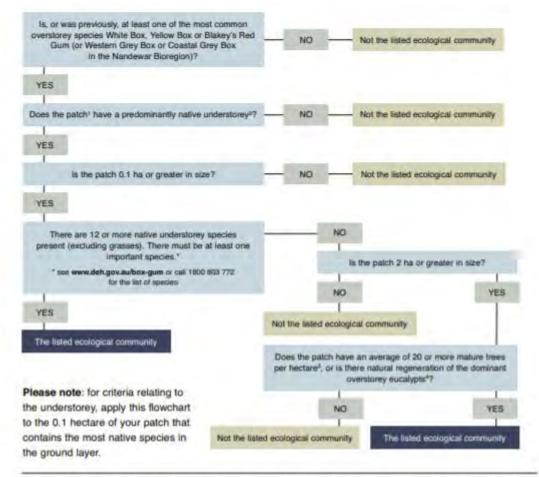
The Commonwealth Listing Advice for the critically endangered White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (TSSC 2006) provides a general description of the community and describes its current status. White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland occurs on the western slopes and tablelands of the Great Dividing Range, from southern Queensland, though NSW and central Victoria. Much of the community's original distribution has been cleared for agriculture, and remaining areas are subject to grazing and pasture improvement impacts. Consequently, remaining patches of the community have a disturbed understorey with mature trees, or occur as areas with a highly diverse understorey, sometimes without a canopy (i.e. derived native grasslands) (TSSC 2006).

The community is characterised by the dominance (or prior dominance) of White Box (*Eucalptus albens*), Yellow Box and/or Blakely's Red Gum trees. Tree cover in the community is generally discontinuous, consisting of widely spaced trees of moderate height. In optimum condition, the community contains a sparse shrub layer and a diverse understorey of native grasses and forbs (TSSC 2006). In order for an area to be included in the listed ecological community, a patch must have a predominantly native understorey (TSSC 2006).

There is no approved Conservation Advice for this ecological community. The recovery plan for the community (DECCW 2010a) lists clearing for agricultural development, urban/rural residential and urban development, and the development, maintenance and upgrade of public infrastructure as an ongoing threat, as well as conflicting management practices (grazing regimes and pasture management, changed fire regimes and increased soil nutrients) and weed invasion (particularly from pasture grasses).

EPBC Act Policy Statement 3.5 White Box Yellow Box Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands (DEH 2006) provides a flowchart to assist in determining if patches are included in the listed community (Plate 7.1).

The structure and diversity of the native plant community types (PCTs) in the project application area have been compared with the flowchart (Plate 7.1) to determine if they represent the listed community.



- Patch a patch is a continuous area containing the ecological community (areas of other ecological communities such as woodlands dominated by other species are not included in a patch). In determining patch size it is important to know what is, and is not, included within any individual patch. The patch is the larger of:
 - · an area that contains five or more trees in which no tree is greater than 75 m from another tree, or
 - the area over which the understorey is predominantly native.
 Patches must be assessed at a scale of 0.1 ha (1000m²) or greater.
- A predominantly native ground layer is one where at least 50 per cent of the perennial vegetation cover in the ground layer is made up of native species. The best time of the year to determine this is late autumn when the annual species have died back and have not yet started to regrow. (At other times of the year, you can determine whether something is perennial or not is if it is difficult to pull out of the soil. Annual species pull out very easily.)
- Mature trees are trees with a circumference of at least 125 cm at 130 cm above the ground.
- Natural regeneration of the dominant overstorey eucalypts when there are mature trees plus regenerating trees of at least 15 cm circumference at 130 cm above the ground.

Plate 7.1 Flowchart to determine presence of the listed community (or otherwise)

Assessments of significance for White Box-Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland relevant to the mine development is provided in the following sections.

Approximately 20.43 ha of the EPBC Act listed community will be impacted by the mine development. Table 7.4 provides an assessment of significance for the removal of 20.43 ha of White Box-Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland for the project, in accordance with the assessment criteria for critically endangered ecological communities (DoE 2013a).

Table 7.4 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the mine project area

Criteria	Discussion	
Conservation status	Critically endangered	
Reduce the extent of an ecological community	Approximately 20.43 ha of the listed community will be removed as a result of the project. The listed community has also been mapped within the immediate vicinity of the mine project area, using plant community type mapping for the central tablelands (OEH 2018). Within a 5 km buffer of the mine project area, approximately 1,129 ha of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland is mapped. This comprises 1,096.66 ha of PCT 1330 (including areas mapped on site), 25.67 ha of PCT 654 (Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion) and 6.68 ha of PCT 278 (Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion). Note that this does not account for the condition of vegetation mapped, and areas of these PCTs in poor condition would likely not meet the criteria for the EPBC Act listed community.	
	PCT 1330 has been identified as representing Box Gum Woodland in the mine project area. Accordingly, the project would result in a reduction of 1.8% in extent of the CEEC within a 5 km radius of the project (based on all areas of the PCTs above meeting the EPBC Act condition requirement, excluding areas ground-truthed on site as being in poor or other condition).	
	The Commonwealth listing advice (TSSC 2006) estimates that 250,729 ha of the community is extant in NSW and 416,325 ha on a national scale. Accordingly, the project will result in a reduction of 0.008% in the community's NSW extent and 0.004% on a national scale, respectively. The Commonwealth listing advice states that the above estimates are conservative as they include areas in poor condition that do not represent the EPBC Act-listed community.	
2. Fragment or increase fragmentation	The listed community is highly fragmented within and surrounding the mine project area, and the vegetation within the mine lease represents the western edge of a tract of relatively contiguous, albeit fragmented, vegetation. Largely cleared land is located west and south. Several patches of the community will be removed from the mine disturbance footprint, further fragmenting some patches located to the west from areas of retained vegetation to the east and north. Accordingly, the project will increase the degree of fragmentation of the community.	
3. Adversely affect critical habitat	A national recovery plan has been developed (DECCW 2010a) for this community, which states that all areas of the listed community which meet the minimum condition criteria outlined in Section 3 of the plan, should be considered critical to the survival of this listed ecological community. Approximately 20.43 ha of vegetation in the mine disturbance footprint meets the above criteria. According to the PCT mapping (OEH 2018), there is approximately 1,129 ha of PCTs that represent the listed community within a 5 km radius of the project. The project would reduce the extent of critical habitat in the locality by approximately 1.8%.	
4. Modify or destroy abiotic factors necessary for survival	Abiotic factors including soil and surface hydrology will be modified in the mine project area, and therefore represents a permanent impact. The listed community occurs directly north and southwest of the mine disturbance footprint, within the mine project area. An assessment of changes to groundwater availability and quality that these retained patches would use opportunistically was conducted. The assessment concluded that retained patches of the community would not be adversely affected by the project.	
5. Cause a substantial change in species composition	The project will remove 20.43 ha of habitat for the listed community within the mine disturbance footprint. Retained areas of the listed community outside the mine disturbance footprint will be designated as no-go zones (with the exception of entry for environmental management). Weed management measures will also be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine project area. The condition of these areas is likely to improve in quality with this management.	

Table 7.4 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the mine project area

Criteria	Discussion
6. Cause a substantial reduction in quality or integrity	The project will remove all areas of this community within the mine disturbance footprint; consequently, there will be no residual risk within the mine project area. Areas outside of the mine project area have been subjected to the indirect impacts of agriculture for a long period of time, eg the potential importation of invasive species. This does not appear to have significantly impacted the CEEC to date. The majority of weed species within the CEEC are exotic pasture species associated with previous agricultural land uses. Weed management measures will be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine project area.
7. Interfere with recovery	A national recovery plan has been developed (DECCW 2010a), with the objective to promote the recovery and minimise the risk of extinction of the ecological community through:
	 achieving no net loss in extent and condition of the ecological community throughout its geographic distribution;
	increasing protection of sites in good condition;
	 increasing landscape function of the ecological community through management and restoration of degraded sites;
	• increasing transitional areas around remnants and linkages between remnants; and
	 bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Grassy Woodland.
	The clearance of up to 20.43 ha of the CEEC will directly contravene Point 1, by reducing the extent of the listed community. Section 6.4.2 details avoidance measures implemented by Regis into the project design to minimise impacts on this community. Detailed design has avoided and minimised impacts to areas of high condition Box Gum Woodland within the mine project area, apart from a small area (1.47 ha) in the direct footprint of the open cut mine. This area was impossible to avoid due to this being the location of the gold deposit targeted by the project. The location of the TSF was also moved to avoid almost all Box Gum Woodlandidentified within the TSF investigation area.
	Management of retained areas of the community on the site will assist in protecting areas of good condition habitat to be retained
	There is no approved Conservation Advice for this ecological community.
Conclusion	The project is likely to result in a significant impact on the listed community as 20.43 ha of habitat critical to its survival will be removed. Impacts to the 20.43 ha of the community removed by the project are known, predictable and irreversible.

b Koala

The range of the combined population of Koalas (EPBC Act – vulnerable) in QLD, NSW and ACT extends from approximately the latitude of Cairns to the New South Wales-Victoria border, and includes some island populations. The Koala's distribution is not continuous across this range, with some populations isolated by cleared land or unsuitable habitat (DECC 2008). Koalas inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus Eucalyptus. The distribution of Koalas is also affected by altitude (generally limited to <800 m asl), temperature, and at the western end of their range, leaf moisture (TSSC 2012).

A single Koala was recorded resting in Apple Box in the mine project area. In accordance with the Koala Recovery Plan (DECC 2008), PCT 951 represents primary koala feeding habitat as it contains Manna Gum, a primary koala food tree in the central and southern tablelands KMA, in which the project is located. PCT 1330 represents secondary habitat for the species, as it contains secondary food tree species in the central and southern tablelands koala management area, Apple Box and Yellow Box (PCT 1330). Approximately 123.03 ha of Koala habitat occurs in the disturbance footprint.

An assessment has been completed for the mine project area in accordance with the Koala habitat assessment tool in EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DoE 2014) in Table 7.5.

Table 7.5 Koala habitat assessment tool (DoE 2014) for the in the mine project area

Attribute	Score	Data source	Habitat assessment
Koala occurrence	+2 (high)	Desktop	The NSW Atlas of Wildlife identifies one recent record (1986), east of the mine project area. The Protected Matters Search Tool identifies that the species or its habitat is known to occur in the area.
		On ground	Vegetation communities containing Koala feed tree species for the central and southern tablelands KMA were mapped for the mine project area. Scat searches were completed in the mine project area using the Spot Assessment Technique (Phillips and Callaghan 2011). No scats were found. Nocturnal spotlighting was also completed, and no Koalas were recorded during this activity. However, a single Koala was found resting in an Apple Box during the day.
Vegetation structure and composition	+2 (high)	Desktop	The project is in the central and southern tablelands KMA. High regional use species identified by SEPP (Koala Habitat Protection) 2019 in the mine project area comprise Manna Gum, Brittle Gum, Blakely's Red Gum, Apple Box and Yellow Box.
		On ground	On-ground surveys confirmed that the mine project area contains Koala habitat, comprising the food tree species listed above.
Habitat connectivity	0 (low)	Desktop	Koala habitat in the mine project area is highly fragmented. In addition, Koala habitat in the mine project area does not connect to any large patches of habitat outside the mine project area. The area of connected habitat is less than 500 ha, and therefore habitat connectivity is low.
Key existing threats	+2 (high)	Desktop	No sick, injured or dead Koalas have been recorded during the course of the biodiversity assessment. The status of Chlamydia infection in the region is unknown.
		On ground	The Koala observed in the mine project area appeared to be healthy, with no signs of Chlamydia (eg dry bottom). A high value has been assigned due to uncertainty over local threats.
Recovery value	+1 (medium)	Desktop and on ground	Koala habitat is highly fragmented in the mine project area and region; however, contains small, patchy woodland remnants in an agricultural setting, which is recognised by Table 1 of the referral guideline as having recovery value. Therefore, there is uncertainty whether the habitat is important for achieving the interim Koala recovery objectives.

With a total score of seven, vegetation in the mine project area represents habitat critical to the survival of the Koala, in accordance with the referral guidelines (ie score greater than five).

Table 7.6 provides an assessment of significance for the removal of up to 123.03 ha of potential Koala habitat, in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.6 Assessment of significance for the Koala for the mine project area

Criteria	Discussion
1. long-term decrease of an important population	The Koala referral guideline (DoE 2014) does not identify any important populations of the species. A single Koala was opportunistically identified in the mine project area during surveys, while targeted searches, including SAT assessments and spotlighting, did not record the species. There is only one NSW Atlas of Wildlife record of the species (from 1986), east of the mine project area. Koala habitat is highly fragmented in the mine project area and region but contains small, patchy woodland remnants in an agricultural setting. Considering the above, Koalas are likely to occur in low densities in the mine project area and therefore would not represent an important population.
2. reduce area of occupancy of an important population	An important population of the Koala does not occur in the mine project area.
3. fragment an important population	An important population of the Koala does not occur in the mine project area.
4. adversely affect critical habitat	Following the precautionary principle, all woodland in the mine project area was identified in the EPBC referral as representing habitat critical to the survival of the Koala. This habitat would be permanently removed from the disturbance footprint, and therefore critical habitat would be adversely affected.
	SEPP (Koala Habitat Protection) 2019 identifies 39 feed trees that occur in the Central and Southern Tablelands KMA, five of which occur in the mine project area. These areas have been used to define Koala habitat in the mine project area.
	Section 6.4 details avoidance measures implemented by Regis into the project design to minimise impacts on habitat for this species. Management of retained areas of species habitat on the site (see Section 6.4) will assist in protecting areas of habitat to be retained.
5. disrupt the breeding cycle of an important population	An important population of the Koala does not occur in the mine project area.
6. decrease availability or quality of habitat	The project would decrease habitat availability in the mine project area by approximately 123.03 ha, while areas outside the mine disturbance footprint would be retained. A project would be undertaken in retained habitat areas to reconnect fragmented patches and increase connectivity for Koalas to mitigate the removal of Koala habitat.
	Approximately 1,516.3 ha of Koala habitat occurs within a 5 km radius of the project. This habitat comprises PCTs with key feed tree species in the Central and Southern Tablelands Koala Management Area, in which the project occurs, and is a conservative estimate as the composition of key feed species within these PCTs is unknown. Accordingly, the project would result in a 5% (approximate) reduction in Koala habitat within a 5 km radius of the project.
	The species national distribution extends along much of the NSW east coast, extending from Adelaide to the east coast, and northern QLD to the coast (excluding Cape York). The project will contribute to a small reduction in Koala habitat on a national scale, however this will be mitigated by the revegetation project that will aim to reduce the fragmentation of Koala habitat in retained patches of Koala habitat in the mine project area.
7. result in invasive species	Domestic dogs (<i>Canis familiaris</i>) are known to prey on Koalas. As the project will not introduce domestic dogs to the area, the project will not result in invasive species that would adversely affect the Koala.
8. introduce disease	Koalas are susceptible to Chlamydia, a sexually transmitted disease. The single Koala observed in the mine project area during surveys appeared to be in good health and free of the signs of Chlamydia.
	In general, disease outbreaks occur when animals are stressed. As Koala density in the mine project area is low, the potential for a disease outbreak is also considered to be low.

Table 7.6 Assessment of significance for the Koala for the mine project area

Criteria	Discussion
9. interfere with recovery	The overall objective of the Recovery plan for the Koala (DECC 2008) is to reverse the decline of the Koala in NSW, to adequately protect, manage and restore Koala habitat and to maintain healthy breeding populations of Koalas throughout their current range. As the project will remove habitat critical to the survival of the species, it interferes with recovery of the Koala. The proposed Koala habitat revegetation in retained native vegetation in the mine project area will address a priority management measure for the Koala outlined in the species conservation advice (TSSC 2012).
Conclusion	The project may result in a significant impact on the Koala as an area of habitat critical to the survival of the Koala would be removed. Impacts to the 123.03 ha of critical habitat removed by the project are known, predictable and irreversible.

c Superb Parrot

The Commonwealth Conservation Advice for the Superb Parrot (EPBC Act – vulnerable) (TSSC 2016a) describes the conservation status, distribution, biology/ecology and threats to the survival of the Superb Parrot. The Superb Parrot occurs west of the Great Dividing Range, in Canberra, Goulburn and west to Nyngan and Swan Hill. The Superb Parrot nests in large, living or dead trees with many hollow branches, typically near watercourses. Following breeding, Superb Parrots disperse and forage on a variety woodland and other habitat types. Threats to the survival of the species comprise the loss and degradation of habitat, competition for nest hollows, roadkill, illegal collection of wild birds, Psittacine beak and feather disease and climate change.

The National Recovery Plan for the Superb Parrot (Baker-Gabb 2011) details the species biology, ecology, distribution, populations, habitat and threats. The recovery plan describes the species as nomadic, resident, dispersive and migratory, making regular seasonal movements between breeding and non-breeding areas, in response to changes in food availability. When making local foraging movements, the species usually moves through wooded corridors, rarely crossing large areas of open ground.

The breeding range of the Superb Parrot is concentrated on the NSW South Western Slopes and Riverina bioregions.

The three main breeding areas comprise:

- the area bounded by Molong, Rye Park, Yass, Coolac, Cootamundra and Young;
- along the Murrumbidgee River between Wagga Wagga and Toganmain Station to Goolgowi; and
- along the Murray and Edward Rivers, east of Barmah and Millewa State Forest to south of Taylors Bridge.

The species has also recently been recorded breeding in urban areas of Canberra (Rayner et al. 2016).

The total population of the Superb Parrot has been estimated at 5,000 to 8,000 birds, 6,500 of which comprise adults.

The recovery plan (Baker-Gabb 2011) defines habitat critical to the survival of the Superb Parrot as breeding habitat that comprises riverine forests in the Riverina and Box-Gum Woodlands on the tablelands and slopes. Tree species typically selected for nesting on the slopes and tablelands comprise River Red Gum (*E. camaldulensis*), Blakely's Red Gum, Apple Box, Grey Box (*E. microcarpa*), White Box and Red Box (*E. polyanthemos*). Of the species described above, Blakely's Red Gum and Apple Box occur in the project application area and surrounds. However, the project application area does not occur within the three main breeding areas for the species, so local records of the species are considered to be vagrant individuals.

Foraging habitat critical to the survival of the species is defined by the recovery plan (Baker-Gabb 2011) as Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland. These vegetation types do not occur in the project application area, and therefore it does not comprise foraging habitat critical to the survival of the species.

One Superb Parrot was recorded directly south of the mine development (EnviroKey 2018). Potential habitat within the mine development comprises areas of PCT 1330_high and 1330_medium.

Table 7.7 provides an assessment of significance for the removal of up to 20.43 ha of potential Superb Parrot habitat, in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.7 Assessment of significance for the Superb Parrot for the mine project area

Criteria	Discussion		
1. Long-term decrease of an important population	Important populations have not been defined in the recovery plan for the Superb Parrot (Baker-Gabb 2011). A single population of the species exists, and therefore the project cannot lead to the decrease of an important population.		
2. Reduce occupancy area for important population	As above.		
3. Fragment an important population	As above.		
4. Adversely affect habitat critical to survival	Habitat critical to the survival of the species has been defined by the recovery plan (Baker-Gabb 2011) as breeding habitat that comprises riverine forests in the Riverina and Box Gum Woodlands on the tablelands and slopes and foraging habitat comprising Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland.		
	As the project application area does not fall within the species breeding range, it does not represent habitat critical to the survival of the species.		
	Section 6.4 details avoidance measures implemented by Regis into the project design to minimise impacts on habitat for this species. Management of retained areas of species habitat on the site (see Section 6.4) will assist in protecting areas of habitat to be retained.		
5. Disrupt breeding cycle	The project application area is outside the species breeding range. Therefore, the project will not disrupt the species breeding cycle.		
6. Modify, destroy, remove, isolate or degrade habitat	The project will remove 20.43 ha of potential foraging habitat for the Superb Parrot in the mine development. The project application area is outside the species breeding range, and therefore the species is considered to be a vagrant in the region. At a national scale, the species occurs in Tasmania and between Bendigo, Victoria and north-western NSW. The removal of this potential foraging habitat in which the species is vagrant will not substantially reduce the national extent.		
7.Result in invasive species	Soil disturbance for the project has potential to result in the spread of invasive weeds to retained areas of vegetation and potential habitat. Weed control procedures will be developed during the EIS to minimise the impact on potential foraging habitat for the Superb Parrot.		

Table 7.7 Assessment of significance for the Superb Parrot for the mine project area

Criteria	Discussion
8. Introduce disease	Superb Parrots may be susceptible to beak and feather disease. Disease outbreaks usually occur in wild animal populations where significant stresses arise. The clearance of potential foraging habitat is unlikely to cause significant stress such that a disease outbreak would occur.
9. Interfere with recovery	Recovery actions for the Superb Parrot aim to determine population trends, increase knowledge of the species ecological requirements, develop and implement threat abatement strategies and increase community involvement and awareness of the recovery program (Baker-Gabb 2011). As recovery actions are focused on increasing knowledge of the species, the project will not interfere with recovery.
Conclusion	The clearance of potential Superb Parrot foraging habitat will not result in a significant impact on the species, important populations will not be adversely affected, the area to be removed does not represent habitat critical to the survival of the species and the project will not interfere with recovery of the species. Impacts are known, predictable and irreversible.

ii Migratory species

a Latham's Snipe

Latham's Snipe was recorded directly adjacent to the mine project area in November 2013. The pipeline corridor contains potential habitat for the species in farm dams and small first-order streams.

Latham's Snipe breeds in Japan and in far eastern Russia during the northern summer and then migrates to Australia, where it remains for the duration of the northern winter. Latham's Snipe is a non-breeding visitor to south-eastern Australia, migrates through northern Australia to reach non-breeding areas located further south. The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia. The range extends inland over the eastern tablelands in south-eastern Queensland to west of the Great Dividing Range in New South Wales. The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west. Most birds spend the non-breeding period at sites located south of the Richmond River in NSW.

The size of the Latham's Snipe population that visits Australia is estimated at 25,000 to 100,000 birds. Previous population estimates have ranged from 15,000 breeding birds to 37,000 breeding birds. The actual population size is difficult to estimate and is poorly known. In Australia, Latham's Snipe occurs in a single, dispersed non-breeding population.

Latham's Snipe occurs in permanent and ephemeral wetlands up to 2,000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity, such as where they were recorded in the mine project area.

The Matters of National Environmental Significance Significant Impact Guidelines 1.1 (DoE 2013a) defines important habitat for migratory species as areas periodically occupied by an ecologically significant proportion of the population, habitat critical to the species life cycle, habitat at the edge of their range or within an area where they are declining. The Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DoE 2015) defines important habitat for Latham's Snipe as areas that have previously been identified as internationally important for the species, or areas that support at least 18 individuals of the species.

Only one site in Australia, Seaford Swamp in Victoria is recognised as an internationally important wetland for the species (Bamford et al 2008). The internationally important habitat occurs outside the project application area.

An assessment of significance (Table 7.8) was prepared for Latham's Snipe in relation to the project, in accordance with the assessment criteria for migratory species (DoE 2013a).

Table 7.8 Assessment of significance for Latham's Snipe in the mine project area

Criteria	Discussion
1. Substantially modify important habitat	The only identified important sites for Latham's Snipe (based on the DoE guidelines), are six sites located in Victoria, Tasmania and South Australia. The <i>Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species</i> (DoE 2015) defines important habitat for Latham's Snipe as areas that have previously been identified as internationally important for the species, or areas that support at least 18 individuals of the species. Only one individual was recorded adjacent to the mine project area and the pipeline development contains potential habitat only. Therefore, the project application area does not contain important habitat for Latham's Snipe, and will not reduce the national extent of important sites.
2. Result in invasive species	Vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding habitat, unless adequately mitigated. Measures to control weeds in retained habitats of the project application area will be developed during preparation of the Biodiversity Management Plan.
	As a ground-dwelling bird, Latham's Snipe are vulnerable to predation from the introduced Red Fox (<i>Vulpes vulpes</i>). These species can spread into undisturbed areas when new access roads and tracks are created. As the project will not create new tracks through undisturbed areas, it is unlikely to result in the spread of the Red Fox.
3. Disrupt lifecycle of ecologically significant proportion of population	The project application area does not contain an ecologically significant proportion of the species. Therefore, the lifecycle of an ecologically significant proportion of Latham's Snipe will not be disrupted.
Conclusion	The project is unlikely to result in a significant impact on Latham's Snipe as:
	the area does not contain important habitat for the species; and
	 an ecologically significant proportion of the population will not be disrupted.

b Rainbow Bee-eater

A single Rainbow Bee-eater was recorded in the mine project area. The Rainbow Bee-eater is widely distributed throughout Australia and eastern Indonesia, including Bali, the Lesser Sundas and Sulawesi, and east to Papua New Guinea, the Bismarck Archipelago and, rarely, the Solomon Islands. It is a vagrant visitor to locations further north including Palau, south-western Micronesia, Saipan, the northern Mariana Islands, and Miyako Island and the southern Ryuku Islands in Japan. The majority of the global population breeds in Australia (including on Rottnest Island and islands in the south-west Torres Strait). Breeding has also been recorded in eastern Papua New Guinea (around Port Moresby and the Ramu Valley) and may possibly occur in the Lesser Sundas.

The Rainbow Bee-eater occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It usually occurs in open, cleared or lightly-timbered areas that are often, but not always, located in close proximity to permanent water. It also occurs in inland and coastal sand dune systems, and in mangroves in northern Australia, and has been recorded in various other habitat types including heathland, sedgeland, vine forest and vine thicket, and on beaches. The Rainbow Bee-eater occurs in open woodlands and shrublands, including mallee, and in open forests that are usually dominated by eucalypts. It also occurs in grasslands and, especially in arid or semi-arid areas, in riparian, floodplain or wetland vegetation assemblages (DoEE 2019).

An assessment of significance is provided for this species in Table 7.9.

Table 7.9 Assessment of significance for Rainbow Bee-eater in the mine project area

Criteria	Discussion
1. Substantially modify important habitat	The Rainbow Bee-eater is a widely distributed and common migratory species. No important habitats have been identified for the species, and it occurs widely in a range of open forests and woodlands, and cleared habitats. The mine project area is unlikely to meet the criteria for important habitat as defined in DoE (2013).
2. Result in invasive species	Vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding habitat unless adequately mitigated. Measures to control weeds in retained habitats of the mine project area will be developed during the EIS.
3. Disrupt lifecycle of ecologically significant proportion of population	The species was not observed regularly in the mine project area, and the mine project area is unlikely to support an ecologically significant proportion of the Rainbow Bee-eater.
Conclusion	The project will not result in a significant impact on the Rainbow Bee-eater as:
	 the area does not contain important habitat for the species; and
	 an ecologically significant proportion of the population will not be disrupted.

iii Pipeline Development

White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland was mapped within the pipeline corridor, while two threatened species were also recorded. A further 11 threatened species were considered a moderate to high likelihood of occurrence. Impacts to this TEC and the threatened species are assessed below.

a White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland

Approximately 0.81 ha of the EPBC Act listed community will be impacted by southern option or 1.34 ha by the northern option of the pipeline development. Table 7.10 provides an assessment of significance for the above impacts on White Box-Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland for the project, in accordance with the assessment criteria for critically endangered ecological communities (DoE 2013a).

Table 7.10 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Critically endangered
1. Reduce the extent of an ecological community	Approximately 0.81 ha of the listed community will be disturbed as a result of the pipeline development if the southern option is selected, and up to 1.34 ha if the northern option is selected. Within these areas, conservatively for the purposes of this assessment, total clearance is assumed. However, micro-siting of the trench can result in disturbance being limited to the removal of some saplings and groundcovers in many areas during trenching activities although some removal of mature trees will be required.
	Approximately 344.2 ha of plant community types that represent Box Gum Woodland (OEH 2018) are mapped as occurring within a 500 m linear buffer either side of the pipeline corridor. Therefore, only 0.2% of the local occurrence would be removed if the southern option is selected and 0.4% of the local occurrence would be removed if the northern option is selected. Note that this does not account for the condition of vegetation mapped, and areas of these PCTs in poor condition would likely not meet the criteria for the EPBC Act listed community.
	Therefore, the pipeline development will result in a minor reduction in the extent of the ecological community; although impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of nature trees where practicable.
2. Fragment or increase fragmentation	The listed community is highly fragmented within and surrounding the pipeline corridor. The pipeline development will not significantly increase fragmentation for the listed community. The southern option would intersect 10 patches of the ecological community while the northern option would intersect 18 patches. All patches are already isolated, being located on roadsides or in grazed paddocks. Therefore, the pipeline development will not significantly fragment or increase fragmentation of the ecological community.
3. Adversely affect critical habitat	A national recovery plan has been developed (DECCW 2010a) for this community, which states that all areas of the listed community which meet the minimum condition criteria outlined in Section 3 of the plan, should be considered critical to the survival of this listed ecological community.
	Approximately 0.81 ha of vegetation in the footprint meets the above criteria. According to the PCT mapping (OEH 2018 there is approximately 344.2 ha of PCTs that represent the listed community within a 5 km radius of the pipeline corridor. The project would reduce the extent of critical habitat in the locality by approximately 0.2%, which does not represent an adverse impact.
4. Modify or destroy abiotic factors necessary for survival	Abiotic factors including soil will be modified during trenching in the pipeline disturbance footprint. This soil would be reinstated following completion of trenching, and therefore abiotic factors necessary for the ecological community's survival will not be destroyed.
5. Cause a substantial change in species composition	The pipeline development will clear 0.81 ha of the listed community for the southern option and up to 1.34 ha for the northern option. Within these areas, impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of mature trees where practicable. As the disturbed soil would be reinstated following the completion of trenching, a substantial change in species composition is not expected.
	The development will not cause a substantial change in species composition in the retained Box Gum Woodland surrounding the pipeline corridor. The project Pest Management Plan will incorporate measure to control the introduction and spread of weed and pest species across the pipeline corridor.

Table 7.10 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the pipeline corridor

Criteria

Discussion

6. Cause a substantial reduction in quality or integrity

The pipeline development will remove 0.81 ha of the listed community for the southern option and up to 1.34 ha if the northern option is selected. The southern option would intersect 10 patches of the ecological community while the northern option would intersect 18 patches. The intersected patches vary from 0.2 to 2.1 ha in size.

Patches intersected by the southern alignment that have been ground-truthed vary between the minimum condition criteria of patches > 0.1ha with > 50% of perennial native ground cover native with 12 indicator species present and patches > 2ha containing > 20 mature trees per ha and/or canopy regeneration present.

Patches intersected by parts of the northern alignment may vary between the minimum condition criteria of patches > 0.1ha with > 50% of perennial native ground cover native with 12 indicator species (although the number of indicator species cannot be confirmed without survey) and patches > 2ha containing > 20 mature trees per ha and/or canopy regeneration present.

As stated in the ecological community's conservation advice (TSSC 2006), the minimum condition criteria do not represent the ideal state of the ecological community. The larger and more diverse a patch is, the more important it is. Additionally, patches that link remnants in the landscape, that occur in depauperate areas, that contain rare, declining or threatened species and, that encompass the entire range of the ecological community, are important to the viability of the ecological community into the future.

The median patch size intersected by the pipeline is 0.4 ha in size, with four outlying patches between 1.5 to 2.1 ha. These patches are isolated and do not link remnants in the landscape given the long history of agriculture proximal to the pipeline corridor. Therefore, the patches intersected by the pipeline are not as important to the viability of the community as larger, more intact patches of the ecological community which do not occur in the pipeline corridor.

In these areas, impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of nature trees where practicable.

The project Pest Management Plan will incorporate measure to control the introduction and spread of weed and pest species across the Pipeline corridor.

7. Interfere with recovery

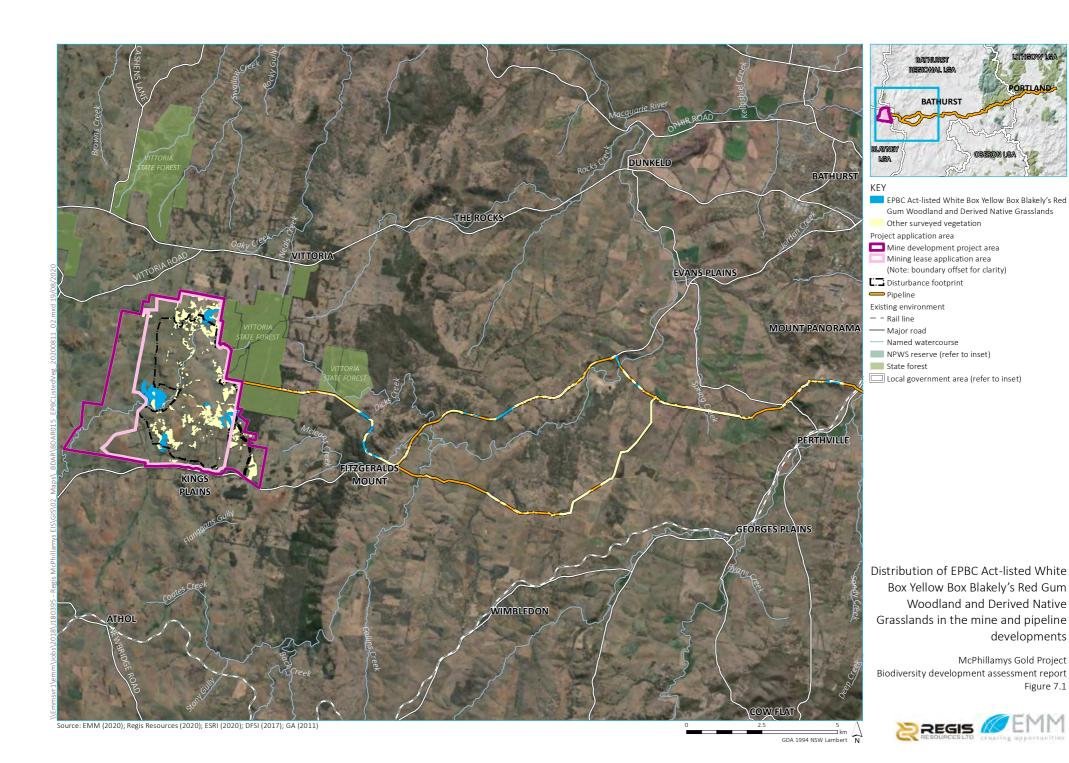
A national recovery plan has been developed (DECCW 2010a), with the objective to promote the recovery and minimise the risk of extinction of the ecological community through:

- achieving no net loss in extent and condition of the ecological community throughout its geographic distribution:
- increasing protection of sites in good condition;
- increasing landscape function of the ecological community through management and restoration of degraded sites;
- increasing transitional areas around remnants and linkages between remnants; and
- bringing about enduring changes in participating land manager attitudes and behaviours towards
 environmental protection and sustainable land management practices to increase extent, integrity and
 function of Box-Gum Grassy Woodland.

Clearance of the ecological community will directly contravene Point 1, by resulting in a minor reduction in the extent of the listed community. However, impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of nature trees where practicable.

Table 7.10 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the pipeline corridor

Conclusion The pipeline development will not result a significant impact on the listed community as only 0.81 ha will be disturbed for the southern option and up to 1.34 ha would be disturbed for the northern option (comprising 0.2 and 0.4% of the occurrence in the locality, respectively). These patches intersected by the pipeline are isolated and do not link remnants in the landscape given the long history of agriculture proximal to the pipeline corridor. Therefore, they are not as important to the viability of the community as larger, more intact patches of the ecological community which do not occur in the pipeline corridor. Impacts to Box Gum woodland will be restricted to trenching through small patches of the community and trenching activities will seek to avoid removal of nature trees where practicable. Removal of saplings and groundcovers during trenching activities will be a temporary impact as groundcovers would quickly recolonise the area and saplings would regrow, while impacts on trees would be avoided where practicable.



b Koala

A description of the listed Koala population is provided in Section 7.2.1ib, above. Koalas were not recorded in the pipeline footprint; however, areas of PCT 277, 727, 1093, 1191, 1197 and 1330 provide potential habitat for the Koala where there is good habitat connectivity.

An assessment has been completed for the pipeline corridor in accordance with the Koala habitat assessment tool in EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (DoE 2014) in Table 7.11.

Table 7.11 Koala habitat assessment tool (DoE 2014) in the pipeline corridor

Attribute	Score	Data source	Habitat assessment
Koala occurrence	+2 (high)	Desktop	The NSW Atlas of Wildlife identifies numerous records between 1980 and 2019 clustered to the south of Bathurst. Other records are very sparse and are generally recorded north and south of the Great Western Highway between Bathurst and Lithgow.
			The Protected Matters Search Tool identifies that the species or its habitat is known to occur in the area.
		On ground	Vegetation communities containing Koala feed tree species in areas of connectivity (noting that most of the pipeline traverses non-native vegetation with scattered trees). Scat searches were completed in the pipeline corridor using the Spot Assessment Technique (Phillips and Callaghan 2011). No scats were found.
Vegetation structure and composition	+2 (high)	Desktop	The project is in the central and southern tablelands KMA. High use and regional high use feed trees in SEPP (Koala Habitat Protection) 2019) present in the pipeline corridor include Manna Gum, Brittle Gum, Snow Gum, Red Stringybark and Inland Scribbly Gum.
		On ground	On-ground surveys confirmed that the pipeline corridor contains Koala habitat, comprising the food tree species listed above.
Habitat connectivity	+ 1 (medium)	Desktop	The pipeline corridor mainly follows existing roads and mainly traverses non-native vegetation. It does intersect some areas of native vegetation on roadsides and through paddocks. The corridor intersects four contiguous corridors that extend outside the pipeline corridor. While connectivity is low for most of the route, the large patches intersected by the pipeline are greater than 500 ha (but less than 1000 ha).
Key existing threats	+2 (high)	Desktop	No sick, injured or dead Koalas have been recorded during the course of the biodiversity assessment.
			The status of Chlamydia infection in the region is unknown.
		On ground	No Koalas were observed in the pipeline corridor and therefore their disease status is unknown.
Recovery value	+1 (medium)	Desktop and on ground	Koala habitat is highly fragmented in the majority of the pipeline corridor and region, however contains small, patchy woodland remnants in an agricultural setting, which is recognised by Table 1 of the referral guideline as having recovery value. Therefore, there is uncertainty whether the habitat is important for achieving the interim Koala recovery objectives.

With a total score of eight, the pipeline corridor intersects habitat critical to the survival of the Koala, in accordance with the referral guidelines (ie score greater than five).

 Table 7.12
 Assessment of significance for the Koala in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Vulnerable
1. long-term decrease of an important population	Approximately 5.17 ha of potential habitat for the listed species will be disturbed as a result of the pipeline development. Within the 5.17 ha, conservatively for the purposes of this assessment, clearance of the complete 5.17 ha is assumed. However, micrositing of the trench can result in disturbance being limited to the removal of some saplings and groundcovers in many areas during trenching activities although some removal of mature trees will be required. The Koala referral guideline (DoE 2014) does not identify any important populations of the species.
	124 patches of vegetation are intersected by the pipeline development which may provide habitat for the Koala. Within these patches, disturbance of an area above 0.1 ha will only occur in 14 patches with disturbance ranging between 0.1 ha and 0.37 ha. Consequently, disturbance of patches of vegetation is limited and is unlikely to significantly decrease the habitat available for the species.
	The impacts of the pipeline will be largely restricted to the disturbance and removal of groundcovers and removal of saplings, which are not important components of Koala habitat. Mature trees (important components of Koala habitat) will largely be avoided although conservatively for this assessment, clearance of the full 5.17 ha is assumed. Accordingly, if present, the pipeline development would not lead to the long-term decrease of the population.
2: reduce area of occupancy of an important population	The impacts of the pipeline are mainly restricted to the disturbance of groundcovers and the removal of saplings, which are not important components of Koala habitat. Mature trees (important components of Koala habitat) will largely be avoided although conservatively complete clearance of the 5.17 ha of potential Koala habitat mapped within the pipeline corridor is assumed. The pipeline corridor remains contiguous with abundant similar habitat within the wider surrounds. Accordingly, if present, the pipeline development would not reduce the occupancy of the population.
3: fragment an important population	The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. However small areas of native vegetation (e.g. along roadsides or when traversing paddocks) will be impacted although the majority of vegetation in the corridor is already subject to fragmentation.
	In addition, no permanent structures that would inhibit Koala movement will be constructed within the pipeline corridor. Accordingly, habitat will not be fragmented.
4: adversely affect critical habitat	The pipeline corridor mainly follows existing roads and mainly traverses non-native vegetation. It does intersect some areas of native vegetation on roadsides and through paddocks. The corridor intersects four contiguous corridors that extend outside the pipeline corridor. While connectivity is low for most of the route, the large patches intersected by the pipeline are greater than 500 ha.
	High-use and regional high-use feed trees in SEPP (Koala Habitat Protection) 2019 for the central and southern koala management area present in the pipeline corridor include Manna Gum, Brittle Gum, Snow Gum, Red Stringybark and Inland Scribbly Gum which would form part of the intersected corridors of critical habitat.
	Within these areas, impacts will be largely limited to the temporary disturbance or removal of groundcovers and removal of saplings, which are not important components of the critical habitat (although conservatively complete clearance of the potential Koala habitat mapped within the pipeline corridor is assumed) and therefore adverse impacts are not expected.
5: disrupt the breeding cycle of an important population	The Koala referral guideline (DoE 2014) does not identify any important populations of the species. Therefore, the breeding cycle of an important population will not be disrupted. A qualified fauna spotter will carry out a thorough survey for the species prior to any clearing of potential Koala habitat taking place.
6: decrease availability or quality of habitat	Habitat availability and/or quality will not decrease as a result of the pipeline development as impacts will be predominantly limited to the temporary disturbance and removal of groundcovers and removal of saplings, which are not important components of Koala habitat. A conservative assessment of 5.17 ha of clearance has been made for this assessment, although within this area, clearing will be largely restricted to slashing of ground vegetation and most mature trees can be avoided.

Table 7.12 Assessment of significance for the Koala in the pipeline corridor

Criteria	Discussion
7: result in invasive species	Domestic dogs (<i>Canis familiaris</i>) are known to prey on Koalas. As the pipeline development will not introduce domestic dogs to the area, the pipeline development will not result in invasive species that would adversely affect the Koala. The Project Pest Management Plan will incorporate measure to control the introduction and spread of weed and pest species across the Pipeline corridor.
8: introduce disease	Koalas are susceptible to Chlamydia, a sexually transmitted disease. In general, disease outbreaks occur when animals are stressed. As predominantly only groundcovers and saplings will be disturbed, and important habitat components will be largely avoided, the pipeline development is not expected to cause sufficient stress to animals such that a disease outbreak would occur.
9: interfere with recovery	The overall objective of the Recovery plan for the Koala (DECC 2008) is to reverse the decline of the Koala in NSW, to adequately protect, manage and restore Koala habitat and to maintain healthy breeding populations of Koalas throughout their current range. As the pipeline development will not remove important Koala habitat components, it will not interfere with recovery of the Koala.
Conclusion	The pipeline development is unlikely to result in a significant impact on the Koala.

c Tarengo Leek Orchid and Small Purple-pea

The Tarengo Leek Orchid is only known from five disjunct populations in NSW and the ACT (Hall Cemetery, Captains Flat Cemetery, Ilford Cemetery, Tarengo TSR and Steve's TSR) associated with fertile soils in grassy woodland or natural grasslands. The known sites contain or formerly contained Snow Gum and Black Gum, Yellow Box or Blakely's Red Gum (DECCW 2010).

Small Purple-pea occurs in NSW and the ACT. The species is predominantly associated with grassy woodlands containing Blakely's Red Gum, Yellow Box, Bundy and White Box (*E. albens*) (OEH 2012a).

Table 7.13 provides an assessment of significance for Tarengo Leek Orchid and Small Purple-pea in accordance with the assessment criteria for endangered species (DoE 2013a).

Table 7.13 Assessment of significance for Tarengo Leek Orchid and Small Purple-pea in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Endangered
1: long-term decrease in population size	None of the known populations (DECCW 2010b) or areas predicted to have potentially suitable habitat for Tarengo Leek Orchid will be impacted by the pipeline development. A population of the species is not currently known from the pipeline corridor. However, some marginal and potential habitat occurs in 0.62 ha of grassy woodland dominated by Snow Gum and therefore this assessment has been conducted using the precautionary principle. Regis has committed to conducting targeted surveys during the species flowering period. If found, Regis has also committed to avoidance of direct and indirect impacts on the species through micrositing of the pipeline route and protective measures (Section 6.4).
	None of the known populations of Small Purple-pea (OEH 2012a) will be impacted by pipeline development. However, some potential habitat occurs in 1.63ha of grassy woodland that would be impacted by the pipeline development.
	The pipeline development is unlikely to result in a long-term decrease in population size for the Tarengo Leek Orchid or Small Purple-pea as targeted surveys would be completed during the flowering period to determine if populations of the species are indeed present. In the unlikely event that individuals are found, the route will be micro-sited to avoid impacts to the species. In addition, appropriate measures will be implemented to maintain existing hydrology if the Tarengo Leek Orchid is recorded.
2: reduce area of occupancy	The area of occupancy for the Tarengo Leek Orchid is estimated at 4.5 ha (DECCW 2010b), which comprises the known populations. The project will not reduce the known area of occupancy as, in the unlikely event that the species is found during targeted survey, impacts will be avoided, and appropriate measures will be implemented to maintain existing hydrology in the area they are recorded.
	The area of occupancy for the Small Purple-pea is approximately 34 ha in NSW, 0.13 ha in the ACT and 0.002 ha in Victoria, encompassing the 28 known populations (OEH 2012a). The project will not reduce the known area of occupancy as, in the unlikely event that the species is found during targeted survey, impacts will be avoided.
3: fragment a population	The project will not fragment the known populations of the species as, in the unlikely event that the species are found during targeted survey, the route will be microsited such that fragmentation is avoided.
4: adversely affect critical habitat	As Tarengo Leek Orchid and Small Purple-pea occur in a small number of extant populations with low population size at most sites, all known populations, and the habitat they occupy are critical to the survival of the species.
	The National Recovery Plan for Tarengo Leek Orchid (DECCW 2010b) states that the minimum area representing habitat critical to the survival of the species is the boundary of the TSRs and the cemeteries in which the populations occur. The project will not adversely impact known critical habitat.
	The National Recovery Plan for the Small Purple-pea (OEH 2012a) does not define the area of critical habitat, however it would comprise the area of all known populations (approximately 34 ha and 0.13ha in the ACT and 0.002 ha in Victoria). The project will not adversely impact known critical habitat.
	In the unlikely event that the species are found during targeted survey, impacts will be avoided. Appropriate measures will be implemented to maintain existing hydrology in the area if Tarengo Leek Orchid is recorded.

Table 7.13 Assessment of significance for Tarengo Leek Orchid and Small Purple-pea in the pipeline corridor

Criteria	Discussion
5: disrupt the breeding cycle of a population	Tarengo Leek Orchid mainly reproduces from seed although has been known to produce daughter tubers. It is pollinated by wasps, most notably a generalist Thynnine Wasp (DECCW 2010b). Seeds are small and typically disperse only a few metres from the parent plant. Small Purple Pea reproduces by seed and fire is important in seed germination (OEH 2012a).
	In the unlikely event that the species are recorded, avoidance measures will be implemented, including the protection of any recorded individuals from the construction area. In addition, if Tarengo Leek Orchid is recorded a 3 m avoidance buffer will be placed around individuals (or groups of individuals) and measures will be implemented to maintain existing hydrological regimes. Accordingly, if populations are indeed present, the breeding cycle will not be disrupted given the proposed protection measures.
6: modify, destroy, remove, isolate or decrease availability or quality of habitat	Ground disturbance is a recognised threat to known populations of Tarengo Leek Orchid that occur in active cemeteries (DECCW 2010b). The species is also known to occur in wetter areas of grassy woodlands and grasslands. Accordingly, in the unlikely event that the species is recorded during targeted surveys, avoidance measures will be implemented, including the protection of any recorded individuals from the construction area with a 10 m buffer and the maintenance of existing hydrological regimes.
	While some disturbance (ie fire and light grazing) can be favourable to Small Purple-pea (OEH 2012a) and has the ability to re-sprout from damaged rootstock, the species will not persist when the shoot growth is periodically removed by repeated disturbance (eg domestic stock grazing). Accordingly, if the species is recorded during targeted surveys, avoidance measures will be implemented, including the protection of any recorded individuals from the construction area.
7: result in invasive species	Weeds are identified as a threat to known populations of Tarengo Leek Orchid and Small Purple-pea. Soil disturbance for trenching has the potential to promote weed growth. In the unlikely event that the species is recorded during targeted surveys, specific weed control measures would be developed and detailed in the project's biodiversity management plan to prevent invasive species adversely affecting the species habitats.
8: introduce disease	These species are not known to be subject to disease.
9: interfere with recovery	Recovery actions for the species focus on the management of known populations and conducting surveys in areas of potentially suitable habitat from which they are currently unknown. As targeted surveys will be conducted in the October to November 2020, direct impacts will be avoided and indirect impacts will be managed, the project does not interfere with the species recovery.
Conclusion	The pipeline development is unlikely to result in a significant impact on Tarengo Leek Orchid as:
	• known and potentially suitable habitats identified by NPWS will not be impacted;
	 targeted surveys will be conducted in October to November 2020 for Tarengo Leek Orchid and between September to November for Small Purple-pea;
	 in the unlikely event that individuals are recorded, measures to avoid direct impacts and manage indirect impacts will be implemented.

d Black Gum, Clandulla Geebung and Austral Toadflax

Black Gum is endemic to south-eastern Australia and is found in the ACT, NSW and in a small isolated subpopulation in Victoria. In NSW, the species occurs predominantly in the South Eastern Highlands IBRA bioregion with the most eastern part of the distribution being located just within the Sydney Basin IBRA bioregion. Following a survey in 2002 / 2003 there were believed to be approximately 110 stands in NSW, of which approximately 56% consist of scattered trees on grazed privately owned land or as linear clusters along road edges. Although a few new locations have been recorded since this survey, all are very small and have not expanded the known range or habitat of the species, nor significantly altered the understanding of its abundance or conservation status (Steve Douglas, pers. comm). In their 2010 assessment of this species the NSW Scientific Committee considered there to be 130–150 stands in NSW (TSSC 2015).

Clandulla Geebung is known from the central tablelands and central coast of NSW. The core of its distribution is within Clandulla State Forest, west of Kandos, with disjunct populations occurring to the north at Dingo Creek and Mount Dangar within the Wollemi and Goulburn River National Parks; to the south within Ben Bullen State Forest, south-east of Capertee; and to the south-east at Devils Hole within Parr State Recreation Area, north of Colo Heights. The species inhabits dry sclerophyll forest and woodland on sandstone (in heavier clayey, gravelly loam derived from Permian rocks, at approximately 700 m altitude on low ridges. Associated canopy species include Grey Gum (*Eucalyptus punctata*), Narrow-leaved Stringybark (*E. sparsifolia*), Inland Scribbly Gum (*E. rossii*), Red Ironbark (*E. fibrosa*) and Narrow-leaved Ironbark (*E. crebra*) (TSSC 2008).

The Austral Toadflax occurs in New South Wales, the Australian Capital Territory, Queensland and Victoria. Its current distribution is sporadic but widespread occurring between the Bunya Mountains in south-east Queensland to northeast Victoria and as far inland as the southern, central and northern tablelands in New South Wales and the Toowoomba region. The austral toadflax has been recorded once in Tasmania from the Derwent River valley in 1804, and is considered extinct in the state. Austral Toadflax is semi-parasitic on roots of a range of grass species, notably Kangaroo Grass. It occurs in subtropical, temperate and subalpine climates over a wide range of altitudes. It occurs on soils derived from sedimentary, igneous and metamorphic geology on a range of soils including black clay loams to yellow podzolics and peaty loams (TSSC 2013).

Table 7.14 provides an assessment of significance in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.14 Assessment of significance for the Black Gum, Clandulla Geebung and Austral Toadflax in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Vulnerable
1.Long-term decrease of an important population	Up to four individuals of Black Gum (Hill End IBRA Subregion) and Clandulla Geebung (Capertee Uplands IBRA Subregion) may be directly impacted by the proposed action. In addition, 0.09 ha of potential habitat (Capertee Uplands IBRA Subregion) has been identified for Austral Toadflax. The latter species has a moderate likelihood to occur on ungrazed roadside edges containing Kangaroo Grass.
	No important populations have been recorded in the pipeline corridor and only four individual plants of Black Gum and Clandulla Geebung will be removed. In areas where Black Gum and Clandulla Geebung have been recorded, the route will be microsited such that impacts on the species are minimised. Accordingly, it is unlikely that the project will lead to a long-term increase in an important population.

Table 7.14 Assessment of significance for the Black Gum, Clandulla Geebung and Austral Toadflax in the pipeline corridor

Criteria	Discussion
2. Reduce occupancy area for important population	The project will not reduce the known area of occupancy of an important population – no important populations are known from the pipeline corridor.
3. Fragment an important population	No important populations are known from the pipeline corridor. Up to four potential Black Gum and Clandulla Geebung will be removed for the construction of the pipeline, and a small area of potential Austral Toadflax habitat would be removed. In areas where Black Gum and Clandulla Geebung have been recorded, the route will be microsited such that impacts on the species are minimised. In addition, Clandulla Geebung seems to respond well to disturbance, with greater densities found along track margins and in areas disturbed by forestry activities (TSSC 2013).
4. Adversely affect habitat critical to survival	There is no indication the pipeline corridor comprises habitat critical for the survival of the species.
5. Disrupt breeding cycle of important population	The project will not disrupt the breeding cycle of an important population – no important populations are known from the pipeline corridor. Clandulla Geebung seems to respond well to disturbance, with greater densities found along track margins and in areas disturbed by forestry activities (TSSC 2013).
6. Modify, destroy, remove, isolate or degrade habitat	Existing habitat has been subject to fragmentation and edge effects and is subject to the invasion of exotic species in groundcovers. Construction will utilise existing disturbed easements and cultivated land and will not decrease the quality of habitat with the assessment area. The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. However small areas of native vegetation (e.g. along roadsides or when traversing paddocks) will be impacted although the majority of vegetation in the corridor is already subject to fragmentation and edge effects. In areas where Black Gum and Clandulla Geebung have been recorded, the route will be microsited such that impacts on the species are minimised
7.Result in invasive species	Grazing of the host plant by sheep and cattle, and activities of Feral Pigs are recognised as threats to the species. It is unlikely that the project will lead to an increase in the number of invasive species present in the pipeline corridor.
8. Introduce disease	Disease is not recognised as a threat to these species. Given this, it is unlikely that the pipeline will introduce diseases that cause the species to decline.
9. Interfere with recovery	There is no adopted or made recovery plan for these species. Conservation and management actions listed in the Approved Conservation Advice for these species (TSSC 2008; TSSC 2013 and TSSC 2015a) include maintaining wild populations and enhancing potential habitat, as well as weed and grazing control.
	Despite the potential loss of a small number of individuals, the project will not interfere with these objectives, and the Project Pest Management Plan will incorporate measure to control the introduction and spread of weed and pest species across the Pipeline corridor (including invasive grasses that are a threat to Austral Toadflax.
Conclusion	The pipeline development will not result in a significant impact on these species.

e Basalt Peppercress and Hoary Sunray

The Basalt Peppercress is currently known from about 35 populations containing about 1,700 individuals, most of which occur in Tasmania. There are three populations containing about 40 plants in New South Wales. The original habitat in which the Basalt Peppercress occurred is not precisely known, but was probably eucalypt and/or Allocasuarina woodland with a grassy understorey, and native temperate grasslands (Leigh et al. 1984). Almost all remaining populations of Basalt Peppercress occur in heavily modified, non-natural environments, usually amongst exotic pasture grasses and weed species, sometimes with an overstorey of introduced tree species (Tumino 2010). The pipeline corridor traverses Perthville where there is a known record of the species. Likely areas for this species were searched following NSW guidelines and the species was not recorded. However, surveys were completed during drought conditions, and therefore its presence could be discounted. Potential habitat of up to 2.67 ha is present in the southern option and 1.63 ha in the northern option of the pipeline development.

The Hoary Sunray is endemic to south-eastern Australia, where it occurs in three geographically separate areas. In NSW, the Hoary Sunray currently occurs on the Southern Tablelands and some adjacent areas (e.g. Tarcutta, Bega valley) in an area roughly bounded by Albury, Bega and Goulburn, in the South Eastern Highlands, Australian Alps and Sydney Basin bioregions. It once occurred more widely in inland NSW, with records from near Cobar, Dubbo, Lithgow, Moss Vale and Delegate (Sinclair 2010). Potentially suitable habitat (0.09ha) in the pipeline corridor occurs on ungrazed roadside edges containing Kangaroo Grass.

Table 7.15 Assessment of significance for Basalt Peppercress and Hoary Sunray

Criteria	Discussion
EPBC Act conservation status	Endangered
1: long-term decrease in population size	The local population of Basalt Peppercress was estimated to be three individuals in 2008 (DoEE 2020). Records of the Hoary Sunray are located south of the pipeline corridor, and therefore the local population size is unknown.
	The pipeline development will not result in a long-term decrease in population size for either species as an additional targeted survey would be completed in climatic conditions optimal for their detection. If any individuals are found, the route will be microsited or underbored to avoid impacts to the species.
2: reduce area of occupancy	The pipeline development will not reduce the area of occupancy for either species as an additional targeted survey would be completed in climatic conditions optimal for their detection. If any individuals are found, the route will be microsited or underbored to avoid impacts to the species.
3: fragment a population	The pipeline development will not fragment the local population of either species as an additional targeted survey would be completed in climatic conditions optimal for their detection. If any individuals are found, the route will be microsited or underbored to avoid impacts to the species.
4: adversely affect critical habitat	Critical habitat has not been defined for either species. Potential habitat for the species will not be adversely affected as impacts are restricted to the temporary disturbance of groundcovers that would quickly recolonise following disturbance.
5: disrupt the breeding cycle of a population	As avoidance measures will be implemented in the event that these species are recorded, the breeding cycle of their populations will not be disrupted.
6: modify, destroy, remove, isolate or decrease availability or quality of habitat	Impacts to the potential habitat of these species are temporary, given that groundcovers would quickly recolonise following the completion of trenching. Therefore, their potential habitat will not be destroyed, removed, isolated. The quality of the potential habitat will be maintained through the implementation of weed control measures developed during the EIS.
7: result in invasive species	Soil disturbance has the potential to promote weed growth. Weed control measures will be developed during the EIS to minimise the risk of weed invasion.

Table 7.15 Assessment of significance for Basalt Peppercress and Hoary Sunray

Criteria	Discussion	
8: introduce disease	These species are not known to be subject to disease.	
9: interfere with recovery	Basalt Peppercress does not currently have a recovery plan. The National Recovery Plan for the Hoary Sunray focuses on research into the species distribution, ecology and threats. Therefore, the pipeline development does not interfere with the species recovery actions.	
Conclusion	The pipeline development will not result in a significant impact on the Basalt Peppercress or Hoary Sunray as measures to avoid individuals detected will be implemented.	

f Superb Parrot

A description of the Superb Parrot and its habitat is provided in Section 7.2.1i. Targeted surveys (OzArk 2018) did not record the species. However, potential habitat is present within the pipeline development comprises areas of PCT 277_Intact, 277_Moderate, 1330_Intact and 1330_Fragments.

Table 7.7 provides an assessment of significance for the removal of up to 2.05 ha of potential Superb Parrot habitat for the southern option and 2.05 ha for the northern option, in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.16 Assessment of significance for the Superb Parrot for the pipeline corridor

Criteria	Discussion
1. Long-term decrease of an important population	Important populations have not been defined in the recovery plan for the Superb Parrot (Baker-Gabb 2011). A single population of the species exists, and therefore the project cannot lead to the decrease of an important population.
2. Reduce occupancy area for important population	As above.
3. Fragment an important population	As above.
4. Adversely affect habitat critical to survival	Habitat critical to the survival of the species has been defined by the recovery plan (Baker-Gabb 2011) as breeding habitat that comprises riverine forests in the Riverina and Box Gum Woodlands on the tablelands and slopes and foraging habitat comprising Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland.
	As the project application area does not fall within the species breeding range, it does not represent habitat critical to the survival of the species.
	Section 6.4 details avoidance measures implemented by Regis into the project design to minimise impacts on habitat for this species. Management of retained areas of species habitat on the site (see Section 6.4) will assist in protecting areas of habitat to be retained.
5. Disrupt breeding cycle	The project application area is outside the species breeding range. Therefore, the project will not disrupt the species breeding cycle.
6. Modify, destroy, remove, isolate or degrade habitat	The project will remove 2.05 ha of potential Superb Parrot habitat for the southern option and 2.05 ha for the northern option of the pipeline development. The project application area is outside the species breeding range, and therefore the species is considered to be a vagrant in the region. At a national scale, the species occurs in Tasmania and between Bendigo, Victoria and north-western NSW. The removal of this potential foraging habitat in which the species is vagrant will not substantially reduce the national extent.

 Table 7.16
 Assessment of significance for the Superb Parrot for the pipeline corridor

Criteria	Discussion
7.Result in invasive species	Soil disturbance for the project has potential to result in the spread of invasive weeds to retained areas of vegetation and potential habitat. Weed control procedures will be developed during the EIS to minimise the impact on potential foraging habitat for the Superb Parrot.
8. Introduce disease	Superb Parrots may be susceptible to beak and feather disease. Disease outbreaks usually occur in wild animal populations where significant stresses arise. The clearance of potential foraging habitat is unlikely to cause significant stress such that a disease outbreak would occur.
9. Interfere with recovery	Recovery actions for the Superb Parrot aim to determine population trends, increase knowledge of the species ecological requirements, develop and implement threat abatement strategies and increase community involvement and awareness of the recovery program (Baker-Gabb 2011). As recovery actions are focused on increasing knowledge of the species, the project will not interfere with recovery.
Conclusion	The clearance of potential Superb Parrot foraging habitat will not result in a significant impact on the species, important populations will not be adversely affected, the area to be removed does not represent habitat critical to the survival of the species and the project will not interfere with recovery of the species. Impacts are known, predictable and irreversible.

g Booroolong Frog

The Booroolong Frog is restricted to New South Wales and north-eastern Victoria, predominantly along western-flowing streams of the Great Dividing Range, from 200 to 1300 metres above sea level. Further south, the Booroolong Frog has been recorded from a number of streams in recent years. In the central tablelands region, the species has been recorded along nine streams within the Macquarie River catchment (Central West CMA), and seven streams in the Abercrombie River catchment (OEH 2012b).

The Booroolong Frog is generally associated with permanent streams in wet and dry forest, woodland, and cleared grazing land. The species occurs in dissected mountainous country, tablelands, foothills and lowland plains. Adults tend to occur on or near cobble banks or bedrock structures within stream margins, or near slow-flowing connected or isolated pools that contain suitable rock habitats (OEH 2012b).

Potential habitat in the pipeline corridor occurs in the Macquarie River which will be underbored and therefore not impacted. 0.19 ha of potential habitat occurs in the Coxs River in the southern option of the pipeline, while the northern option includes potential habitat at Coxs River and Evans Plains Creek (0.12 ha).

Table 7.17 provides an assessment of significance in accordance with the assessment criteria for endangered species (DoE 2013a).

Table 7.17 Assessment of significance for Booroolong Frog in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Endangered
1: long-term decrease in population size	Approximately 0.19 ha of potential habitat for the listed species will be disturbed for the southern option with an additional 0.12 ha if the northern option is selected. Potential habitat has been identified at Coxs River (southern option) and Evans Plains Creek (northern option) being close to known records. The pipeline corridor cuts through open ground at the Coxs River and Evans Plains Creek crossing and impacts to fringing vegetation or rock structures providing habitat for this species will be avoided.
	As per the original referral, potential habitat at Macquarie River is being avoided through underboring.

Table 7.17 Assessment of significance for Booroolong Frog in the pipeline corridor

Criteria	Discussion
2: reduce area of occupancy	No impacts to in-stream breeding habitat will occur, nor will fringing vegetation in which the species may shelter, be impacted. The pipeline corridor cuts through open ground at the Coxs River crossing and potential habitat at Macquarie River is being underbored.
3: fragment a population	Stream flow will be maintained at the Coxs River and Evans Plains Creek crossings and riparian vegetation retained. Prior to clearance taking place, the area will be subject to a preclearance survey, and the work area when passing adjacent to potential habitat will be fenced. Disturbance will be temporary, and trenching will occur in open ground. Therefore fragmentation of any population at Coxs River and Evans Plains Creek will be avoided.
4: adversely affect critical habitat	No impacts to in-stream breeding habitat will occur, nor will fringing vegetation in which the species may shelter, be impacted. The pipeline corridor cuts through open ground at the Coxs River and Evans Plains Creek crossings and potential habitat at Macquarie River is being underbored. Prior to clearance taking place the area will be subject to a preclearance survey, and the work area when passing adjacent to potential habitat will be fenced.
5: disrupt the breeding cycle of a population	The pipeline corridor at the Coxs River and Evans Plains Creek will not impact on habitat for the species (fringing vegetation or rock structures) and the corridor cuts through cleared ground at this location. Prior to clearance taking place the area will be subject to a preclearance survey, and the work area when passing adjacent to potential habitat will be fenced. Therefore disturbance to the breeding cycle of the species is unlikely.
6: modify, destroy, remove, isolate or decrease availability or quality of habitat	Approximately 0.19 ha of potential habitat will be temporarily disturbed at Coxs River and 0.12 ha at Evans Plains Creek if the northern option is selected. The pipeline corridor cuts through open ground at both crossings and impacts to fringing vegetation or rock structures providing habitat for this species will be avoided.
	As per the original referral, potential habitat at Macquarie River is being avoided through underboring.
7: result in invasive species	The presence of invasive species such as Cane Toad, Foxes, Feral Pigs and Feral Cats is known to impact native fauna populations. It is unlikely that the project will lead to an increase in the number of invasive species present in the pipeline corridor.
8: introduce disease	A potential threat to the Booroolong Frog population may occur from introduction of 'Chytridiomycosis' disease to the area (which has been identified as the cause of amphibian declines and extinctions on different continents (OEH 2012b). By bringing in vehicles, machinery and people there is potential they may carry spores which then spread into water bodies. Mitigation measures including hygiene protocols to disinfect footwear, machinery and vehicles before working near the Coxs River and Evans Plains Creek will be implemented.
9: interfere with recovery	The overall objective of the recovery plan for the Booroolong Frog (OEH 2012b) is to minimise the probability of extinction of the Booroolong Frog in the wild, and to increase the probability of populations becoming self-sustaining and viable in the longer term. Recovery objectives include reducing the impact of known threats to the species. The project will not interfere with the objectives of this plan.
Conclusion	The pipeline development will not result in a significant impact on the Booroolong Frog.

h Greater Glider

The Greater Glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria (Wombat State Forest), with an elevational range from sea level to 1200 m above sea level. An isolated inland subpopulation occurs in the Gregory Range west of Townsville, and another in the Einasleigh Uplands. The Greater Glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows (TSSC 2016b).

Potential habitat for the species in the pipeline is present in the Hill End IBRA subregion in tall moist forest (PCT 1197_Intact, 1.15 ha).

Table 7.18 provides an assessment of significance in accordance with the assessment criteria for vulnerable species (DoE 2013a).

 Table 7.18
 Assessment of significance for the Greater Glider in the pipeline corridor

Criteria	Discussion
EPBC Act conservation status	Vulnerable
1.Long-term decrease of an important population	The Greater Glider could occur in the eastern part of the pipeline corridor in the Hill End IBRA subregion. The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. However, small areas of native vegetation (eg along roadsides or when traversing paddocks) will be impacted totalling 1.15 ha, and additional surveys have recorded more hollow-bearing trees that could represent potential habitat for the Greater Glider.
	No important population of the species has been identified in the pipeline corridor. The Greater Glider could occur in intact tall woodland areas dominated by Mountain Gum and Brown Barrel (e.g PCT 1197). Impacts are expected to be minor and will not result in any significant reduction in habitat such that any local population would be impacted in any measurable way.
2. Reduce occupancy area for important population	The impacts of the pipeline are predominantly restricted to the disturbance of groundcovers and the removal of saplings, which are not important components of habitat for either species. Mature trees (important components of Greater Glider habitat) will largely be avoided although conservatively complete clearance of the 1.15 ha of potential habitat for Greater Glider respectively mapped within the pipeline corridor is assumed. The pipeline corridor remains contiguous with abundant similar habitat within the wider surrounds. Accordingly, if present, the pipeline development would not reduce the occupancy of the population.
3. Fragment an important population	No 'important population' has been identified within the Pipeline corridor. The impacts of the pipeline are predominantly restricted to the disturbance of groundcovers and the removal of saplings, while mature trees will be largely retained. As mature trees will be largely retained and impacts on patch sizes are small (less than 0.1 ha in most cases), potential species' habitat will not be fragmented.
	The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. However small areas of native vegetation (e.g. along roadsides or when traversing paddocks) will be impacted although the majority of vegetation in the corridor is already subject to fragmentation.
4. Adversely affect habitat critical to survival	There is no indication the pipeline corridor comprises habitat critical to the survival of either species. The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. However small areas of native vegetation (e.g. along roadsides or when traversing paddocks) will be impacted.
5. Disrupt breeding cycle	No 'important population' has been identified within the pipeline corridor. A qualified fauna spotter will carry out a thorough survey for the species prior to any clearing of potential habitat (habitat trees) taking place. It is considered unlikely the pipeline will disrupt the breeding cycle of an important population.
6. Modify, destroy, remove, isolate or degrade habitat	Habitat availability and/or quality will not decrease as a result of the pipeline development as impacts will be predominantly limited to the temporary disturbance and removal of groundcovers and removal of saplings, which are not important components of habitat for either species. A conservative assessment of complete clearance of potential species habitat in the pipeline corridor has been made for this assessment, although within this area, clearing will be largely restricted to slashing of ground vegetation and most mature trees can be avoided.
7.Result in invasive species	Domestic dogs and Feral Cats could prey on the species. As the pipeline development will not introduce domestic dogs or feral cats to the area, the pipeline development will not result in invasive species that would adversely either species.

Table 7.18 Assessment of significance for the Greater Glider in the pipeline corridor

Criteria	Discussion	
8. Introduce disease	Disease is not recognised as a threat to the Greater Glider. Given this, it is unlikely that the pipeline will introduce diseases that cause the species to decline.	
9. Interfere with recovery	There is no State or Commonwealth recovery plan for Greater Glider. The Approved Conservation Advice for Greater Glider (TSSC 2016b) outlines management actions intended to aid the recovery of the species.	
	Given the minor extent of clearing involved and with mitigation of potential Project impacts including pre-clearing surveys in suitable habitat to identify suitable tree hollows any potential impact on the species, should it occur in the Pipeline corridor, will be minor and is considered unlikely to interfere with the recovery of the species or any of the actions outlined in the Approved Conservation Advice.	
Conclusion	The pipeline development will not result in a significant impact on the Greater Glider.	

Pink-tailed Worm Lizard

The Pink-tailed Worm Lizard occurs in New South Wales (NSW), Victoria and the Australian Capital Territory (ACT) where it is widely but patchily distributed along the foothills of the western slopes of the Great Dividing Range between Bendigo in Victoria and Gunnedah in NSW. The species habitat includes primary and secondary grassland, grassy woodland and woodland communities, and the species usually inhabits sloping sites that contain rocky outcrops or scattered, partially buried rocks. These rocky habitats tend to be well-drained mid-slope or ridge-top sites with loosely embedded rocks on soil substrate with ant galleries present. It is typically found sheltering under these rocks and spend considerable time in ant burrows below these rocks, which are considered important foraging and shelter sites (TSSC 2015b).

Potential habitat occurs in areas of granite outcropping in Orange IBRA subregion (PCT 277_Intact) and Bathurst IBRA subregion (southern option) (PCT 1330_DNG, 1330_Intact and 1330_Sparse).

Table 7.19 provides an assessment of significance in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.19 Assessment of significance for the Pink-tailed Worm Lizard in the pipeline corridor

Criteria	Discussion		
EPBC Act conservation status	Vulnerable		
1.Long-term decrease of an important population	The species has potential to occur in granite/rocky areas in Box Gum Woodland, and approximately 1.19 ha of potential habitat is potentially impacted. No important populations have been identified in the pipeline corridor, and should the species occur, the development is unlikely to lead to a long-term decrease in any local population. Trenching will seek to be microsited such that impacts on granite boulders, which the species favours, and disturbance are minimised. Trenches while left open will be subject to daily inspection and escape measures or shelter provided (eg ramps or material under which animals can shelter). If species are trapped in the trench they will be freed by a trained and competent individual.		
2. Reduce occupancy area for important population	No important populations have been identified in the pipeline corridor. Trenching can be microsited around areas of granite boulders which the species favours and disturbance will be temporary and relate to removal of groundcover while the trench is installed. As such the area of occupancy of an important population is unlikely to be reduced. Although minor temporary reduction of potential habitat may occur, the area will be rehabilitated once the trench is filled.		

Table 7.19 Assessment of significance for the Pink-tailed Worm Lizard in the pipeline corridor

Criteria	Discussion			
3. Fragment an important population	Disturbance for installation of the pipeline will be temporary and trenching will be microsited around granite boulders which the species favours. Prior to clearance taking place the area will be subject to a preclearance survey, and any individuals will be relocated to nearby areas of retained habitat while trenching takes place.			
	The pipeline route mainly traverses cleared areas and pine forests and follows existing tracks where possible. Construction disturbance will be temporary, and the completed pipeline will not provide a barrier to movement.			
	Following installation of the pipeline, there will be no fragmentation of the species habitat.			
4. Adversely affect habitat critical to survival	There is no indication the pipeline corridor comprises habitat critical for the survival of the species. The species favours open woodland with native grassland and rocky areas. Trenching will be microsited such that impacts on granite boulders which the species favours are minimised.			
5. Disrupt breeding cycle	No important populations have been identified in the pipeline corridor. Prior to clearance taking place the area will be subject to a preclearance survey, and any individuals will be relocated to nearby areas of retained habitat while trenching takes place. Trenching will be microsited such that impacts on granite boulders which the species favours are minimised. Therefore, disturbance to the breeding cycle of the species is unlikely.			
6. Modify, destroy, remove, isolate or degrade habitat	The species inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass. Sites are typically well-drained, with rocky outcrops or scattered, partially-buried rocks.			
	Trenching will be microsited such that impacts on granite boulders which the species favours are minimised.			
7.Result in invasive species	The presence of invasive species such as Cane Toad, Foxes, Feral Pigs and Feral Cats is known to impact native fauna populations. It is unlikely that the project will lead to an increase in the number of invasive species present in the pipeline corridor.			
8. Introduce disease	Disease is not recognised as a threat to the Pink-tailed Worm Lizard. Given this, it is unlikely that the pipeline will introduce diseases that cause the species to decline.			
9. Interfere with recovery	There is no adopted or made recovery plan for this species. Conservation and management actions listed in the Approved Conservation Advice for the species (TSSC 2015b) include implementing approaches to avoid or reduce the removal of rocks in order to maintain habitat integrity and weed and pest control. The project will not interfere with these actions, and trenching will be microsited such that impacts on granite boulders which the species favours are minimised.			
Conclusion	The pipeline development will not result in a significant impact on the Pink-tailed Worm Lizard.			

j Bathurst Copper Butterfly

The Bathurst Copper Butterfly is endemic to New South Wales, where it occurs on the Central Tablelands in an area approximately bounded by Capertee, Black Springs, Hartley and Bathurst. It occurs in eucalypt woodland, mainly in open clearings. All locations are above 900 m in altitude and are associated with the presence of the larval food plant; *Bursaria spinosa*. subsp. *lasiophylla* and a species of attendant ant; *Anonychomyrma itinerans*. The Bathurst Copper Butterfly has been recorded from 35 locations, all within the Greater Lithgow, Bathurst Regional and Oberon local government areas (TSSC 2016c).

Four potential host plants for the species (*Bursaria spinosa* ssp. *lasiophylla*) were recorded in the Hill End and Capertee Uplands IBRA subregions. The pipeline disturbance footprint was minimised in these locations to avoid direct impacts.

Table 7.20 provides an assessment of significance in accordance with the assessment criteria for vulnerable species (DoE 2013a).

Table 7.20 Assessment of significance for Bathurst Copper Butterfly in the pipeline corridor

Criteria	Discussion		
EPBC Act conservation status	Vulnerable		
1.Long-term decrease of an important population	None of the known populations will be impacted by the proposed action. A population of the species is not currently known from the pipeline corridor. However, some potential habitat occurs and additional surveys have recorded four individual potential host plants of Blackthorn (<i>Bursaria spinosa</i> subsp. <i>lasiophylla</i>). The pipeline disturbance footprint has been minimised in these locations to avoid direct impacts on the species. No important populations have been recorded in the pipeline corridor and up to four potential host plants will be removed. It is unlikely that the project will lead to a long-term increase in an important population.		
2. Reduce occupancy area for important population	The project will not reduce the known area of occupancy of an important population – no important populations are known from the pipeline corridor.		
3. Fragment an important population	The project will not fragment an important population – no populations are known from the pipeline corridor. The pipeline disturbance footprint has been minimised where potential host plants occur to avoid direct impacts on the species		
4. Adversely affect habitat critical to survival	Habitat critical to the survival of Bathurst Copper Butterfly has not been identified. The pipeline disturbance footprint has been minimised where potential host plants occur.		
5. Disrupt breeding cycle	Emergence, mating and egg-laying typically occurs during September – November, with larval grazing of the host plant occurring between October and January and pupation between December – October. The trench will be microsited such that impacts on host plants and the breeding cycle are minimised.		
6. Modify, destroy, remove, isolate or degrade habitat	Up to four potential host plants may be removed for construction of the pipeline. The trench will be microsited such that habitat impacts are minimised.		
7.Result in invasive species	Grazing of the host plant by sheep and cattle, and activities of Feral Pigs are recognised as threats to the species. It is unlikely that the project will lead to an increase in the number of invasive species present in the pipeline corridor.		
8. Introduce disease	Disease is not recognised as a threat to the Bathurst Copper Butterfly. Given this, it is unlikely that the pipeline will introduce diseases that cause the species to decline.		
9. Interfere with recovery	A State recovery plan (2001-06) (NPWS 2001) was in place for the species but no plan is active. The recovery program for the Bathurst Copper Butterfly aimed to stabilise the population through the prevention of threatening processes, and increase the in-situ population through habitat management. The project will not interfere with these objectives, and the project Pest Management Plan will incorporate measure to control the introduction and spread of weed and pest species across the Pipeline corridor.		
Conclusion	The pipeline development will not result in a significant impact on the Bathurst Copper Butterfly.		

7.2 Environmental Planning and Assessment Act 1979

7.2.1 State Environmental Planning Policy (Koala Habitat Protection) 2019

Although SEPP (Koala Habitat Protection) 2019 does not apply to the development (Section 2.2.2), feed tree species from the relevant koala management area have been used to inform the delineation of Koala habitat for the mine and pipeline developments. The 39 listed feed tree species for the central and southern tablelands Koala management area (KMA) were also considered when completing Koala habitat mapping for the mine and pipeline developments. Of these 39 species, *A review of Koala tree use across NSW* (OEH 2018) states that there is evidence of widespread use of Brittle Gum, Manna Gum, Broad-leaved Peppermint, Red Stringybark, Inland Scribbly Gum and Snow Gum.

Table 7.21 provides the list of feed tree species relevant to the KMA and determines which species are present in the mine and pipeline developments and their associated PCTs. It also identifies presence of the widely used species, which in combination with vegetated corridors, have been used for the purposes of defining 'important koala habitat' for the Koala species polygons in accordance with the BAM.

Table 7.21 Koala feed tree species for the central and southern tablelands KMA

Scientific name	Common name(s)	Present in mine and/or pipeline development footprint?	Associated vegetation zones where the species is dominant/co-dominant
Eucalyptus agglomerata	Blue-leaved Stringybark	Absent	-
Eucalyptus albens	White Box	Absent	-
Eucalyptus amplifolia	Cabbage Gum	Absent	-
Eucalyptus	Blakely's Red Gum	Mine development	1330_High, 1330_Moderate,
blakelyi		Pipeline development	1330_Poor, 1330_Other
			277_Intact, 277_Moderate
Eucalyptus bosistoana	Coast Grey Box	Absent	-
Eucalyptus	Apple Box	Mine development	1330_High, 1330_Moderate,
bridgesiana		Pipeline development	1330_Poor, 1330_Other
			727_High, 727_Moderate, 727_Intact ,1330_Intact, 727_Intact, 277_Intact, 1093_Fragments, 1093_Intact
Eucalyptus camaldulensis	River Red Gum	Absent	-
Eucalyptus conica	Fuzzy Box	Absent	-
Eucalyptus cypellocarpa	Monkey Gum	Absent	-
Eucalyptus dalrympleana^	Mountain Gum	Pipeline development	1197_Intact
Eucalyptus dealbata	Tumbledown Red Gum	Absent	-

Table 7.21 Koala feed tree species for the central and southern tablelands KMA

Scientific name	Common name(s)	Present in mine and/or pipeline development footprint?	Associated vegetation zones where the species is dominant/co-dominant
Eucalyptus dives^	Broad-leaved Peppermint	Mine development	727_High, 727_Medium
		Pipeline development	727_Intact, 727_Moderate, 1093_Fragments, 1093_Intact
Eucalyptus elata	River Peppermint	Absent	-
Eucalyptus eugenioides	Narrow-leaved Stringybark	Absent	-
Eucalyptus fibrosa	Broad-leaved Red Ironbark	Absent	-
Eucalyptus globoidea	White Stringybark	Absent	-
Eucalyptus	Bundy	Mine development	727_High, 727_Moderate
goniocalyx		Pipeline development	727_Intact, 277_Intact, 277_Moderate, 1093_Intact
Eucalyptus macrorhyncha^	Red Stringybark	Pipeline development	727_Intact, 1093_Intact, 1093_Fragments, 277_Intact
Eucalyptus maidenii	Maiden's Blue Gum	Absent	-
Eucalyptus mannifera^	Brittle Gum	Pipeline development	727_Intact, 1093_Fragment, 1093_Intact
Eucalyptus melliodora	Yellow Box	Mine development	1330_High, 1330_Moderate, 1330_Poor, 1330_Other 727_High, 727_Moderate
		Pipeline development	1330_Intact, 277_Intact, 277_Moderate
Eucalyptus microcarpa	Western Grey Box	Absent	-
Eucalyptus nortonii	Large-flowered Bundy	Absent	-
Eucalyptus obliqua	Messmate	Absent	-
Eucalyptus oblonga	Stringybark	Absent	-
Eucalyptus paniculata	Grey Ironbark	Absent	-
Eucalyptus pauciflora^	White Sally, Snow Gum	Pipeline development	1191_Intact, 1197_Intact
Eucalyptus piperita	Sydney Peppermint	Absent	-
Eucalyptus polyanthemos	Red Box	Absent	-

Table 7.21 Koala feed tree species for the central and southern tablelands KMA

Scientific name	Common name(s)	Present in mine and/or pipeline development footprint?	Associated vegetation zones where the species is dominant/co-dominant
Eucalyptus punctata	Grey Gum	Absent	-
Eucalyptus quadrangulata	White-topped Box	Absent	-
Eucalyptus radiata	Narrow leaved Peppermint	Absent	-
Eucalyptus rossii^	Inland Scribbly Gum	Pipeline development	1191_Intact, 1197_Intact
Eucalyptus rubida	Candlebark		
Eucalyptus sclerophylla	Hard-leaved Scribbly Gum	Absent	-
Eucalyptus sideroxylon	Mugga Ironbark	Absent	-
Eucalyptus sieberi	Silvertop Ash	Absent	-
Eucalyptus tereticornis	Forest Red Gum	Absent -	
Eucalyptus viminalis	Ribbon Gum	Mine development Pipeline development	951_poor 1191_Fragments

7.3 Biosecurity Act 2015

7.3.1 Mine development

One priority weed of the central tablelands was recorded in the mine project area, namely Blackberry. Blackberry is a priority weed for all of NSW and are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. The species must not be imported into NSW or sold. In addition, there is a regional recommended measure for land managers in the central tablelands to mitigate the risk of new weeds being introduced to, and spread from, their land. The plant should not be bought, sold, grown, carrier or released into the environment. Conservation areas, natural environments and primary production lands should be protected that are free of Blackberry. The biodiversity management plan for the project would directly address the control of Blackberry.

7.3.2 Pipeline development

The following priority weeds were recorded in the pipeline development:

- Spear Thistle (Cirsium vulgare);
- Cotoneaster (Cotoneaster spp.);
- Paterson's Curse (Echium plantagineum);

- Blue Heliotrope (Heliotropum amplexicaule);
- Blackberry;
- Serrated Tussock (Nassella trichotoma);
- Scotch Broom (Cytisus scoparius); and
- African Boxthorn (Lycium ferrocissimum).

All plants have a general biosecurity duty, as described above in Section 7.3.1. Serrated Tussock, Scotch Broom and African Boxthorn have an additional regional recommended measure that land managers should mitigate the risk of new weeks being introduced to or spreading from their land. The plants should not be bought, sold, grown, carried or released into the environment. The biodiversity management plan for the project would directly address the control of these priority weeds.

8 Groundwater dependent ecosystem assessment

8.1 Background

An assessment was completed in the EIS, in conjunction with EMM's groundwater specialists, to identify terrestrial ecosystems which potentially utilise and/or are reliant on groundwater in the project area. It included reviewing the Groundwater Dependent Ecosystem Atlas (BOM 2013), groundwater monitoring data and groundwater modelling results against biodiversity values documented in the project area.

The numerical groundwater model development for the EIS (Appendix K of the EIS) has been updated to assess the potential impacts of the amended project. The results are provided in full in the McPhillamys Gold Project Groundwater Assessment Addendum, which forms Appendix H of the Amendment Report. This chapter provides an updated assessment of potential impacts on groundwater dependent ecosystems using the updated numerical groundwater model.

An assessment of groundwater dependent ecosystems is not provided for the pipeline development as trenching is not expected to intercept or influence groundwater access or quality. The pipeline development is therefore not considered further in this section of the report.

8.2 Method

8.2.1 Study area

The study area for the groundwater dependent ecosystem (GDE) assessment comprises the merged boundary of the mine development project area and the predicted 1 m drawdown extent (100 years after mine end), shown on Plate 4.1. This chapter assesses potential impacts of groundwater losses and gains on terrestrial GDEs, comprising terrestrial native vegetation and groundwater-dependent wetlands and/or estuarine/near shore ecosystems.

8.2.2 Spatial data review

The Groundwater Dependent Ecosystems Atlas (BOM 2013) was viewed to identify local terrestrial vegetation types that are potentially groundwater dependent. In addition, ecological characteristics of vegetation communities in the local area were reviewed to identify any features such as landscape position or species composition which may indicate high dependence on groundwater availability.

8.2.3 Groundwater model

EMM developed a numerical groundwater model to assess the potential change to the groundwater flow system because of the project. A detailed explanation of the model development and calibration is provided in the Groundwater Assessment report (Appendix K of the EIS), with detailed explanation of predictions for the amended project provided in the Groundwater Assessment Addendum report (Appendix H of the Amendment Report). The groundwater model includes simulation of the open cut mine development and a highly conservative simulation of tailings placement. It should be noted at the purpose of the groundwater model is not to estimate the potential seepage from the TSF under design operation nor the effectiveness of the TSF seepage management system, as this has been conducted by ATC Williams (2019 and 2020).

8.2.4 Groundwater interaction assessment

Predicted depth to groundwater was derived from the groundwater model for the project area (refer to Appendix H of the Amendment Report) and was reviewed to identify where groundwater could potentially be accessible for terrestrial vegetation. Specifically, the model outputs were used to identify areas where shallow groundwater (0 to 20 m below the ground surface) is available for plants to use. The average depth at which Eucalypts draw on groundwater is 10 m below the ground surface; however, use up to 20 m has been recorded (Serov 2013) and therefore this deeper figure was used as the maximum depth that PCTs would access groundwater. Although accessible, at this maximum depth the level of groundwater uptake is typically lower than where groundwater is shallow, given the larger pressure change required to draw water to the root zone (Eamus 2006). Conversely, the level of groundwater uptake and interaction is higher at shallower depths (ie 0 – 2 mbgl) as groundwater is already within or close to the root zone.

Accordingly, the following categories of groundwater uptake were assigned:

- very high interaction: 0 m;
- high interaction: 0 0.5 m;
- moderate interaction: 0.5 2 m;
- low interaction 2 5 m; and
- very low interaction 5 20 m.

Recorded PCTs and regional vegetation mapping (OEH 2018) between the edge of the project area and the groundwater model boundary were then overlaid on the shallow groundwater distribution maps in GIS, to determine which patches could potentially access groundwater. Vegetation in the mine development project area was excluded from the assessment as it would be cleared. Areas of overlap; that is where native plant communities coincided with shallow groundwater, were identified as 'potential GDEs', requiring further investigation to understand their level of groundwater dependence (or otherwise). Ecosystems identified with potential for reliance on groundwater are identified in Section 8.2.5.

Following the *Risk Assessment Guidelines for Groundwater Dependent Ecosystems* (DPI 2016), potential GDEs were categorised, based on their degree of dependence on groundwater. GDEs are divided into three main categories, comprising:

- non-dependent (ie do not access groundwater);
- facultative (have some degree of dependence on groundwater); and
- entirely dependent/obligate (ie essential to ecosystem functioning).

Non-dependent ecosystems include drier terrestrial vegetation that does not overlie groundwater and rely solely on rainfall for ecosystem functioning. Ecosystems with a facultative dependence would rely on groundwater to support ecosystem functioning but would also rely on rainfall and surface flows. Entirely dependent/obligate ecosystems are solely dependent on groundwater for functioning (ie karst/cave ecosystems).

Ecosystems with a facultative dependence can be further divided into three sub-categories, including:

- opportunistic: these ecosystems will use groundwater where available, but can exist without the input of groundwater, if there is no prolonged drought. Examples of opportunistic ecosystems include coastal mangroves, saltmarshes and Banksia woodlands.
- proportional: these ecosystems take a proportion of their water requirements from groundwater, however there is no absolute threshold for groundwater availability below which ecosystem structure or function is impaired and can respond to changes in groundwater at any level. Examples of proportional ecosystems include glacial lakes and alpine bogs; and
- highly dependent: these ecosystems take a high proportion of their water requirements from groundwater and can only tolerate small changes in groundwater levels for short periods of time. Examples of highly dependent ecosystems include Paperbark swamps in northern Australia and wetlands of the basalt plains in Victorian.

The categories of groundwater dependency identified in the *Risk Assessment Guidelines for Groundwater Dependent Ecosystems* (DPI 2016) are summarised by the flowchart shown on Plate 8.1.

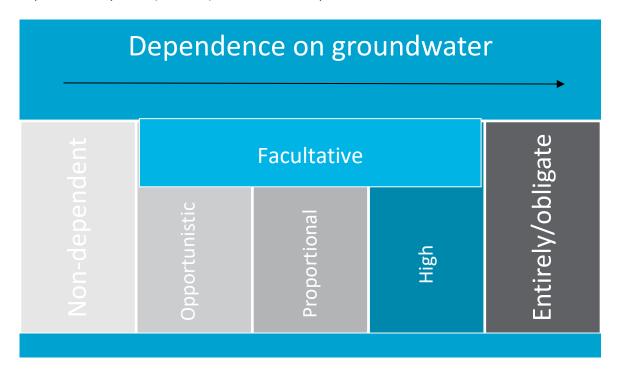


Plate 8.1 GDE categories

8.2.5 GDE identification

The proportion of each PCT with shallow groundwater access vs the proportion with no access was assessed. The proportion was combined with the level of groundwater interaction to determine the level of groundwater dependence, in accordance with the criteria in Table 8.1.

Table 8.1 Groundwater dependence categories

Dependence and risk	Proportion of PCT accessing groundwater			
	0-25% of PCT has access to shallow groundwater	25-75% of PCT has access to shallow groundwater	75-100% of PCT has access to shallow groundwater	
Groundwater dependence	Non-dependent	Facultative/opportunistic GDE	Obligate/entirely-dependent GDE	
Risk of impact	Low	Moderate	High	

The water sharing plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020 specifies 119 high priority GDEs within the Lachlan Fold Belt Murray-Darling Basin Groundwater Source. These include 65 high priority springs/wetlands and 54 karst environments.

8.2.6 Risk assessment

Ecosystems were classified in accordance with the risk matrix in Table 8.2Error! Reference source not found., following Serov et al (2012).

Table 8.2 GDE risk assessment matrix

Category	Risk category		
	1 Low	2 Moderate	3 High
1 High ecological value	А	В	С
2 Moderate ecological value	D	Е	F
3 Low ecological value	G	Н	I

Table 8.3 defines the ecosystems that fall within each category in Table 8.2.

Table 8.3 Ecological value definitions

1 High ecological value	2 Moderate ecological value	3 Low ecological value
GDEs where only slight changes in groundwater quantity and quality would result in their loss (ie obligate GDEs)	GDEs where a moderate change in groundwater availability would change their distribution, composition or condition	A highly modified GDE
GDEs located in a state or federal reserve system (eg National Park)	GDEs that provide ecological services to other ecosystems including rivers, wetlands and estuaries	A GDE that would involve a large cost to rehabilitate, in a catchment containing other GDEs in moderate to good condition
GDEs in relatively unaltered and good condition	GDEs in moderate to good condition	-
GDEs that are habitat for critically endangered or endangered species and/or communities listed under the BC Act, FM Act and/or EPBC Act.	GDEs that are habitat for vulnerable species and/or communities listed under the BC Act, FM Act and/or EPBC Act.	-
-	GDEs that can respond to changes in water availability and/or quality	-
-	GDEs that only play a minor role in ecosystem functioning (ie at the end of a dry season or during extreme drought)	-

8.3 Results

The GDE Atlas (BOM 2013) does not show any terrestrial GDEs as occurring in the project area. No high priority GDEs are identified in the water sharing plan for NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020.

The groundwater dependence, ecological values and risks are assessed for each GDE in Table 8.4. PCT 766 is likely to be an obligate/entirely-dependent GDE; however, this PCT will be removed by the project and it not considered further.

Table 8.4 Ecological values of and risks to GDEs

PCT	Proportion accessing shallow groundwater	Groundwater dependence	Risk of impact	Ecological value	Risk category
727	0-25%	Non-dependent	Low	Moderate (contains vulnerable species habitats)	
951	25-75%	Facultative/opportunistic GDE	Moderate	Moderate (contains vulnerable species habitats)	
1330	25-75%	Facultative/opportunistic GDE	Moderate	High (contains CEEC)	В

Although terrestrial GDEs are not predicted to occur in the project area, parts of PCT 951 and 1330 overlie areas of predicted shallow groundwater from 0 to 20 mbgl, and would likely range from having a very high (ie 0-2 m) to very low (5-20 mbgl) interaction with groundwater (Figure 8.1). Opportunistic GDEs are mainly located north and south-west of the TSF, with smaller patches south and south-east of the TSF (Figure 8.1). All other PCTs are non-dependent as they do not have access to shallow groundwater.

These PCTs represent ecosystems with a facultative and opportunistic dependence on groundwater, in that they would use groundwater where available but can exist without its input, except for times of prolonged drought. The locality was in extended drought but has experienced heavy rainfall in early 2020. Where soil moisture cannot fulfil the opportunistic GDE's water requirements they would be supplemented by groundwater.

PCT 727 is classified as non-dependent as 0-25% of its occurrence within the study area has access to groundwater (9%).

8.3.1 Impact assessment

Plants require water to maintain their structure, to grow, to transport nutrients, to make energy (ie photosynthesis) and for protection against large temperature fluctuations (PSU 2003). The plants comprising the opportunistic GDEs (ie trees, shrubs, grasses and groundcovers) would fulfil most of their water requirements by drawing on soil moisture from shallow roots. However, the more mature roots of trees and shrubs can also extend past the soil profile to access groundwater. As mentioned above, during times of low rainfall and soil moisture, trees and shrubs supplement their water requirements with groundwater. Reductions in groundwater availability during times of drought can lead to water stress in dependent ecosystems, which affects growth, transport of nutrients, photosynthesis and reduce protection against large temperature fluctuations.

This section discusses potential impacts on groundwater availability and quality for opportunistic groundwater users, PCTs 951 and 1330, retained outside the disturbance footprint.

i Groundwater accessibility

The extent of groundwater drawdown associated with open-cut mining is predicted to be steep and localised around the void and limited in extent to the mine development project area (refer Groundwater Assessment Addendum, Appendix H of the Amendment Report). As mentioned above, simulation of the TSF is simulated in the groundwater model using a highly conservative approach (the simulation of the TSF in the groundwater model is more comparable to a lined water storage dam rather than a tailings dam). Under this simulation, seepage from the TSF is predicted to result in the depth to groundwater below and around the TSF to become shallower and rise towards the ground surface. Under this unlikely scenario, this predicted change in depth to groundwater will allow terrestrial vegetation adjacent to the proposed TSF increased access to groundwater (ie increase in the extent (ha) of the three PCTs that can access groundwater).

Figure 8.1 shows the predicted changes in the extent of groundwater accessibility between the existing and end of mine conditions for PCTs 951 and 1330, which are deemed to have a facultative and opportunistic dependence on groundwater.

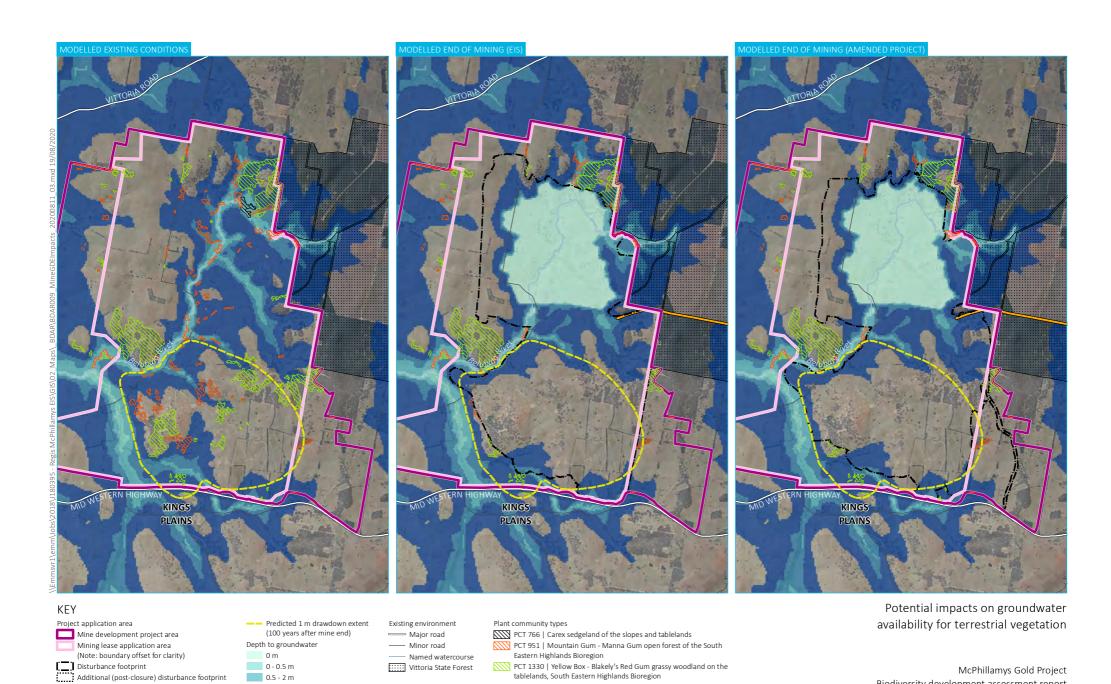
The project is predicted to result in no change to a minor increase in the extent of groundwater access for PCTs with a higher level of dependence on groundwater (ie moderate to very high groundwater interaction, or 0+ to 2 mbgl) by the end of mining and 100 years following mining (Table 8.5). This is likely to range from no impact on opportunistic GDEs in areas where no change is predicted, to a minor beneficial impact through a predicted increase to the extent of groundwater access during drought conditions under the highly conservative simulation of the TSF (eg an additional 0.69 ha of PCT 1330 with a moderate groundwater interaction will have access to groundwater at the end of mining, assisting with meeting the ecosystem's water requirements during times of low rainfall and soil moisture).

A minor reduction in the extent of groundwater access is predicted for PCT 951 (0.15 ha). Given this minor reduction in the extent of groundwater access and the very low interaction and dependence on groundwater (ie between 5-20 mbgl), water stress is not predicted to occur.

Accordingly, no negative groundwater access impacts are expected to occur for GDEs.

 Table 8.5
 Changes in access to shallow groundwater

Double to every divister (sekel)	PCT 1330 (ha)				PCT 951 (ha)			
Depth to groundwater (mbgl)	Existing	End of mine	100 years	Change	Existing	End of mine	100 years	Change
0+ (very high interaction)	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.00
0 - 0.5 (high interaction)	0.22	0.22	0.22	0.00	2.42	2.42	2.42	0.01
0.5 - 2 (moderate interaction)	0.54	1.22	1.22	0.69	1.63	1.99	1.95	0.32
2 - 5 (low interaction)	2.65	2.73	2.94	0.29	0.90	0.66	1.14	0.24
5 - 20 (very low interaction)	20.25	20.56	22.07	1.83	2.82	2.70	2.66	-0.15







Biodiversity development assessment report

Figure 8.1

2 - 5 m

5 - 20 m

— Pipeline

ii Groundwater quality

The Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report) identified the potential for groundwater quality changes because of:

- seepage from the TSF to the watertable and the Belubula River;
- seepage from stockpiles to the watertable;
- seepage from water storage ponds to the watertable; and
- introduction of varying water quality via the pipeline.

Potential impacts related to the last three hazard items have been assessed in the Groundwater Assessment (Appendix K of the EIS) and assessed to present minimal to no impacts on the water environment from a water quality perspective. The potential impacts of seepage from the TSF was also assessed in the Groundwater Assessment (Appendix K of the EIS), however as the TSF schedule has been adjusted for the amended project, this assessment has been revisited and is included in Groundwater Assessment Addendum (Appendix H of the Amendment Report).

a Multi-barrier approach to tailings seepage management

As reported in the EIS (Appendix K and ATC Williams 2020), the TSF is designed to operate effectively and efficiently, and in consideration of the requirements of the NSW Government. The TSF is designed specifically to avoid adverse impacts to the surrounding environment and contain all water during large rainfall events (no spill risk).

Regis has adopted several leading practices to produce a mine design that avoids and minimises impacts to water assets, which includes a multi-barrier approach as part of the design of the TSF. The multi-barrier approach is presented graphically on Plate 8.2.

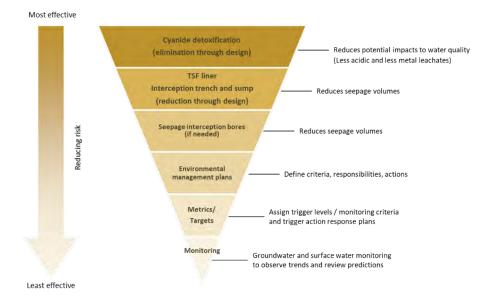


Plate 8.2 TSF multi-barrier approach

To reduce seepage volumes and rates, the TSF seepage management is proposed to comprise:

- The TSF floor will be lined using a combination of a low permeability clay liner and imported liner system. The clay liner will be constructed to a minimum 1 m thick within the existing drainage areas and a minimum 300 mm thick in areas with in-situ clay that have a permeability less than 10-9 m/sec.
- A low permeability core zone will be included as part of construction of the embankment and a deepened cut-off key extending to basement.
- A seepage interception trench located downstream of the cut-off key for the recovery of seepage and dewatering of the tailings mass.
- A downstream TSF runoff dam to intercept surface contact water from incident rainfall.
- Monitoring bores downstream to monitor groundwater quality and levels and, if required, the use of pump back bores.
- Construction of the TSF decant 770 m away from the main embankment.

b Potential TSF seepage

TSF design and assessment of the effectiveness of the TSF seepage management measures has been conducted by ATC Williams (2019 and 2020). As presented in the Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report), the purpose of the groundwater model is limited to assessing the potential impacts of the TSF on the groundwater flow system under an unlikely but deliberately conservative scenario (to assess potential seepage), and the purpose is not to provide an accurate estimate of TSF seepage rates. The groundwater model does not simulate the TSF embankment, cut-off key, tailings material or tailings deposition. The simulation of the TSF in the groundwater model is more comparable to a lined water storage dam rather than a tailings dam. The key difference between a lined water dam and TSF is that a TSF will consist of solid particles (eg ground and broken rock) and fluid, at a water content of around 20-30% and will therefore contain much less water than a water dam, which has 100% water content. The water held within the pore spaces between the tailings particles will drain slowly, driven by changing hydraulic pressures, the size of the tailings particles and pore space between the particles. The simulation of the TSF in the numerical groundwater model is therefore deliberately conservative.

The groundwater model predicts mounding of the watertable during and post -mining operations. The results of groundwater modelling (EIS base case and amended project) demonstrate that under a highly conservative scenario, with limited mitigation measures in place, seepage from the TSF is predicted to slowly migrate south-west and south of the TSF. Seepage from the TSF is predicted to remain within the saprock zone, flowing in a horizontal direction. Some of the seepage that migrates south from the TSF that is not intercepted by the seepage management system is predicted to seep towards the pit. Some seepage is predicted to move towards the Belubula River at a rate of approximately 50 m in 100 years.

The work completed by ATC Williams (2020) shows that during operations, seepage from the TSF is predicted to be very low at around 22 kL/day (peak; 3 mm/year/ m^2), with approximately 90% captured by the interception drain. Following closure, seepage from the TSF will continue due to the low permeability liner, the nature of the geology and the tailings and is predicted to reduce to 11-15 kL/day (1.4-2.1 mm/year/ m^2). This volume is very small in comparison to the Belubula River streamflow (at the gauging station downstream of the confluence with Trib A), which is estimated to have flows around 10,000 times the predicted seepage rate (during average climate conditions).

By the time TSF seepage migrates through the ground and reaches the Belubula River, the seepage water chemistry will mix with groundwater, become diluted along the flow path and will undergo other hydrogeochemical reactions. Dilution calculations () were conducted to provide a conservative estimate of the concentration of SO₄, Se, CN-Total, CN-WAD, Co, EC and Al within the saturated saprock, based on the predicted peak seepage rate (refer Section 6.2.1 in the Groundwater Assessment Addendum report, Appendix H of the Amendment Report).

The changed water quality (in particular: aluminium, electrical conductivity, sulphate, selenium, cyanide, cobalt) are estimated have concentrations that are:

- below or within the range of water quality concentrations currently measured in groundwater, and the Belubula River and its tributaries;
- below ANZECC (2000) livestock drinking water guideline values (with the exception of cobalt); and
- below ANZECC (2000) 95% protection level for freshwater aquatic ecosystem guideline values.

Table 8.6 Concentrations in groundwater following mixing with TSF seepage

	Calculated concentr	ration following mixing	Current groundwater	Current surface water
Parameter	EIS base case	Amended project scenario	concentration range ¹	concentration range ²
Aluminium (mg/L)	0.03	0.02	<0.01-140	0.01-1.2
Electrical conductivity, EC (μS/cm)	931	843	499-4,817	377-1,040
Total Cyanide (mg/L)	0.057	0.039	<0.004	<0.004
Weak Acid Dissociable Cyanide (mg/L)	0.04	0.024	<0.004	<0.004
Cobalt (mg/L)	9.4	6.3	<0.001-0.31	<0.004
Selenium (mg/L)	0.006	0.004	<0.001-0.01	0.001-0.01
Sulphate (mg/L)	213	157	7-3,000	1-190

Notes:

- 1. Water quality measured from samples collected from bores monitoring groundwater in the Anson Formation.
- 2. Water quality measured from samples collected from WED4061A (27 samples), which is a Belubula River monitoring location in the TSF area.

The opportunistic groundwater users (PCT 1330 and 951) are mainly located north of the TSF, with smaller patches to the south and south-west along the Belubula River, and directly south-east of the TSF. The main direction of potential seepage predicted is to the south-west and south of the TSF, toward opportunistic groundwater users along the Belubula River, south and south-west of the TSF (Figure 8.1). Although to a lesser extent, the groundwater model conservatively predicts some seepage north of the TSF, toward opportunistic groundwater users in this area. However, the quality of groundwater that these patches would access is not expected to change significantly from current baseline conditions.

As outlined in the Groundwater Assessment Addendum (Appendix H of the Amendment Report), the groundwater model will be upgraded over time and with additional baseline data and data from active mining. In order to further assess potential impacts of the TSF from a hydrogeochemical perspective as part of future improvements, Regis will consider revision of the how the tailings placement is simulated to refine seepage estimates and include a geochemical assessment to refine estimates of leachate concentrations.

8.4 Required mitigation

As negative impacts on groundwater access are not predicted, mitigation is not required. Impacts on water quality will be managed in accordance with the TSF seepage management system (Section 8.3.1ii).

9 Conclusion

This BDAR has been prepared in accordance with the BAM, biodiversity-related SEARs issued by DPIE and the associated agency-specific assessment requirements. A separate assessment has been completed in accordance with the FBA for the purposes of assessment by the Department of Agriculture, Water and Environment.

Regis has carried out annual biodiversity surveys within the mine project area since acquiring Exploration Licence 5760 in 2012 and biodiversity surveys between 2018 and 2020 in the pipeline corridor. These surveys have been carried out in parallel with, and have informed the evolution of, the mine and pipeline design. This process has ensured the avoidance and minimisation of biodiversity constraints as far as practicable.

The mine development requires 2,541 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the project also requires 2,431 species credits for the Koala and 2,651 species credits for the Squirrel Glider. The pipeline development requires a total of 363 ecosystem credits (southern option) or 331 ecosystem credits (northern option) to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the project also requires 833 species credits to offset the residual impacts of the pipeline development (northern option) and 968 to offset the pipeline development (southern option). Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

The BDAR has also considered impacts on species and ecological communities listed under the EPBC Act. The mine development is expected to result in significant impacts on Box Gum Woodland and the Koala, while the pipeline development is not. As the McPhillamys Gold Project is being assessed in accordance with the bilateral agreement made between the NSW and the Commonwealth under Section 45 of the EPBC Act, impacts on this listed ecological community and species will be compensated through the implementation of the biodiversity offset strategy.

References

Ason Group 2019, McPhillamys Gold Project pipeline traffic impact assessment, report to Regis Resources. LFB Resources

ATC Williams (2020) McPhillmays Gold Project Tailings Storage Facility Design Review and Response to submissions received in relation to the Development Application and associated EIS

Baker-Gabb D 2011, The National Recovery Plan for the Superb Parrot, www.environment.gov.au, viewed April 2019

Bamford M, Watkins D, Bancroft W, Tischler G and Wahl J 2008, *Migratory birds of the east Australian flyway:* population estimates and internationally important sites, Wetlands International, Oceania.

BOM (Bureau of Meterology) 2013, *Groundwater Dependant Ecosystem Atlas*, http://www.bom.gov.au/water/groundwater/gde/map.shtml

Commonwealth of Australia, EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory), Department of the Environment, Canberra.

Constructive Solutions 2019, McPhillamys Gold Project mine traffic impact assessment, report to LFB Resources.

2020, McPhillamys Gold Project Traffic and Transport Addendum, report to LFB Resources

DEC (Department of Environment and Conservation) 2004, *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities*, Department of Environment and Conservation) NSW DEC, Hurstville.

DECC (Department of Environment and Climate Change) 2008, Koala Recovery Plan, NSW DECC, Hurstville.

 2009, Threatened species survey and assessment guidelines: field survey methods for fauna: Amphibians, NSW Department of Environment and Climate ChangeSydney: NSW Department of Environment and Climate Change.

DECCW (Department of Environment, Climate Change and Water) 2010a, *The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, NSW DECCW, Sydney.

2010b, National Recovery Plan for Prasophyllum petilum, Department of Environment and Climate Change and Water (NSW), Hurstville,
 http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plans/national-recovery-plans/prasophyllum-petilum.

DEH (Department of the Environment and Heritage) 2006, EPBC Act Policy Statement 3.5 White Box Yellow Box Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands, Department of the Environment and Heritage, Canberra.

Department of Agriculture, Water and the Environment (DAWE) 2020, *Species Profile and Threat Database*, www.environment.gov.au/sprat

Department of the Environment (DoE) 2013a, Matters of National Environmental Significance Significant Impact Guidelines 1.1, DoE, Canberra

- 2013b, *Draft Survey Guidelines for Australia's threatened orchids*, Department of the Environment, Canberra.
- 2014, EPBC Act Referral Guideline for the vulnerable Koala, Department of the Environment, Canberra.
- 2015, The Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed

migratory shorebird species, Department of the Environment, Canberra.

Department of the Environment and Energy (DOEE) 2019, *Leucochrysum albicans* subsp. tricolor — Hoary Sunray, Grassland Paper-daisy, http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=56204

DEWHA 2010a, *Survey guidelines for Australia's threatened frogs,* Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra

- 2010b, Survey guidelines for Australia's threatened birds, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra
- 2010c, Survey guidelines for Australia's threatened bats, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra
- 2011a, Survey guidelines for Australia's threatened mammals, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra
- 2011b, Survey guidelines for Australia's threatened reptiles, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra

DPIE (Department of Planning, Industry and Environment) 2020, *Areas of Outstanding Biodiversity Value register*, https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/areas-of-outstanding-biodiversity-value-register, accessed 16 July 2020.

DPIE 2019, Priority 5 Mapping Area (P5MA) Vegetation Extent. VIS_ID 4172

EMM 2019a, *McPhillamys Gold Project Mine Development Biodiversity Assessment Report*, prepared for Regis Regis Resources by EMM Consulting Pty Ltd.

- 2019b, *McPhillamys Gold Project Environmental Impact Statement*, prepared for Regis Resources by EMM Consulting Pty Ltd.

EMM 2020a, *McPhillamys Gold Project Amendment Report*, prepared for LFB ResourcesRegis Resources by EMM Consulting Pty Ltd.

EMM 2020b, *McPhillamys Gold Project Submissions Report*, prepared for Regis Resources LFB Resources by EMM Consulting Pty Ltd.

EnviroKey 2017, Local setting and biodiversity constraints analysis (draft), prepared for R.W. Corker & Co. Pty Ltd on behalf of Regis Resources Regis ResourcesLFB Resources Ltd by Envirokey Pty Ltd.

Environment, Energy and Science (EES) 2020, *Hygiene guidelines*. *Protocols to protect priority biodiversity areas in NSW from Phytophthora cinnamomi, myrtle rust, amphibian chytrid fungus and invasive plants,* Environment, Energy and Science.

NSW National Parks and Wildlife Service (NPWS) 2001, *State recovery plan (2001-06) for the Bathust Copper Butterfly*, https://www.environment.gov.au/resource/recovery-plan-bathurst-copper-butterfly-paralucia-spinifera-2001-2006.

OEH (Office of Environment and Heritage) 2012a, *National Recovery Plan for Small Purple-pea (Swainsona recta), Hurstville, NSW*, http://www.environment.gov.au/resource/small-purple-pea-swainsona-recta-national-recovery-plan.

- 2012b, National Recovery Plan Booroolong Frog (Litoria booroolongensis), Hurstville, NSW, http://www.environment.gov.au/resource/booroolong-frog-national-recovery-plan.

- 2016, Threatened flora survey guidelines, https://www.environment.nsw.gov.au/resources/threatenedspecies/160129-threatened-plantssurvey-guide.pdf
- 2014a, Framework for Biodiversity Assessment NSW Offsets Policy for Major Projects, Office of Environment and Heritage.
- 2015, State Vegetation Type Map: Central West / Lachlan Region Version 1.4. VIS_ID 4468
- 2017, Biodiversity Assessment Methodology, Office of Environment and Heritage.
- 2018, State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS_ID 4778, Office of Environment and Heritage.
- 2020a, NSW Vegetation Information System: Classification, http://www.environment.nsw.gov.au/NSWVCA20PRapp/default.aspx
- 2020b, Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method, Office of Environment and Heritage.

OzArk (OzArk Environmental & Heritage Management Pty Ltd) 2019, *McPhillamys Gold Project Mine Development Biodiversity Development Assessment Report*, prepared for Regis Resources by OzArk Environmental & Heritage Management Pty Ltd.

Phillips S and Callaghan 2011, The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus, *Australian Zoologist*, 35(3), 774-780.

Premise Australia 2020a, *McPhillamys Gold Project Water Pipeline, Prasophyllum petilum expert report*, prepared for EMM Consulting by Premise Australia.

Premise Australia 2020b, *McPhillamys Gold Project Water Pipeline, Acacia meiantha expert report*, prepared for EMM Consulting by Premise Australia.

Rayner L, Stojanovic D, Heinsohn R and Manning A 2016, *Breeding ecology of the superb parrot Polytelis swainsonii in northern Canberra: 2016 Nest Monitoring Report*. Report to Environment, Planning and Sustainable Development Directorate Australian Capital Territory Government, Australian National University, Canberra.

Royal Botanic Gardens and Domain Trust 2020, *PlantNet (The NSW Plant Information Network System)*, http://plantnet.rbgsyd.nsw.gov.au/

Sinclair, S 2010, National Recovery Plan for the Hoary Sunray Leucochrysum albicans var. tricolor. Department of Sustainability and Environment, Melbourne. http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plan-hoary-sunray-leucochrysum-albicans-var-tricolor

Sustainable Soils Management Pty Ltd 2019, *McPhillamys Gold Project Land Capability and Soil Assessment*, prepared for Regis Resources by Sustainable Soils Management Pty Ltd.

TSSC (Threatened Species Scientific Committee) 2006, Commonwealth listing advice for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands, www.environment.gov.au, viewed April 2019

- 2008, Commonwealth listing advice for Clandulla Geebung, <u>www.environment.gov.au</u>, viewed July 2020
- 2012, Commonwealth listing advice for the Koala, QLD, NSW and ACT populations, www.environment.gov.au, viewed April 2019
- 2013, Commonwealth listing advice for Austral Toadflax, <u>www.environment.gov.au</u>, viewed July 2020

- 2015a, Commonwealth listing advice for Black Gum, <u>www.environment.gov.au</u>, viewed July 2020
- 2015b, Commonwealth listing advice for Pink-tailed Worm Lizard, www.environment.gov.au, viewed July 2020
- 2016a, Commonwealth Conservation Advice for the Superb Parrot, www.environment.gov.au
- 2016b Conservation Advice Petauroides volans greater glider. Canberra: Department of the Environment.
- 2016c Conservation Advice Bathurst Copper Butterfly, Canberra: Department of the Environment.

Tumino M 2010, *National Recovery Plan for the Basalt Peppercress Lepidium hyssopifolium*, Department of Sustainability and Environment, Melbourne.

Appendix A

Vegetation integrity assessment field datasheets

A.1 Mine development

entered into 5/23 PLOT 1

-This document has not been endorsed or approved by Office of Environment and Heritage or Muddy Boots Environmental Training-

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to	12/3/19	McPhillamys	727/MG/Poor)	RP 8	SW			
de	Top 3 native species in All other native and ex	n each growth form group: Fu otic species: Full species ner	ill species name mandatory ne where practicable	N, E or HTE	Cover	Abund	stratum	vouche
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





Biobanking Plot Sheet - Transect

Proposal ID: 5180395	Proposal Name:	Zone ID:
Veg Type: 722 MG	- POOR	
Coordinates: Start Transect Easting/Northing	:-33.48843	,149,31964
Coordinates: End Transect Easting/Northing	-35.883335	,149,319



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	SO	Avg (%
Canopy Cover (% - see Specht)	40	15	20	0	10	60	40	15	5	55	
Mid Storey Cover (shrubs > 1m)	-	1	-	-	-	-	-	-	-	-	0

50 m Transect (every 1 m)	1	-	2	3 4	5	6	7	8	9	10	11	12	13	14 1	15 1	6 1	7 1	8 1	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	5 4	6 4	48	49	50	0 9
Ground Cover (shrubs < 1m)	4	L	1	-	L		L			4	1	4	1	1	1	1	1	-	-									1	1		4	1	1	1	1	1					1	1	1	1		L		L	1
Exotic shrubs (<1m)														1																																			
Ground Cover (grasses)	1		L	1	4		1	1	1	1	1		1				1		1	1						1		1				1	1	1	1		1				1		1	1				L	1
xotic grasses																																																	
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Hollow-bearing trees - 1 Logs - 71 Ready to enter Entered into 3123

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= G	Cirsium viulas	L	NIM KIN	E	0.1	19	- A 8 A M	
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ... 100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

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Veg Type: 074 110	1161)	
Coordinates: Start Transect Easting/Northing		

-33,481572 149.345737



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	00	99	75	45	-		-	-	15	30	0
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)	- 13	2 2	3	4	5	6	7	8	9 10	11	12	13	14	15	16	17	18	19	20 2	1 2	2 2	3 2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41 4	42 4	13	44	45	16 4	7 4	8 49	9 50	0 5
Ground Cover (shrubs < 1m)	4	L				1	1												1		1			L																				1				1
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

P6+ 3

Biobanking Plot Sheet - Transect

Proposal ID: 180395	Proposal Name:	Zone ID:
Veg Type: 7 2 7		
Coordinates: Start Transect Easting/North	ing: - 33.48 25	5, 199,34527
Coordinates: End Transect Easting/Northin	18: -33.4829	1,149.34544



0 m Transect (every 5 m)	5		10	15	1 3	20	25	30	35	5	40	45	50	Avg (9	6)																				
Canopy Cover (% - see Specht)	40) [20	40	1	5	40	30	5	-	2	60	55		0																				
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	-	_						1	1					10	0																				
3 m Transect (every 1 m)	1	2	3 4	5	6 7	7 8	9 10	11 1	2 13	14 1	16	17 18	19 20	21 2	0 2 23	4 25	26 27	28 2	9 30	31	32 3	13 34	35	36	37 3	18 39	40	41	42 4	3 44	45	46 4	47 48	3 49	50
0 m Transect (every 1 m) Sround Cover (shrubs < 1m)	1	2	3 4	5	6 7	7 8	9 10	11 1	2 13	14 1	5 16	17 18	19 20	21 2	2 23	4 25	26 27	28 2	9 30	31	32 3	3 34	35	36	37 3	18 39	40	41	42 4	13 44	45	46 4	47 48	8 49	50

Holos-bearing trees - 1 Logs - 50 -This document has not been endorsed or approved by Office of Environment and Heritage or Muddy Boots Environmental Training-

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GF		each growth form group: Fi	ill species name mandatory me where practicable	N, E or HTE	Cover	Abund	stratum	voucher
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF = circle code if top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





Biobanking Plot Sheet - Transect

Proposal ID :	Proposal Name:	Zone ID
Veg Type: 727 PCT		
Coordinates: Start Transect Easting	Northing:	
Coordinates: End Transect Easting/I	Northing -	

50 m Transact (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	20	40	40	15	5	20	30	15	20	40	
Mid Storey Cover (shrubs > 1m)	-		-	-	-	-	-	-		-	0.



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READY TO ENTER.
ENTERED INTO SURVEY 123

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400 m²	plot: Sheet \ of \	Survey Name	Plot Identifier		R	ecorders		
Date	13/03/2019	J180395	\$ 5 0 0 0 0 mg	56h	J.RP			
GF Code	Top 3 native species in All other native and exo	each growth form group: F tic species: Full species ne	uli species name mandatory me where practicable	N, E or	Cover	Abund	stratum /	Youcher
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





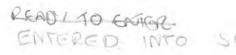
Biobanking Plot Sheet - Transect

Proposal ID: 18039	Proposal Name:	Zone ID:
Veg Type:		



0 m Transect (every 5 m)		5	10	1	15	-	20	1	25	3	0	35	5	40	-	45	+	50	Av	g (%)	1																								
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400 m²	plot: Sheet \ of \	Survey Name	Plot Identifier		ADDRESS OF THE PARTY OF THE PAR	ocorders	-	
Date	13/03/19	J180395	6,	564	JARF	CONTRACTOR OF THE PARTY OF THE	error arrord amount for	-
GF Code	Top 3 native species i All other native and ex	n each growth form group: Ful cotic species: Full species nam	l species name mandato e where practicable	N, E or HTE	Cover	Abund	stratum /	Vouch
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF = circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 6 13/3/19



Proposal ID :	180	395	Proposal Name:	Zone ID:
Veg Type:				
Coordinates: Sta	t Transect Eas	ting/Northin	g :	
Coordinates: Fno	Transact East	ing/Northine		

50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	15	25	5	5	28	20	1	20	20	30	0
Mid Storey Cover (shrubs > 1m)	-	-	-	-	-	-	-	-	-		0

50 m Transect (every 1 m)	-	1	2	3	4	5	6	7 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	4 3	5 3	6 3	7 3	8 3	39 4	40 4	41	42	43	44	45	46	47	48	49	50
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mostly little & bore ground. Hollows - 1 Logs - 42

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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Biobanking Plot Sheet - Transect

Proposal ID: 80395	Proposal Name:	Zone ID:	-33 45569	449.33787
Veg Type:			1000	
Coordinates: Start Transect Easting/Nor	rthing:		-371/1	11 0 77500
Coordinates End Transact Casting/Nort	thinks o		-53.456MM	1117 33616



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	0	0	80	0	0	0	0	0	0	0	0
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)		1	2	3	4	5	6	7	8	9	10 1	1 :	12 1	3	14 1	5 1	6 1	7 1	8 19	20	21	22	2 23	3 24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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Ground Cover (other)		-	-	+	1	+	+	+	+	1	+	+	+	+	+	+	+	1	+	1	-		-	-	-		_	-						L		L		-	-	H					-	-	+	1	+	+
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MOSTER GARG GROUND + LITER.
HOLLOW BROTTING trees - 0
Logs - 4

PLOT 3 PCT 654

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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ... 100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 8

Biobanking Plot Sheet - Transect

Proposal ID: 7180395	Proposal Name:	Zone ID:		
Veg Type:			-33, 488/6	149.3012
Coordinates: Start Transect Easting/Northing	:		-37 1,00 AG	1119.27180
Coordinates: End Transect Easting/Northing] 33.46201	191,29100



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	55	80	20	80	15	20	-	~	~	15	C
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)	1	2	3	4	5	6	7	8	9	10	11	12	13	4 1	5 1	6 1	7 1	1 15	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	9
Ground Cover (shrubs < 1m)	4	L							1	1	1	1	1	1	1	-	-	1	1				1	1	4	1	1	1	1	4	4		4	1	1	-	-	1	4									Ш	L	-
exotic shrubs (<1m)										1	1	1	1	1			1	-								1	1	1	1			-		1	1	1		1										Ц	L	-
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xotic grasses	1	1			1					1			1	1											1				1	1						1			1						1	1				L
Ground Cover (other)								1		1	1	1	1	1		-	1			1			-	1	1		1		1		1	1	-	-	1	-	1		1											-
xotic other										1		1	1	1		1									1			1					1			-	- 1		1											

Hollow-bearing trees - 0 Logs - 0

Evalephus metiodora

ENTERED INTO 3123

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uu m- i	olot: Sheet	01	Survey Name	Plot Identifier	-	And the second	corders	NAME AND ADDRESS OF THE OWNER,	The second second
Date	10/21	10	McPhilanys		RPZ	SG)		
Date	7131				U WATEVELEY		-		
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF = circle code if top 3.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 18, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 9

1/2/10

Biobanking Plot Sheet - Transect

Proposal ID: J180395	Proposal Name:	Zone ID:
Veg Typet, GONIO Calen	# =	1:10
Coordinates: Start Transect Easting/Northing:	-	0.10
Coordinates: End Transect Easting/Northing:		



50 m Transact (every 5 m)	5	10	15	20	25	-	100			1	1
Canami C	11.5	2		-	45	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	143	20	20	50	10	45	25	10	95	20	110 [70]
Mid Storey Cover (shrubs > 1m)		-						7	-	20	
(Sirubs > 1m)				-	-	-	-	_		Car I	

50 m Transect (every 1 m)	1	2	3 4	5	6 7	8	9 1	0 11	12	13 1	4 15	1			T	T	T	T		1	T	1	T				_	-	-	_	_										
Ground Cover (shrubs < 1m)							1	0 11		1	1	16	17	18	19	20 2	1 2	2 23	24	25	26 2	7 28	29	30	31	32	33	34	35 3	6 37	38	39	40	41 4	2 43	44	45	46	47 4	8 49	
xotic shrubs (<1m)							1		1	1	1		1	+	+	+	+	+	H	+	+	+				1	1	1	1											1	1
Fround Cover (grasses)								1	1	1			+	+	1	+	+	H	+	+	+	-			+	1	1	1	1										1		
xotic grasses						1	T		1	T		1	+	+	12	+		H	+	+	-		-	1	-	1	1	1									1	T	1		
round Cover (other)						1		1	+			+	+	+	+	H		+	+	+	-		+	1	1	1	1	L									1	T	1		
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Notes No mid Storey Verry Like larundlaner

Hollow bearing trees - 5 Logs - 191 PLOT 10

ENTERED INFO SIZZ

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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an erea of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an erea of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Biobanking Plot Sheet - Transect

Proposal ID: 19335 Proposal Name: 20

Veg Type:
Coordinates: Start Transect Easting/Northing:
Coordinates: End Transect Easting/Northing:

DIDT 10



50 m Transect (every 5 m)	5	10	15	20	20			1			
Canopy Cover (% - see Specht)	30	25	30	10	40	30	35	40	45	50	Avg (%
Mid Storey Cover (shrubs > 1m)	-	_	-	10	-0	X)	D	_	0	0	

50 m Transect (every 1 m)	-	1 2	3 .	5	6	7 8	9 3	0 11	2			T	T	T	T	П	T	1	1			-	-	_	_	_															
Ground Cover (shrubs < 1m)								0 11	2 13	14	15	16	7 1	8 19	9 20	21	22	23 2	4 25	26	27	28 2	29 3	0 31	32	33	34	35 3	6 37	7 38	39,	40	41	17 A	3 4	T			T	T	1
exotic shrubs (<1m)							1	IT	H	+	1	+	+	+	H	+	+	+	+		+	+	1	L		1							1	1		143	40	4/	48 4	49	50
round Cover (grasses)					T		1	1	H	+	+	+	-	-	H	+	+	+	H	4	+	1	L			1							1	T			1	1	+	+	+
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Hollow-bearing trees - 1 Logs -53 PCT 727

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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 11 J180395 15/3/19

75	Proposal Name:	Zone ID
Veg Type: GON: 9CA	1.1. 41 -13	1
coordinates: Start Transect Easting/N		167
Coordinates: End Transect Easting/No	ortrang :	

50 m Fransect (every 5 m)	s	10	15								
Canopy Cover (% - see Specht)	15	15	2	20	25	30	35	40	45	50	Ave (%
	-		-	10	20	15	0	20	40	40	
Mid Storey Cover (shrubs > 1m)			-	-					-	10	

50 m Transect (every 1 m)	1	2 3	4	5 6	7	8 9	10 1	1.		T	T	IT	T	T		-		-	-	-																			
Ground Cover (shrubs < 1m)							10 1	12	13	14 1	5 16	17	18 19	20	21	22 23	24	25 2	6 27	28	29	30 3	31 3	2 3	3 34	35	36	37	38	39	10/4			T	T	T	T	1	1
notic shrubs (<1m)						11	1	H	+	+	H	+	+	H	+	+	1	+			1	1							1		1	1 42	43	441.	45 4	6 47	48	49	50
ound Cover (grasses)	11					1	1	1		+	H	1	H	H	1	H	1	1.			1	1					1	1	1	1	1		1	1	+		H	+	+
otic grasses						1	11	1	+	+	H	+	H	+	+	H	1	1	1		111						1	1	T	1	1	H	1	1	+	H	1	1	+
ound Cover (other)				1		1	11	1	+		+	+	H	+	+	H	+	H	1	1							1	T	1	T		\Box	+	+		1	+	+	+
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005 -	1420		2	1

EMGA Moshed

A.2 Pipeline development

J180395 | 13 | v1 A.3

400 m² plot: Sheet _ of _ Survey Name Plot Identifier Recorders Date GF Top 3 native species in each growth form group: Full species name mandatory N, E or Code All other native and exotic species: Full species name where practicable Abund Cover stratum voucher HTE 500 2000 200 000 4000 1810 hysimadria avvenns

-This document has not been endorsed or approved by Office of Environment and Heritage or Muddy Boots Environmental Training-

400 m ² p	olot: Sheet _ of _ Survey Name Plot Identifier		Re	ecorders		
Date	727 - Intact 1					
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	N, E or HTE	Cover	Abund	stratum	voucher
	Eucoch Mrs festigata	4	5 4	30		
	E. dalvningleaner			1		
	Accera melemoxylon		0.7	4		
	4 Veronica plecheer		0.1	8		
	5 Poa siehendone		8	G 0	0	
	Microlene stipoides		2	200)	
	Solonogue bett 57.		6.1	2		
	8 Consonidlun abettun		4	200	2	
	Polysquas samhveir Golia		0 -1	2		
	10 Pter din esculontin		5	150		
	11 Longen temosolos		0.1	4		
	12 Lamondure, hongebolia		2	30		
	13 Vigla belonici (6/1.)		0.2		80	
	14 Stellara pryens 15 Acomilia pryens		6 .1	20		
	16 C		0 . 7	40		
	16 Someero gumi.		0'1	4		
	17 My des colyte		0.2	30		
	18 Ctément : 10 avistata 19 Acaéra teelbata		0 '	5		
			0-1	10		
	21 Viola 60.		0 - 1	20		
	22 ahycine clandestina		0 -1	20		
	20 Robus fruit cosus		N . 1	14		
	24 Acaene sp		0 1	1		
	25 Dichardre regions					
	26 Ozothemens déssimbles		0-1	1		
	27 Australia co.		0-1	is		
	throcheer's redicate		0 -1	10		
	Dowiesia Cari Colica		6 - 1	1		
	30 Dichelachne 50.		0.1	30		
	31 Conoridium?		0 - 1	2		
	32 Lacemotere		0-1	4		
	33 Rudtidograma Eg.		0.1	20		
	34 Stackholyia junine		0 -1	2		
	35 Platylobin Kormonn		0.5	10		
	37					
	38					
	39					
	40					
	de: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high	n threat exoti	ic GF	- circle co	ode if 'top :	3'

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

-This document has not been endorsed or approved by Office of Environment and Heritage of Muddy Books Environment

00 m² p	lot: Sheet _ of _	Survey Name	Plot Identifier		Re	corders		
Date			727- Shun	slane	1	MANUAL DESCRIPTION OF THE PARTY	O SACIONAL DE LA COMPANSION DE LA COMPAN	
GE	Top 3 native species in	each growth form group: Ful	I species name mandatory	N, E or	Cover	Abund	stratum	voucher
Code	All other native and exc	otic species: Full species man	le where practicable	HTE	0	150		
	1 Ktendin	a escolenta			-	250		
	2 Lomandia	iogilalia			40	100	00	
	3 Microlae	20 50. po.	3		40	FSE	5	
	4 alregase	shelme eggs.	@ or engage		5	15	0	
	5 Pra	lehen and			1	30	0	
		Mus billons	1-1-01		0.6	5		
	7 Hibbers		as two kolis		0.2	40	0	
	8 Phylich	THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN			0.1	2		
	1 Hedden	24/2/2 2/0/			6-3	25	0	
	10 Hypoch	een radic			6 -1	4		
	141 Halpenci	m perton			4	200	0	
		~ scorpiolder			0-1	90		
	M3 Anthoxe		Mxm		0.6	150		
	M4 Acelose	the jungohi			0 .1	3		
		Em 4. com			0 -1	3		
	16 Davies!		1 1 1 1		6 - 1	2		
	17 Carrin	3	morron .		0.1	2		
	10 Acaren				0.1	4		
	19 Oxalis	Smellous.	de		0.1	3		
		a colline			0'1	20		
	22 N D 110 W. C	vediation,			0.2	2		
	The second secon	melanoxilo			2	5		
	24 Astrala	we him Par			0-1	2		
		in speed con			0.1	10		
	Control of the Contro	e ved-vluta			0.1	1		
	27 Encelys		roleane		3	4		
	28 Pourson	es sambruil	11.16		0.1			
	The state of the s	isla i-mirea			0 '1	8		
	30 Planso	Birm formor	sun		0.3	10		
	31 accomi				1:0	20		
	32 54 mphel		vindus.		0.5	0		
	33 Lowan	dia	3-4 mm		0.1	2		
		m so.			0 1	1		
	35 Eplobin				0 11			
	36 Brach	geone sp.			0 1	2		
	37 Dichop	ojom son			0 1		•	
	38 Morro		Ci.		0.1	20		
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	F. Coder see Growth Form	n definitions in Appendix 1	N: native F: exotic HTE:	high threat e	exotic	GF - circ	HOLD CONTROL TO THE PARTY OF TH	
	- 4 - 0 - 0 - 0	4 2 2 40 45 20 25 40	00/ (faliana agree): Noto: 0 19	% cover repr	esents an ar	ea of appr $.5\% = 4 \times$	5 m. 25%	$63 \times 63 \text{ cm}$ = 10×10
a	circle about 71 cm across	s, 0.5% cover represents an ar	ea of approximately 1.4 x 1.4		0.1			
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GF Code Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name mandatory All other native and exotic species: Full species name where practicable Excall pt 1 partition 2 A coek multiplicate 4 8 4 Coppinion of the complete	400 m ²	plot: Sheet _ of _ Survey Name Plot	ot Identifier	Re	corders		
Code All other native and exotic species. Full species name where practicable 1 Ev cally ptus pariethera 2 A caeia multinary lan 3 POA EV 4 Cogginia C Siftor 5 Ev cally pt vs deling upleane 6 Rhy 1: Mos panne 7 Ptevidint as whether 8 Ny morphise 11 Porandice 12 Coop dum 5 corpodites 13 Thanda anytalis 14 My morphise 15 Publishing commissions 16 Publishing commissions 17 Stylidin craministism 18 Cony 2 a 50 19 Pints and a between the publishing constitutions 10 1 1 20 10 1 1 20 11 Stylidin craministism 10 1 20 11 Stylidin craministism 10 1 6 11 Stylidin craministism 11 Stylidin craministism 12 Cony 2 a 50 11 Pints in a septent 12 Constitution of the publishing constitution of	Date	119	1- Spence		x T) m	
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3 POA SP 4 Coffinia Siftor 5 Eucah ptus daling inpliana 6 Rhy 1: Nos pama Dig 7 Pteridini esularhin 8 Khi his ponna sual 1 500 9 Verbnica 10 Hyperheevit radicate 11 Porande in an phylla 12 Coronidum 5 cor probles 0 0.6 200 13 handa auttahr 14 My drowth Lawthra 15 Robers from ways 16 Cony 2 a 5P 17 Stylikim gramini folim oli 20 20 Davielia din scamini folim signature 21 Hisharia dottila signature 22 Lissanta signature 23 Viola betonici folia 24 Cheilanthes authorem bic 0.1 2 25 home ones tumbulus 0 1 2					17		4
4 Cage in a 51 ftp. 5 Eveal ptvs deling inpliane 6 Ring 1: Abs perme big 2 30 7 Pteridial esculation 8 Ky his porme small 1 500 9 Verbrice 10 14 ye cheerif radicate. 11 Porandere in an phylle 12 Caronidian scorp whes) 13 Themele auxiety 14 Hyprocatel language 15 April alian graminifolium 17 Stylidian graminifolium 18 Cany 2 a 5 p 19 Pints radicate 20 Daviera a diata 21 Hibbertia distribute 22 Lissanthe scorps termbic 24 Cheilanthes auxietembic 25 horne aps termbic				K	24	700	1000
5 Evch pt vs daling upleane 6 Rhy 1: Mos perne 7 Ptevidine oscilentum 8 Khy hosponia small 1 500 9 Verbrica 10 Hyperticeris radicate 11 Porandera mian phylle 12 Coronidum 5 corpolities 5 13 Themela anythely 14 Hyprocophe language 15 Robers fruit was 16 Pints fruit was 17 Stylidian graminifelium 18 Cory 2 a 5P 19 Pints radicata 20 Daviesia de stylidia of 20 21 Hibbertia do of 20 22 Lissante scopide 0 1 1 23 Viola betonicipila 24 Cheilandes augustus 25 horm corpus fruits de of 2				0.4	15		l
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7 Pteridine escalation 8 Kh blooponie suall 1 500 9 Verbrice 0.1 20 10 14 policeir padicate 2 700 11 Porandre nian phylle 0.1 20 12 Coronidum 8 cor probles 9 0.6 200 13 Thenede anytely 0.1 3 14 My drowthe lattere 0.1 3 15 Proby flictury 0.1 3 15 Proby flictury 0.1 6 17 Stylidian aranjulation 0.1 6 18 Pints radiate 0.1 1 19 Pints radiate 0.1 1 20 Davieria di obtivitate 0.1 20 21 Hibbertia obtivitate 0.1 5 22 Lissante sconde 0.1 5 24 Cheilandes apportantoic 0.1 1		THE RESIDENCE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAME		2	30		
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15th parts flutioners 16 Anti-examination gram 17 Stylidium graminitation 18 Corny 2 a 5 p 19 pints radiata 20 Davieria thin plant 20 Davieria thin plant 21 Hibbertia to obtroitate 22 Lissante scrittia 23 Viola betoricifolia 24 Cheilanthes arportem bic 25 Corne carpes femaloshy 0.1 2					3		
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20 Daviesia thu plub 0.4 30 21 Hibbertia dotrible 0.1 2 22 Lissante scride 0.1 1 23 Viola betoricibila 0.1 5 24 Cheilantes arpetembic 0.1 1 25 Game corps functions				0.1	6		
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21 Hibbertia. Obtosibile 0-1 2 22 Lissante sapidé. 0-1 1 23 Viola betoricibila 0-1 5 24 Cheilandes apprétent bie 0-1 1 25 home corps tenutoles 0-1 2		19 pints radiata		0 - 2	20		
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24 Cheilandles arpstemblic 25 arnemps fenovoldes 0.12		22 Lissante	sande,	0 . 1			
25 homempre femintables				0.1	3		
		THE RESERVE THE PARTY OF THE PA	"C	0 - 1			
26 Mimbaine strosses				0.1	2		
				4	> 000		
27 Wahlerserjin sy).		27 Wahrenjin syl.		0 -1			
28 Deux (5): (blitchine)			Meluline ()	0.1			
29 Evagnostis Monnie		29 Craçustis Bronni		01	2		
30		30					
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400 m ²	plot: Sheet _ of _ Survey Name Plot Identifier	Valence and the same of the sa	NAMES DE LE SAMO DE LE	elantica des mecanicamo		
Date	Survey Name Plot Identifier		R	ecorders		
	TONG 1			×80		
GF	Top 3 native species in each growth form group: Full species name mandatory		The second secon			
Code	At other native and exotic species: Full species name where practicable	N, E or HTE	Cover	Abund	stratum	vouche
		7				
			13/15	170	0	
	cassima atton		5	20	0	
	Acceta melanoxylon		0.7	12		
	Pinny radiata		1	4		
	Senceto cunii		0.2	20		
	Mantejo lanceolata		0.7	300		
	Rytidosperma sp.		~	400		
	« Robus Énticosus		0.5	700	70	
	9 Mtorolcere stipsodes		0.3	2		
				100		
	10 Oxalis parverens		0 . 2	80		
	Geranium vocatte		0 .1	2		
	12 Clistem volgone		0 . 2	20		
	13t Sancher asper		9 . 1	10		
	14 Hardenbenne violage		0.2	4		
	15 Lomendre 3-4		0.8	100		
	Aprohessis vadiceta			800		
	Legi-maetria avvenir					
	THE PARTY NAMED IN COLUMN TWO IS NOT THE PARTY N			200		
	18 Lomandra longifoi.a		0.1	2		
	19 Xprochingson brief brief		0.2	6		
	20 Dilhannie		0-2	8		
	Veronde pleiber		0.2	20		
	22 Hilbertia Ostroibolia?		0 . 1	2		
	23 Serrécio quedichentetis		0.2	30		
	24 Phaleny/50		0 - 2	0		
	25 Ly Arm hyropibolia		0.1	1		
	26 Elchon sp.		0.1	6		
	27 Hyperium perbonatum		0 - 1	10		
	28 Acetoselle vulgais			10		
			0 . 2	040		
	30 5 0		0 .1	5		
			0.1	4		
	Frichtim nigma		0.1	10		
	56		0.1	50		
	36					
	37 Souther					
	38					
	so Scattered surface mut					
	40					
GE Cod	e: see Growth Form definitions in Appearation					

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

	Survey Name Flot lucitude	THE RESIDENCE AND PARTY OF THE PARTY.	A STREET OF THE PARTY OF THE PA			NAME OF TAXABLE PARTY.
Date	1197-Shurb1					
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	N, E or HTE	Cover	Abund	stratum	voucher
	Acerra dedoata		10	70		
	2 A. melamoxylon			5		
	3 Rubus farticosus		25	400	•	
	4 Poc billardiori hvyetunet	*	10	200	>	
	5 D'Ilmonie		0.1			
	6 Rhydidsperme sp.		5	3	, 30	00
	7 Austrost: ba enstylmin?		4	300	20	5
	8 Minglane « Li) poi des		0.6	200		
	9 Oxche peneng		0.2	100		
	18 Lugimechia anvenis		0-3	8		
	11 Sonecio 5 r. pufle		0 - 1	10		
	12 Geranium		0 - 1	4		
	13 Hydrocotyle		0.1	2		
	194 Acidosilla vvigav.		0.1	30		
	to the Pinns radiata		2	2		
	Lomandre flat, 3-4m		0 .1	1		
	1/5 olanne nicrem		0.2	40		
	18 Cirium volgabe		0.4	30		
	49 Planters l'auren lete		4	200	•	
	20 Sourens gruadridantetrs		0.1	4		
	21 Euchptos pomiélare		4.0	1		
	so Sonellin alper		0.5	20		
	De James of		0.1	4		
	o Plantogo themastre					
	25 tritolivm 5p.		0.2	300		
	26 Hypochenin væddieta		5	200	0	
	27			/		
	28					
	29					
	30					
	31					
	32					
	34					
	35					
	36					
GF	Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: hig	h threat exot		- circle c		

Plot Identifier

Recorders

00 m² plot: Sheet _ of _

Survey Name

GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF - circle code if 10p 3.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ..., 100, 200, .

e ID:	119	7-5	port	Survey type:Quadr	at 20m x 20		x vo	
ecies		Cover	Abund.	Species		Co	over A	Abund.
E. dalvymore	2.44	9 6		41				
THE RESIDENCE OF THE PERSON NAMED IN COLUMN 2 IN COLUM		6	1	42				
z. Aives		2		43				
E. melliodora		1	20	44				
assinia sifton		16	200	45				
Paa labollordieri	11 1	10	300	46				
Hypochener's vo	-dicata	0 .1	2	47				
sephecio quan	•	0 1		48				
Lepidium 5		0 .1		49				
Danes glacks	dearus	0-1		50				
Rhitidedon	e sf.	2	1000					
Phalcris sp.		0 - 1	20	51				
Centamin	connes	1.00	20	52				
Xenochysm	· Q ·	0.4	3	53				
Lomandie	5	40.2			THE RESIDENCE OF THE PARTY OF T			
Microlaena stipo	·des	8	3000	55				
Viola betomicifor	· a	1.0	2	50				
THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON OF THE PERS	ibolia	1.0		57				
Propri Ludia	SVS	0.7	4	58				
Coronidium		1.0	1	59				
aonocapus.	ferm or	de 0.1	3	60				
1 Aritions	Jealover	0.2	50	61				
2 Rhytidagenna	Len	1	30	62				
3 Hovea sp.		0.1		63				
4 Daniesta count	arre	6.1		64				
5 Euchen	med	July 0.	1	65				
26 Poa siphera	Jen 1	197	9000	66				
27				67				
28				68				
29				69				
30				70				
31				71				
32				72				
33				73				
34				74				
35				75				
36				76				
37								
38				78				
39				90				
40			lover 9/ 1×1 pla	ts Q1	Q2	Q3	Q4	Q5
Sp. Richness Native	Exotic		layer % 1x1 plo					
Tree			perennial grass					
Shrub			other grass					
Grass (annual)		No. of the last of	forb & other				ME SESSION IF A	
Grass (perennial)		SEDERAL SERVICES	shrub (<1m)					
Other (annual)		Exotic						
Other (perennial)			forb & other					
			stick litter					
		Rocks	THE PART OF THE PA					
Cover abunda		Bare g	Section Control of the Control of th					
Modified Braun-bl	anquet 6 scale	CONTRACTOR OF THE PERSON NAMED IN COLUMN TWO	gams	100	100	100	100	
		Total Plot Di	eturbenee			Fire damage:		
1 <5% - ra			sturbance			Storm damage:		
2 <5% - C		MINUSESSES.	ng (inc. logging):			Trampling:		
		Cultiva	ation (inc. pastur	e).		Flood damage:		
3 5 - 25%						11000		THE RESERVE TO SERVE THE PARTY OF THE PARTY
3 5 - 25% 4 25 - 50° 5 50 - 75°	%	The state of the state of	rosion: ood collection:			Feral herbivores	s:	

400 m ²	plot: Sheet _ of _	Survey Nam	е	Plot Identifier	T		R	ecorders		
Date				nents 1					46 ×	16
GF										
Code	Top 3 native species in All other native and exol	each growth form gro tic species: Full spec	oup: Full s ies name	species name mandal where practicable	tory	N, E or HTE	Cover	Abund	stratum	voucher
	Evedyot	s black	N.				15	8		
	Paspatin	delate	the				4	250		
70	Phallens			equelive	U)		26	3000		
	Olateria		AND ADDRESS OF THE PARTY OF THE				6 . 4	80	ah	
	Avstrage	The state of the s		THE RESERVE OF THE PERSON OF T			0.2	30		
	Calotis	Lapporta	yes	7 yell	-W		0.1	m2		
	n to when	anspir.	Mue	heel of).		0.2	700	0	
	and on the						0.5	200	2	
	Verher		NAME AND ADDRESS OF THE OWNER, THE PARTY OF				0.1	1		
	10 Lonardre		CONTRACTOR AND STREET	THE RESIDENCE OF THE PARTY OF T			2	30		
		een v		THE PARTY OF THE P			0.3	200)	
	A CONTRACTOR OF THE PROPERTY O	AND DESCRIPTION OF THE PERSON	ALCOHOLD AND AND ADDRESS.	emualany			2	500		
	Everyont		Ma				0.3	20		
	Branice						0.5	20		
		1000 Marie Marie	3	redie			0 1	30		
	Lepidii						0 . 1	6		
	x Planteg	THE RESERVE AND ADDRESS OF THE PARTY OF THE		_			0 12	30		
	CONTROL OF THE STATE OF THE STA	crievin	The state of the s				0 1	6		
	to Evacust	· lecho	THE RESERVE THE PARTY OF THE PA	my c			0 1	20		
	24		_				7	800	3	
	22 Cymplen	THE RESIDENCE OF STREET, STREE						20		
	23 5 200 600	THE RESERVE THE PERSON NAMED IN COLUMN 2 I	THE RESERVE AND PERSONS ASSESSED.				0 12	5		
	& Browns	THE RESIDENCE AND ADDRESS OF THE PARTY OF TH	AT HE SHARE THE PARTY OF THE PA				01	10		
	25 Rancom		The second secon				011	7		
	26 Cumic			11. 1			0.1	11		
	27 Bothwood		ew	e le mor			0 .2	60		
	28 Poly Fidos		n .				0.1	40		
	& There		14.0	vale			0.1			
	30 Microleer	re stipos.					0.2	80		
	31 (and	so do	1 de							
	3K Cohren		8-1:				0.1			
	33 Oxtbl:1	pennen	ang				0 '1	3		
	34 Chloris	Velotica	year .	truncata			0.2	70		
	35x Echim	VULCEM	2				01	20		
	Modies	L cens	line	ene			0.1	3		
	Eulmon	sie du	mone	dic			0 1	4		
	38 Chalan	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Street, Street				0-1	6000		
	Cooper		run				6.1	100		
GF Co	de: see Growth Form defini	tions in Appendix 1	THE RESERVE THE PARTY OF THE PA	The second secon			011	3		
Cover:			O00/ /5-1:	ative, E: exotic, HTE:		reat exotic	GF -	- circle co	ae it top 3	

GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF – circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000.

THE REPORT OF	plot: Sheet _ of _	Survey Name	Plot Identifier		Re	ecorders		
Date		1330 Shrub	1					
GF	Top 3 native species in	each growth form group: Eul	Il apparies series series de des					
Code	All other native and exo	each growth form group: Ful tic species: Full species nam	ne where practicable	N, E or HTE	Cover	Abund	stratum	vouche
	Acaeta	dealsate			8	20		
		Mon meen			4	30	0	
	3 Digitais	- boomii			6	60	0	
		oussula.			3	101	0	
	A CONTROL OF THE PROPERTY OF T	ews radical			6	20	90	
		plantegla	en		3	100	0	
	* Rubus	frutticosus"			0.6	2		
		Da scalve			0.7	259	Þ	
	9 Rhytido	& penna 50.			6-4	120)	
	18 Paspall	mi Alila lat	v~~		5	60	0	
	A ce hose	the vulgeri			0.8	30	0	
	12 Cynodo	n dee Ilan			0.5	20		
	13 Canini	a sietun			2	20		
		Jona dupl			0.1	i		
	15 Av: 54:0k	a vannose			006	251	3	
	16 Planter	laneedete			2	70	2	
		effusim			0.1	6		
	18 Evacuost	o lephostechy	4		0.4	100		
	· · · · · · · · · · · · · · · · · · ·	trada ve			0'1	8		
	20 Rinner	browwii:			0 1	2		
	8. Sone hi	is asper			0.1	4		
	22 Microlae	va c't-p o. de	4		0.3	60		
	23 (A-deserve	世 环门						
	2# Totendi	16 SP.			0.1	4		
	25 D. 25 Lew				1.0	i		
	28 Phala	135 50.			20	200	200	
	27 Oxali	servenans			0 .1	20		
	28 Acaena	· 60.			0.1	2		
	29 (2000)	griddwident	atus		0.2	8		
	30 Éinadia	1 polysonioid	les		0.5	2		
	3N Bransica	50.			0 1	6		
	32 Verbancu				0 -2	20		
	いいるりふす				0 2 1	20		
	3º Com/2	SV.			1.0	8		
	35 Cheilane	Her autoter	wholic		0.1			
	38 Slaver				0.1			
	30 Setona	pilis S			0-2	30		
	38							
	39							
THE REAL PROPERTY.	40							

GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF – circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

	plot: Sheet _ of _	Survey Name	Plot Identifier		Re	ecorders		
Date		1330 - 5	Dave 1		40) X(0		
GF Code	Top 3 native species in All other native and exc	each growth form group: Ful tic species: Full species nam	Il species name mandatory ne where practicable	N, E or HTE	Cover	Abund	stratum	voucher
						2		
	Z	rodera				0.		
	A ()					1		
		penne sp.			4	200		
	The state of the s	Ellee				50		
	Description of the Control of the Co	- mate	CONTRACTOR OF THE PROPERTY OF		2.5			
		bargual 31			0 -3			
	A CONTRACTOR OF THE PARTY OF TH	Commee			6 .1			
		van avven			6.2	THE RESIDENCE OF THE PARTY OF T	0	
		eso lanced			0 . 1	10		
		un delate			0.2	50		
	12 aevan		veette		0.1	2		
		colum vulc			0.1	(
	14 Mienta				0 . 1	20		
		~ penenes			10	400	0	
	16 Echie				4	500		
	17 Lomand		chlindreal		0.1	1		
	18 Change	halm an:			0.1	3		
	THE RESIDENCE OF THE PARTY OF T	those sold			6 - 1	30		
		un obsi			0 .1	10		
	2× Branss	的现在分词 (1) 10 10 10 10 10 10 10 10 10 10 10 10 10			4	80		
	22 Snel		ems		0 .1	1		
	23 Einedia	- polysono.	des		0 1	2		
	24 Lep. d:c		abricann,		0.1	20		
	25 Lepidin		Coled Lowe	~	0 1	1		
	20 Cappis	copillans	7		6.1	60		
		, und, 50.			6.0	1000	>	
		ia bnowni	THE RESIDENCE AND A DESCRIPTION OF THE PROPERTY OF THE PROPERT		3	100		
	2º Ovoban	de 5p.	weed:		0 .1	3 4		
	20 Skeleton	wegel.			0 '	10		
	18 chicun	ellusum			0.1	3		
	33 Evodium	subaltern			0 1	4		
			veed:		0	2		
	35 Engustig				0.3	200		
	Eve Coos	tis lephoste	2		0.2	10		
	Accens				0 1	1		
	38 D. A.	ia Sumilio	g.ve		0.1	20		
	V 582	n dans			0.1			
	40 Cinodo	Dechlon			0.3.	10		
GF Co	de: see Growth Form defin	nitions in Appendix 1	: native, E: exotic, HTE: high	h threat expt		- circle c		
Cover a circle	: 0.1, 0.2, 0.3,, 1, 2, 3 about 71 cm across, 0.59	6,, 10, 15, 20, 25, 100% (some cover represents an area of	foliage cover): Note: 0 1%	over represe	nts an area o	of approxim	nately 63 x	63 cm or
Abunc	dance: 1, 2, 3,, 10, 20,	30, 100, 200,, 1000,	Capproximately 1.4 x 1.4 m,	4.0	0 1	1	, 2070 - 1	
	Tribotus	temestini			0.1	3		
	Avene	stanily.			0 1	8		
	Mod. ol	a construe	me		D.1	2		

400 m ²	plot: Sheet <u>1</u> of <u>1</u>	Survey Name	Plot Identifier	Recorders
Date	/ /	J180395	R01DNG	PR

GF	Top 3 native species in each growth form group: Full species name mandatory	NEar				
Code	All other native and exotic species: Full species name where practicable	N, E or HTE	Cover	Abund	stratum	vouche
	Bothriochloa macra			8	500	
	² Cynodon dactylon			8	500	
	3 Dactylis glomerata			0.4	500	
	4 Digitaria brownii			0.3	400	
	5 Dysphania pumilio			0.2	300	
	6 Echium vulgare			0.1	10	
	7 Enteropogon acicularis			0.2	400	
	8 Eragrostis cilianensis			3	800	
	Eragrostis parviflora			0.1	100	
	10 Eragrostis spp.			10	500	
	11 Erodium cicutarium			0.1	30	
	12 Haloragis heterophylla			0.1	50	
	13 Hypocheris radicata			0.3	300	
	14 Juncus spp.			0.1	2	
	15 Oxalis perennans			0.1	100	
	16 Panicum effusum			5	2000	
	17 Portulaca oleracea			0.1	1	
	18 Rytidosperma spp.			0.1	50	
	19 Setaria pumilio			0.1	100	
	20 Sporobolus creber			2	250	
	21 Taraxacum officionale			0.2	250	
	22 Trifolium spp.			0.2	300	
	23 Wahlenbergia communis			0.1	1	
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					
	32					
					-	
	34					
	35				-	
	36					
	37					
	38					
	39					
	40					

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF - circle code** if 'top 3'. **Cover:** 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); **Note:** 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m **Abundance:** 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

400 m ² plot: Sheet <u>1</u> of <u>1</u>	Survey Name	Plot Identifier	Recorders
Date/ /	J180395	R02 DNG	PR

	1100000 1102 Bite	FK				r
GF Code	Top 3 native species in each growth form group: Full species name mandatory All other native and exotic species: Full species name where practicable	N, E or HTE	Cover	Abund	stratum	vouch
	1 Aristida ramosa		0.1	1		
	² Conyza bonariensis		0.1	1		
	3 Digitaria brownii		0.2	150		
	4 Dysphania pumilio		0.1	10		
	5 Echium vulgare		0.2	20		
	6 Eragrostis cilianensis		0.2	100		
	7 Eragrostis curvula		3	60		
	8 Eragrostis parviflora		0.1	100		
	Eragrostis spp.		40	6000		
	10 Hypochaeris radicata		0.2	250		
	11 Panicum effusum		0.2	400		
	12 Setaria gracilis		0.1	100		
	13 Sporobolus creber		2	100		
	14 Tribulus terrestris		0.1	1		
	15 Trifolium repens		5	4000		
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
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	29					
	30					
	31					
	32					
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	36					
	37					
	38					
	39					
	40					

GF Code: see Growth Form definitions in Appendix 1 **N:** native, **E:** exotic, **HTE:** high threat exotic **GF - circle code** if 'top 3'. **Cover:** 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); **Note:** 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m **Abundance:** 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Total (m)

		8 ()				
Date 29/1/19	Survey Name M. Phillian	4115				
Recorders /C		Plot ID # 290/190/ Zone ID # Poor				
Photo # 1901/901		Plot dimensions 20x10				
Datum <i>G017-94</i>	Zone 56	Plot bearing along midline 72				
Easting 226423	Northing 6304609	Record magnetic bearing along midline from 0 m point				
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m p	point and 50 m point, looking into plot				
IBRA region						
Subregion						
Likely Vegetation Class						
Plant Community Type	#到731	Condition state Poor				

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Tionsucs plot is centred on the infame, at one point, 10 in entire side						
BAM Composition / Structure plot (400m²)						
Dimensions (circ	e applicable size)					
20 x 20 m	10 x 40 m	Sum values*				
	Trees	0				
Native	Shrubs	1				
Richness	Grasses etc	1				
(count of	Forbs	0				
native species)	Ferns	0				
	Other	0				
	Trees	O				
Cover	Shrubs	0.1				
(sum of cover	Grasses etc	95				
of natives	Forbs	Ö				
species)	Ferns	0				
	Other	O				
High threat weed cover						
*These values summarise the floristic data for input into BAM calculate						

BAM Function plot (1000m²) Dimensions (circle applicable size) 20/x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: >80 (#) Stem size class records # large trees (cf. benchmark) 50 - 79 (#) Record stems for living trees only, and for all species 30 - 49 (+/-) -For multistemmed trees, record only the largest stem 20 - 29 Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed < 5 Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows Total # <20cm

>20cm**

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

*These values summarise the floristic data for input into BAM calculator **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	100	95	90	95	160	96
Sub-plot score	Bare ground	.	Market 1	430-	-	- Sap	٥
(% cover)	Cryptogam	garante de la companya de la company			- Singer		0
	Rock	O	5	5	10	0	4

Length of logs

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief
Cultivation	0		Slope Plain
Grazing (native / stock)	0		Aspect Fast
Soil erosion	n		Soil surface texture Lebols muferial from walning
Firewood removal	0		Soil colour Black
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Coal mine rehabilitation area

Date 29/1/	2019 Survey Name Mishillar	141		I	1000		
Recorders /		Plot ID # 2			Zone ID 197 Pear		
iF code	-		Abund (count)		Stratum		
66 F4	Pou labillactiones	95		N	J.		
FG	lacturer servister	0 1	20	5	<u></u>		
ŠG.	Carinia larvis	0.4	5	N	M		
FG	Propordum acanthim	0,1	10	HTE	<u></u>		
<u> </u>		0.5	<u> </u>		L		
F4 F4 F4	Hypochaeris gledsra	5.1	50	<i>E</i>	<u> </u>		
FG.	Branien journefortii	0.1	10	HITE	<u> </u>		
<u> </u>	Geranium solandei	0.1	10	E	<u></u>		
FG	Geranium solander	0-1	5	E	<u></u>		
				VICE TO RECOMMENDE ANGENIA			
A STATE OF THE STA							

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

	•				
Date 29/1/19	Survey Name M. Ohillanny	T .			
Recorders JC		Plot ID # 2901/902 Zone ID 731 Good			
Photo # 29011902		Plot dimensions 20kTO			
Datum 40,494 Zone 56		Plot bearing along midline 90			
Easting 223568	Northing 6304157	Record magnetic bearing along midline from 0 m point			
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m point	and 50 m point, looking into plot			
IBRA region	4 102 (23 33 23 23 23 23 23 23 23 23 23 23 23 2				
Subregion					
Likely Vegetation Class		•			
Plant Community Type 73/ Condition state Local					
Concernment of the contract of	Alexander and the second secon				

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Composition / Structure plot (400m²)						
Dimensions (circle applicable size)						
20 x 20 m	10 x 40 m	Sum values*				
	Trees	S				
Native	Shrubs	4				
Richness	Grasses etc	Š				
(count of	Forbs	4				
native species)	Ferns	0				
	Other	0				
	Trees	45				
Cover	Shrubs	31.5				
(sum of cover	Grasses etc	30.7				
of natives	Forbs	0.8				
species)	Ferns	0				
	Other	0				
High threat wee	ed cover	1.5				

		0011011101101	400	e q
Function plot is an	extention of florist	tics plot out to 50 m a	long midline (or eq	uiv. area)
BAM Funct	ion plot (10	00m²)		
Dimensions	S (circle applicable	size)		***************************************
20 x 50 m	10 x 100 m			
Tree stem I	DBH (cm)	Notes on function	n attributes:	
>80	(#) ^f	Stem size class reco	rds # large trees (cf	. benchmark)
50 - 79	(#) 3	Record stems for liv	ing trees only, and t	for all species
30 - 49	(+/-)	For multistemmed t	rees, record only th	e largest stem
20 - 29	(+/-) ~	Presence of <5cm st	ems records regen	eration
10 - 19	(+/-)	Record # trees with	hollows, not numbe	er of hollows
5 - 9	(+/-)	Count as one stem v	where tree is multist	temmed
< 5	(+/-) 🗸	Hollow bearing sten	n may be a dead ste	m (incl. stag)
# Trees wit	h hollows	<20cm		Total #
	0	>20cm**		0
Length of lo	ogs			Total (m)
1777	1			6
Measure length of	logs >10cm, fully o	r partly in contact wit	h the ground, and v	vithin the plot.

^{*}These values summarise the floristic data for input into BAM calculator

nign uneat we	ed cover	1, 7		Measure length o	f logs >10cm, fully o	r partly in contact v	with the ground, and with	nin the plot.
*These values summaris	se the floristic data for ir	nput into BAM calcula	tor	**Hollows of >20	cm are recorded for	habitat for some th	rreatened species	
BAM Litter/ Gr	oundcover (1 >	(1 m plots)	Litter cover is used	for BAM, other att	ributes are useful fo	r recording site cor	ndition in general	
		1	2	3	4	5	Average	
	Litter	90	95	90	80	90	89	
Sub-plot score	Bare ground			_	en.	gatto	0	
(% cover)	Cryptogam		page.	_	-200s,	Major	0	
	Rock			_		3000m-	0	

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	1	0	Microrelief
Cultivation	0		Slope Mil Slope
Grazing (native / stock)	0		Aspect West
Soil erosion	0		Soil surface texture Class - Isin
Firewood removal	0		Soil colour Grey/Gan
Fire (ground stratum, mid, canopy burnt?)	θ		Site drainage run aff
Storm damage	0		Distance to nearest water
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes	

Date 29/1/		Diot ID#	74-1160-	Zono ID	
Recorders	JC /		29011902	Zone ID	Te
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratum
66	Austrollipa season	5		N	1 4
64	Pon sieberiana	20		N	<u>L</u>
69	Thomselve triundra	5		N	
SEI	Cassinia Caevis	20		N	M
SC.	Rosa rubjejnoza	0.2	5	MTE	in
<i>ŠE</i> ,	Leptospemiem nightolium	10		N	M
64	Dianella revoluta	0.5	20	N	<u></u>
FG FG	Myrocharin globia	0.1	50	E	4
FG	Plantago Correstata	0.1	50	E	<u></u>
94	Panicum effusion	0.1	5	N	L-
66	Lomandra filifornis	0.1	20	N	L_
FG	Gonocarpus fetragipus	0.1	20	N	4
34	Rubus fruficosus	/	5	HTE	M
l la	Ryfido spema palijolim	0.1	10	N	4
66	Aris holer sp.	0.5	20	N	<u></u>
TG	Excaliptus panciflora	25		N	U
16	Encalyphus macrorhyncha	10		N	u
SG	Pultinaea merophylla	0.2	10	N	M
Sca	Acacia dealbata	1	2	N	M
FG	Dichondra repens	0.2	100	N	<u></u>
*****	Oxalis perennans	0.1	20	N	4
FG TG	Encalyptics reliebe dalyppleans	10		N	<u>4</u>
FG	Gampohereta sp.	6.1	10	6	L.
FG	Bulbine bulbosa	0.1	5	N	
MOREOUS CONTRACTOR OF THE CONT					
Management of the second of th					
MACTON 19					
West 1900	A Indiana de la Contraction de		<u> </u>		
Process of the Control of the Contro			†		

Part					
	2AM Appendix 4) Tree (TG) Shrub (SG) Grass & grasslike (GG) Forb (FG)	<u> </u>	(0.0)	L	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum 4.5 Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

Date 29/1/14	Survey Name M. Phillan	ergi
Recorders Jc		Plot ID # 290/1903 Zone ID 73/ Poor
Photo# 29011903		Plot dimensions 2000 /0x/00
Datum GDA 94	Zone 56	Plot bearing along midline 253
Easting 223456	Northing 6304085	Record magnetic bearing along midline from 0 m point
- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	i - t). Dt - t t - k t i sell - and b asizantally at 0 m nai	nt and EO minoint, looking into plot

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

2

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m²)				
Dimensions (circle	e applicable size)			
20 x 20 m	10 x 40 m	Sum values*		
	Trees	1		
Native	Shrubs	5		
Richness	Grasses etc	7		
(count of	Forbs	T.		
native species)	Ferns	.0		
	Other	0		
300000000000000000000000000000000000000	Trees	25		
Cover	Shrubs	41.5		
(sum of cover	Grasses etc	41.6		
of natives	Forbs	路6		
species)	Ferns	0		
	Other	0		
High threat we	ed cover	10.1		
*These values summarise	the floristic data for in	put into BAM calculat		

BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: >80 (#)Stem size class records # large trees (cf. benchmark) 50 - 79 (#) Record stems for living trees only, and for all species 30 - 49 For multistemmed trees, record only the largest stem 20 - 29 Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed < 5 Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows Total # <20cm 0 >20cm** Total (m) Length of logs

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot. **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gre	oundcover (1 x 1	L m plots)	Litter cover is used	for BAM, other att	ributes are useful fo	or recording site cor	ndition in general
		1	2	3	4	5	Average
	Litter	80	70	95	75	80	So
Sub-plot score	Bare ground	20	10	0	25	5	12
(% cover)	Cryptogam	4		*Manage-		-pagesia- i	Ö
	Rock	0	10	0	0	15	5

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	O		Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	O		Distance to nearest water
Weediness	j	K	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Kristing Ripsline carement and mine rehabilitation.

Date 19/1/19 Survey Name McMillanys Recorders 10 Plot ID # 29011903 Zone ID							
	Sanua anacias (v. 1.16.)		Name and the second				
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum		
SG	Acacia dealbates	/0		N	M		
<u>54</u>	Cassinia larevis	4		N	127		
FG	Hypericum gramineum	59		N.	4		
66	Comandra bilifornis	0.5		N	<u> </u>		
46	Rytidospema publichim	15		N	4		
Th	Friedlyphis dalrympleana	25		N	4		
<u>S4</u>	pullenavea merghylla		ンケ	N	M		
SG E:	allayma cinerasieus	5		N	M		
F4	Inoppodirm scanthirm	0.2	10	=	<u>L</u>		
FG	Mantago Cancestata	5		E	4		
<u>F6</u>	Withlenbergie gracilenter	01	10	N.	L-		
<u>F</u>	Gonocarpus tetraginus	0.1	20	N	<u></u>		
FS	sereces sp.	0.1	10	N	Ĺ.		
FG	Coronidian whid slepsis	0.1	20	N	<u> </u>		
64	Panicum effusion	0.1	100	N	<u></u>		
F4	Eclim plantaganeur	0.1	10	L=	<u></u>		
<u>Sq</u>	Rubus pupicosus	5 0.1	****	HTE	M		
F6	Cullen terraiso	/	5		L		
94	Engostis aurula	5	<i>C</i> -	ME	<u> </u>		
FG.	Lysimachia arvensis	0.1	50	E	<u>L</u>		
FG.	Hypochaens glasson	0.1	200		<u> </u>		
66	Themselr triandra	5	20	$\mathcal{N}_{\mathcal{A}}$	<u>L</u>		
46	tristicle ramosa	0.5		\mathcal{N}	4		
66	Austroshipa scalare	10		N	<u></u>		
FG SG	Oxalis perennans	0.5		$\frac{\mathcal{N}}{\mathcal{N}}$	40		
	representant my notice	0.5	5	N	M		
66	Comundra longifolia	0.5	<u> </u>	N	<u> </u>		
FG	Phypericum perforation	0.1	30	HITE	<u> </u>		
	·						
mercon and a second a second and a second an							
TO CONTROL OF THE PROPERTY OF							

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Floristics plot is centred o	on the midline, at 0 m pe	oint, 10 m either side			
BAM Composition / Structure plot (400m²)					
Dimensions (circl	e applicable size)				
20 x 20 m	10 x 40 m	Sum values*			
	Trees	2			
Native	Shrubs	3			
Richness	Grasses etc	3			
(count of	Forbs	j			
native species)	Ferns	0			
	Other	0			
	Trees	35			
Cover	Shrubs	20.6			
(sum of cover	Grasses etc	5.2			
of natives	Forbs	0.1			
species)	Ferns	0			
	Other	0			
High threat weed cover 0.2					
*These values summarise	the floristic data for in	put into BAM calculato			

runction plot is an	extention or nonst	ics plot out to 30 iii a	iong manne (or equ	aiv. arca,	
BAM Funct	ion plot (100	00m²)			
Dimensions	(circle applicable	size)			
20 x 50 m	10 x 100 m				
Tree stem [DBH (cm)	Notes on function	n attributes:		
>80	(#) —	Stem size class reco	rds # large trees (cf	. benchmark)	
50 - 79	(#) —	Record stems for living trees only, and for all species			
30 - 49	(+/-)	For multistemmed trees, record only the largest stem			
20 - 29	(+/-) ~	Presence of <5cm stems records regeneration			
10 - 19	(+/-)	Record # trees with	hollows, not numbe	er of hollows	
5 - 9	(+/-)	Count as one stem v	where tree is multis	temmed	
< 5	(+/-)	Hollow bearing sten	n may be a dead ste	m (incl. stag)	
# Trees wit	h hollows	<20cm		Total #	
Ć)	>20cm**		0	
Length of lo	Length of logs Total (m)			Total (m)	
				3	
Measure length of	logs >10cm, fully o	r partly in contact wit	th the ground, and v	within the plot.	
**Hollows of >20c	m are recorded for	habitat for some thre	eatened species		

BAM Litter/ Gre	oundcover (1 x	1 m plots)	Litter cover is used	d for BAM, other att	ributes are useful fo	r recording site co	ndition in general
	Ī	1	2	3	4	5	Average
	Litter	10	90	80	60	95	67
Sub-plot score	Bare ground	· ameri	**********	"Iggspan"	5	-	/
(% cover)	Cryptogam	-	whome-	5	yamelei '		1
	Rock	90	10	10	35	5	30

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief
Cultivation	J		Slope Upper slope
Grazing (native / stock)	0		Slope Upper slope Aspect West
Soil erosion	0		Soil surface texture gravelly scend
Firewood removal	C		Soil colour lives
Fire (ground stratum, mid, canopy burnt?)	O		Site drainage
Storm damage	0		Distance to nearest water
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Rehabilitated min sile and prestin essened adjacent remark way.

Date 30/1/19 Survey Name McPhillanys Recorders Sc Plot ID # 30011901 Zone ID					
iF code			AND ASSESSMENT OF THE PROPERTY		Ta
	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratun
<u> </u>	Seacia nama	20		N	M
76	Eucalyptus nunnifera	25		N	U
T4	Encalyptus biolgesiana	16		N	4
SG GG FG	Canilia laevis	0 "5"	10	N	M
45	Rytidospema pallicleum	0.1		N	<u></u>
<u> </u>	Hypericum genforestum		10	HTE	<u>L</u>
FG	Hypericum grammeim-	0.1	25	N	1
Fa	Brachysiane rigidale Hypocharis glaba	0.1	/0	N	
Fl.	Bruchysiane rigidale	0.1	5	N	<u></u>
Fi	Hypochais glebres	0-1	10	Æ	4
46	Gragiestis paniflera	0.1	10	N	4
64 F4	Augustis pariflera Pristiola sumosa Lysimachia arvensis	0.1	5	\mathcal{N}	2
F-G	Lysimachia arvensis	0'1	fo	(3	Ċ
54 - Sy	Rosa rubignosa Acacca dealbuta	0.1	/	HITE	M
<u> </u>	Acaica dealbuta	0.1	1	N	17.

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AND					***************************************
#1491-00000000					
ALL PLEASE.					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 30/1/19	Survey Name Wilhilfamy	1
Recorders		Plot ID #3001/902 Zone ID 1093 Good
Photo #		Plot dimensions 20 x 50
Datum 223768	Zone 56 62/4159	Plot bearing along midline 150
Easting -34.36630	Northing 150.02907	Record magnetic bearing along midline from 0 m point
		the state of the s

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

Sum values*

4

0

16

0

15.4

IBRA region

Subregion

20 x 20 m

Native

Richness

(count of

native species)

Cover

(sum of cover

of natives

species)

High threat weed cover

Likely Vegetation Class

Dimensions (circle applicable size)

1093 **Plant Community Type**

Floristics plot is centred on the midline, at 0 m point, 10 m either side BAM Composition / Structure plot (400m²)

10 x 40 m

Grasses etc

Trees

Shrubs

Forbs

Ferns

Other

Trees

Forbs

Ferns

Other

Shrubs

Grasses etc

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Condition state

BAM Function	plot (1000m²)
Dimensions (cir	cle applicable size)

20 x 50 m 10 x 100 m

Tree stem DBH (cm) Notes on function attributes:

>80 (#)50 - 79 (#) 30 - 49 20 - 29 10 - 19 5 - 9 < 5

Stem size class records # large trees (cf. benchmark) Record stems for living trees only, and for all species For multistemmed trees, record only the largest stem Presence of <5cm stems records regeneration

Record # trees with hollows, not number of hollows Count as one stem where tree is multistemmed Hollow bearing stem may be a dead stem (incl. stag)

Trees with hollows Total # <20cm >20cm**

Length of logs 444

Total (m) Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

0

*These values summarise the floristic data for input into BAM calculator

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gro	oundcover (1 x	1 m plots)	Litter cover is used	for BAM, other at	tributes are useful fo	or recording site cor	ndition in general	ester.
		1	2	3	4	5	Average	99
	Litter	90	80	100	90	100	92	
Sub-plot score	Bare ground	0	0	0	O	٥	0	
(% cover)	Cryptogam	0	0	0	٥	٥	0	
	Rock	0	20	0		4	4	

Litter / groundcover plots are located at 5, 15, 2S, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope 47.71 crest
Grazing (native / stock)	0		Aspect North
Soil erosion	0		Soil surface texture Aun Courn
Firewood removal	0		Soil colour Brann
Fire (ground stratum, mid, canopy burnt?)	D		Site drainage fun Al
Storm damage	0		Distance to nearest water
Weediness	0		Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

(in lagetres) adjust prentation associated and reliab Notes

Date 30/1/	19 Survey Name McPhilloups	Plot ID # 3001/902 Zone ID				
Recorders			Annual Control of the			
iF code	Genus species (tick if photographed or sample taken)	***************************************	Abund (count)	N, E, HIE	Stratum	
53	Ene 1. E. menns fera	50				
176	Euc 2. Encalyplus macroshyncha	5				
76	Euc 3. (B.L. Peppermit?)	5	′			
SG	Casania Casaris	10				
GG	Comandra Sitifornes	19				
GG FG	Daisy & Brachyscome decipiens	₫ - /	5			
44	Von steres lubillardieres	5	100			
00	Rhybidosperma so Pen 1 Bossiaca prostrata	1	100			
5 <u>9</u> FG	Pen 1 Bossiaea prostrata	0.1	200			
FG	Viola bent.	6-7	200			
FG	Xerochyysum so (lile glden everlating)	0.1	200			
FG FG	Daisy 2 Coronidium ruhdolepis Waster Myperium gramineum Dianella revoluta	0.1	50			
FG	Water Mypenium gramineum	0.1	20			
56	Dianella revoluta	0.1	10			
	31011901 Acacial	500	\$			
	(ican)	\$ 0.C	100			
50	Exercid so)	5				
	Barlin veren o our	0-1	50	1.00.000.000.000		
SG FG	Exercid Sp) Oralis perennous Myacinth orchiol? (plass fidel steen) 31011901 Fob 1	0.1	/			
· /	21011901 5061	0.1	\$0			
SG	Amin dandbates	0.1	10			
	Piaena sp. enelvinata. ViHadinin sp. Goodenia sp. Hacier huvifolia	0.1	200			
号	Vitadinia sa	0.7	5			
Fa	Condania	0-7	1000			
54	bournes buncilation	3-1				
SG	Hovee So.	1:0	20			
FG	110/ /cais Con. 340119.	81	1000			
	11 mileneria Slabra	6.1	20			
59	Hardenberger uslacea	0.1	ı			
Ta	Holoragis from 340119. Hyprihaeris Masra Hardenbergia Vislacea Ence 47 Encelyptus cannonii	5	i			
14	Distanging Carrette					
	<i>y-</i>					
	TG 4 68					
	84 9 161 Pg 9 1-9					
	Va Talan					
	Cl C. Aslah					
and the second s	St. Sandoloty B. F. Cudeou Shrike					
	B. Y. CULLOO JUNKS	**************************************				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 30/1/19	Survey Name	Survey Name			
Recorders			Plot ID #300/1903	Zone ID /093 Pool	
Photo #			Plot dimensions 20	X50	
Datum ,	Zone	Plot bearing along midline 22			
Easting -33.36691 23456	Northing /50,0	2780/6304085	Record magnetic bearing along midli	ne from 0 m point	
Record easting, northing at plot marker (0 m p	oint), Photos taken vertically and hor	izontally/at 0m point and	50 m point, looking into plot		
IBRA region					
Subregion					
Likely Vegetation Class					
Plant Community Type As	30011902	1093	Condition :	state Poor	
Floristics plot is centred on the midline, at 0 m	point, 10 m either side	Function plot is ar	n extention of floristics plot out to 50 m	n along midline (or equiv. area)	

BAM Composit	ion / Structur	e plot (400m²)
Dimensions (circ		
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of	Trees	1
	Shrubs	4
	Grasses etc	5
	Forbs	5
native species)	Ferns	ı
	Other	0
	Trees	0.5
Cover	Shrubs	50-6
(sum of cover	Grasses etc	21.2
of natives	Forbs	0.5
species)	Ferns	0.1
	Other	0
High threat we	ed cover	7.1

Function plot is a	n extentior	of flori	stics plot out to 50 m along midlir	ne (or equiv. area)
BAM Func	tion plo	ot (10	000m²)	
Dimension	S (circle a	pplicabl	le size)	
20 x 50 m	10 x 1	100 n	n	
Tree stem	DBH (c	m)	Notes on function attribute	es:
>80	(#)	-	Stem size class records # large	trees (cf. benchmark)
50 - 79	(#)	_	Record stems for living trees o	nly, and for all species
30 - 49	(+/-)	_	For multistemmed trees, recor	d only the largest stem
20 - 29	(+/-)	_	Presence of <5cm stems record	ds regeneration
10 - 19	(+/-)	-	Record # trees with hollows, no	ot number of hollows
5 - 9	(+/-)	_	Count as one stem where tree	is multistemmed
< 5	(+/-)	~	Hollow bearing stem may be a	dead stem (incl. stag)
# Trees wit	th hollo	ows	<20cm	Total #
(0		>20cm**	0
Length of I	ogs			Total (m)
Measure length o	of logs >10c	m, fully	or partly in contact with the grou	nd, and within the plot.

^{*}These values summarise the floristic data for input into BAM calculator **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used	I for BAM, other attr	ibutes are useful for	recording site cor	ndition in general
		1	2	3	4	5	Average
	Litter	70	500	70	60	80	66
Sub-plot score	Bare ground	5	0	5	10	0	4
(% cover)	Cryptogam	10	15	10	5	O	8
	Rock	5	5	5	10	5	6

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	0		Stope Coner Slope
Grazing (native / stock)	0		Aspect
Soil erosion	0		Soil surface texture (lay locum
Firewood removal	0		Soil colour Brown
Fire (ground stratum, mid, canopy burnt?)	D		Site drainage Run on
Storm damage	0		Distance to nearest water 10200
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Word powr in ensured

Recorders		Plot ID#	30011963	Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratun	
99	30011902 Rhykdsspema	16				
GS	Loprendra Gilfomis	10			1	
SG	Cassinia Carris	25				
SG	loptospenium sp.	25			1	
EG	Che ilanther So	0.1	100			
SG	Cheilanthes Sp. 30011902 Epainst 1 30011902 Wort sp Hypericum	0.5	20			
垂	30011907 Wast en Algericum	0.1	200			
FG	Smill st Johns Wort Agaricum gramine		300			
1 -/	Alypochaeris , labra	0'1	500			
	of John word Marium perforation		206	NE		
FG	30011902 Habscegus	0.1	106	MIL		
GG	Panicum efhoum	1005	300			
-1-7			20			
GG	Poa siebenous	0.1	30		 	
		0.1	100		-	
FG	Park fots (phots)				1	
14	30011902 Daisy 2 Corondium while		50	10-15	-	
GG	Bushoslyja seubra	1		MIE	-	
49	en storyon scorna	0:4	100	:1		
SG	Bulebrerry			ME		
27	Acuin dealbaka	0.1	10		-	
	Scalet fimpernel		100			
V	300/1901 forb 1	0.1	10			
FG	Walkenbergen sp	0.1	5		-	
60	Glue forts (phots)	0.1	5			
SG	300/1902 Poal	0.1	10			
14	30011702 Euch Enculyphus manmitera	0.5				
FG	Viola bent.	0.1	5			
	T4 1 0.5					
	SG 4 80-6					
	SG 4 BD-6 GG 5 21.2 FG 5 0.5 EG 1 0.1					
	FG 5 0.5					
					7	
	MW 1-1				1	
	V					
	hal				,	
	WIV Was				7-	
	My CRY C					
	Euro					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

	,	
Date 30/1/11	Survey Name MMhille	ngs
Recorders		Plot ID # 3001/904 Zone ID 1013 Good
Photo #		Plot dimensions 20x50
Datum 223246	Zone 52 633812	Plot bearing along midline 317
Easting -33,36937	Northing /50.02552	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (0	0 m point), Photos taken vertically and horizontally at 0m point	and 50 m point, looking into plot
IBRA region		
Subregion		
Likely Vegetation Class		
Plant Community Type	1093	Condition state Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Composition / Structure plot (400m²)						
Dimensions (circl						
20 x 20 m	10 x 40 m	Sum values*				
	Trees	3				
Native	Shrubs	Ś				
Richness	Grasses etc	8				
(count of	Forbs	12				
native species)	Ferns	l				
	Other	0				
	Trees	70				
Cover	Shrubs	2.3				
(sum of cover	Grasses etc	26.2				
of natives	Forbs	6.5				
species)	Ferns	0.1				
	Other	0				
High threat weed cover 🌣 🕱						
*These values summarise the floristic data for input into RAM calculat						

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)						
BAM Function plot (1000m²)						
Dimensions (circle applicable size)						
20 x/50 m	10 x 100 m					
Tree stem (DBH (cm)	Notes on function attributes:				
>80	(#)	Stem size class records # large trees (c	f. benchmark)			
50 - 79	(#) / //	Record stems for living trees only, and	for all species			
30 - 49	(+/-)	For multistemmed trees, record only the	ne largest stem			
20 - 29	(+/-)	Presence of <5cm stems records regeneration				
10 - 19	(+/-)	Record # trees with hollows, not number of hollows				
5 - 9	(+/-)	Count as one stem where tree is multistemmed				
< 5	(+/-) 🗸	Hollow bearing stem may be a dead st	em (incl. stag)			
# Trees wit	h hollows	<20cm <i>##/ //</i>	Total #			
HH 1111 9 >20cm**THH						
Length of lo	ogs		Total (m)			
Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.						
**Hollows of >20cm are recorded for habitat for some threatened species						

*These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used for BAM, other attributes are useful for recording site condition in general				
	[1	2	3	4	5	Average
	Litter	106	90	90	80	80	88
Sub-plot score	Bare ground	O	0	10	0	10	4
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	٥	6	0	0	9	Ö

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	Ì	0	Microrelief
Cultivation	0		Slope Opper Slope
Grazing (native / stock)	U		Aspect NW.
Soil erosion	0		Soil surface texture Suraly a long low
Firewood removal	0		Soil colour brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run all
Storm damage	0		Distance to nearest water 2000000000000000000000000000000000000
Weediness	0		Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date 30/1/11 Survey Name Recorders Plot ID # 30011904 Zone ID									
Recorders		V							
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum				
TG		60							
FG	Vichondra repens	5							
FG	Viola bed beforceitalia	0'1	200						
FG	Acaena go (phots) novo-realando	01	200						
FG	Pennywoty (Mot) Hydrocotyle laxiflore	0.1	200						
F	G Forb 1 Gonocarpus tetraggous	0.1	100						
	Pea 1	0.1	10						
	Phypochaenis globra	0.1	50						
FC	Glycine sp danderlina	0.1	50						
the	St Dus Wort	0.1	100	ME					
	G 300/1702 Rhyfidspenia pallid								
	G Gran / Ellinopogon ovatus	5	300						
	19 Poa sjeleriana	5							
	The Austrostipa scatora	5-							
	SG Exocurpors cumpresifornis	1	Ö						
tw		0:1	1	HTE					
	G Cassinia laevis	0.1	1	1110					
5	9 30011962 Epained 2	1	10						
q		0.1	10						
< < < < < < < < < < < < < < < < < < <	a Lomandra photo	0.1	10						
~		0.1	20						
G	G Djunella revoluta	1	100						
	a Comunda Colifornis	5	700						
		0.1	50						
HW		0.1	30	UTW					
	Galdensergia Sp.		-	4100	1				
1		0.1	5						
1	a Oxalis perennons	0./	50		-				
	Fob 2	0.1	10						
	G 3001/402 Pea/	0./							
Page	(the fact (tonocarpies!)	/	1000						
4	a Herotriche Honey Pots	0.1	5						
G	9 Poa lab Madièra	0.1	5						
	G Enc 2 Encalyptis cannonic	5			-				
٩	FG Hauna Sp 2 (plats) enchinate	0.5	100		3				
1	G Glycine Sp2 microphylla	0.1	10		,				
F	- G Yullow lily (phots)	0.1	20						
	The Encolyptics dives	5							
	TG 3 70	FG	12	6.5					
	5 23	FG	1	0-1					
	66 8 26-2	HTW	0.3						

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 30/1/19		Survey Name //	Phillongs		4		
Recorders		3001905	Zone ID 7	31 Pool			
Photo #				Plot dime	nsions 2	0250	
Datum Vals	154	ZoneSL	(000	Plot beari	ng along mi	dline 202	4.
Easting -33.2	37116	Northing 156.0	2123	Record magneti	c bearing along mid	line from 0 m point	
Record easting, northing	at plot marker (0 m p	oint), Photos taken vertically and	horizontally at 0m point and	d 50 m point, lookir	ng into plot	_	
IBRA region							
Subregion							
Likely Vegetation	on Class						
Plant Communi	ityType 🥖	s mayping (p	inh) 731		Condition	state /o	2
Floristics plot is centred	on the midline, at 0 m	point, 10 m either side	Function plot is a	an extention of flor	istics plot out to 50	m along midline (or e	quiv. area)
BAM Composit	ion / Structur	e plot (400m²)	BAM Func	tion plot (10	000m²)		
Dimensions (circ	le applicable size)		Dimension	1S (circle applicab	le size)		
20/x 20 m	10 x 40 m	Sum values*	20(x 50 m	10 x 100 n	n		
	Trees	1	Tree stem	DBH (cm)	Notes on func	tion attributes:	
Native	Shrubs	3	>80	(#)	Stem size class r	ecords # large trees (cf. benchmark)
Richness	Grasses etc	4	50 - 79	(#)	Record stems fo	r living trees only, and	d for all species
(count of	Forbs	3	30 - 49	(+/-)	For multistemme	ed trees, record only	the largest ster
native species)	Ferns	0	20 - 29	(+/-)	Presence of <5cr	n stems records rege	neration
	Other	0	10 - 19	(+/-)	Record # trees w	rith hollows, not num	ber of hollows
	Trees	0.1	5 - 9	(+/-)	Count as one ste	m where tree is mult	istemmed
Cover	Shrubs	21	< 5	(+/-)	Hollow bearing s	tem may be a dead s	tem (incl. stag)
(sum of cover	Grasses etc	36.5	# Trees wi	th hollows	<20cm		Total #
of natives	Forbs	0.3		0	>20cm**		0

*These values summarise the floristic data for input into BAM calculator

Ferns

Other

species)

High threat weed cover

**Hollows of >20cm are recorded for habitat for some threatened species

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

Total (m)

BAM Litter/ Gr	oundcover (1 x 1	m plots)	Litter cover is used f	or BAM, other attri	butes are useful fo	r recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	10	60	50	15	90	45
Sub-plot score	Bare ground	30	16	0	80	0	24
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	60	50	20	6	5	33

Length of logs

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

0

0.1

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	0		Slope mid slope
Grazing (native / stock)	0		Aspect quar
Soil erosion	0		Soil surface texture Clay (xum
Firewood removal	6		Soil colour brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water
Weediness	1		Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Cleared power in Easement

Date 30/1	//9 Survey Name	Diet ID # 7	201.00	Zono ID	
Recorders			00/1905		lc
F code	Genus species (tick if photographed or sample taken)		Abund (count)	N, E, HTE	Stratum
TG	Eucl 3001/904 mangifera	0-1	5		
SG	Cassinia Carris	20			
Sζ	300/1902 Acacia 1	0.5	1		
SG	Acecia dealbeter	0.6	7		
99	Austrostija scalsra	25			
	Senecio hinned (photo)	0.5			
	Senecio finned (photo)	9.4	100		
99	Panicum ethiseun	0.5	50		
GG	Phytodospenia (other sites) autida	10			
FG	Oxalis perennens	0.1	100		
EG	Cheilanthes sp.	0.1	106		
	Echium sp	500	20		
	30011904 Corbs 1	0.1	20	1	
FG	Smell S. Johns worthy.	0.1	100		
	3. Pin perul	0.1	200		
	Displaying Sig	0.1	10		
94	Lonandra filisoni	1			
	Bluckberry fenuion phote 3001/903 proh forts Acaence Sp	0.1	5	ME	
	Renginary shot	0.1	100		
	month forts	0.1	100		
FG	Acarno Se	0.1	50		
1 -7	Mesocotto Sp				
					9
	TG 1 0:1				15
	SG 3 21				
	GG 4 36.5				
	F4 3 0.3				
	from Co (
		1			
		*			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 30/1//9	Survey Name					
Recorders	•	Plot ID #300/1906	Zone ID 73/ Good			
Photo #	250					
Datum 222740	Zone 58 6303424	Plot bearing along midline 263				
Easting - 35, 37768	Northing 100 01971	Record magnetic bearing along midline from 0 m point				
Record easting, northing at plot marker (0	0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot				
IBRA region						
Subregion						
Likely Vegetation Class						
Plant Community Type	73/	Condition s	tate Good			
Floristics plot is centred on the midline, a	t 0 m point, 10 m either side Function	n plot is an extention of floristics plot out to 50 m				

BAM Composition / Structure plot (400m²) Dimensions (circle applicable size) 20 x 20 m 10 x 40 m Sum values* Trees Shrubs Native Richness Grasses etc 6 (count of **Forbs** native species) Ferns 0 Other Trees 60 **Shrubs** Cover 2-1 Grasses etc (sum of cover 22 of natives **Forbs** 6.4 species) **Ferns** 0.1 Other 0 High threat weed cover 0

Function plot is a	n extention of floris	stics plot out to 50 m along midlin	ne (or equiv. area)		
BAM Func	tion plot (10	000m²)			
Dimension	S (circle applicable	e size)			
20 x 50 m	10 x 100 m	1			
Tree stem	DBH (cm)	Notes on function attribut	es:		
>80	(#) -	Stem size class records # large	trees (cf. benchmark)		
50 - 79	(#) 1/ 2	Record stems for living trees o	nly, and for all species		
30 - 49	(+/-)	For multistemmed trees, record only the largest stem Presence of <5cm stems records regeneration			
20 - 29	(+/-)				
10 - 19	(+/-) V	Record # trees with hollows, n	ot number of hollows		
5 - 9	(+/-)	Count as one stem where tree	is multistemmed		
< 5	(+/-) V	Hollow bearing stem may be a	dead stem (incl. stag)		
# Trees wit	h hollows	<20cm ###	Total #		
	2	>20cm** ///	8		
Length of I	ogs		Total (m)		
Measure length o	f logs >10cm, fully	or partly in contact with the grou	nd, and within the plot.		

*These values summarise the floristic data for input into BAM calculator **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x :	1 m plots)	Litter cover is used	for BAM, other attr	ibutes are useful fo	r recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	100	100	80	90	90	92
Sub-plot score	Bare ground	5	0	10	5	0	4
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	O	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

N	OTES	
1.01	ULCS	

BAM Plot - Field Survey Sheet

Date	Survey Name			·	140420000000
ecorders		Plot ID#3	00/1966	Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
	1				- ANNAMARON
SG	Good plants us for 3001404	0.1	S		
FG	Forts 1 Generarpus tetragyous	0.1	5		
</td <td>Exacted 1</td> <td>T j</td> <td>/0</td> <td>- AMAC</td> <td></td>	Exacted 1	T j	/0	- AMAC	
5 <u>G</u> T <u>G</u>	Scribble sum cossii	5	61		
59	Acacia dealbata	/-	2_		
74	Free trene dives	10			
74 E.	miniteratione 3 someth no sorther	45			
	Forh 2	1			
FG	Walterelongan	0,1	5		
FG	Dichondra regains	5			
FG	Villa betonicifolia	0 1			
FG	Aggena novar realandien	/ 354			
44	Rytidosperma pallida	5			
<u> </u>	Echingsogon ovatus	\$			
<u>GG</u>	Aughostipa Scabra	5			
44	Pour Catallardiero	1 3			
99	Dianella revoluta	5			
<u>99</u>	Comandra filifornis	0.7			
FG	Wahlenbergin sp	67			
<u>EG</u>	Cheilanthes sp.	1 7			
FG.	Hyproul				
A A A A A A A A A A A A A A A A A A A	TG 3 60				
**************************************	\$ 3 2.1				
	F6 7 6.4				
	EG 6 VI				
	EG 1 0'1				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 30/1/19	Survey Name	
Recorders		Plot ID #30011907 Zone ID 679 Page
Photo #		Plot dimensions 20050
Datum 222534	Zone 56 6303070	Plot bearing along midline 224
Easting = 33.37585	Northing 50.0176/	Record magnetic bearing along midline from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type 679

Condition state

1001

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Compositi		e μισι (4σσπ <i>)</i>
Dimensions (circle	e applicable size)	
20 x/20 m	10 x 40 m	Sum values*
	Trees	1
Native	Shrubs	1
Richness (count of native species)	Grasses etc	4
	Forbs	4
	Ferns	.0
	Other	0
	Trees	25
Cover	Shrubs	5
(sum of cover	Grasses etc	11.2
of natives	Forbs	0.4
species)	Ferns	0
	Other	0
High threat we	ed cover	10.1

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area) BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: (#) >80 Stem size class records # large trees (cf. benchmark) (#) Record stems for living trees only, and for all species 50 - 79 For multistemmed trees, record only the largest stem (+/-)30 - 4920 - 29 Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed Hollow bearing stem may be a dead stem (incl. stag) < 5 Total# # Trees with hollows <20cm >20cm** Total (m) Length of logs

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)			Litter cover is used	idition in general			
		1	2	3	4	5	Average
	Litter	90	90	80	90	90	88
Sub-plot score	Bare ground	5	10	0	0	5	4
(% cover)	Cryptogam	0	0	5	0	0	8
	Rock	-	0	10.	0	5	4

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0年	Microrelief
Cultivation	0		Slope lover slope.
Grazing (native / stock)	0		Aspect SE
Soil erosion	6		Soil surface texture ((ay /sam
Firewood removal	0		Soil colour brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	9		Distance to nearest water 1000
Weediness	2	2	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Hisporic and minutes cleaning t rehab

Date	Survey Name				
Recorders		Plot ID # ?	30011907	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratum
59	Henria dealbata	-		.,, =,	Julian
	Oxalis perennaus Acaena sp ** nova-realandia Blackberry Cocles Foot	0.1	100		
FG FG	Acaena so # neva-realers	0.1	/000		
	Blackberry	10		HTE	
	Cocles Foot	100	100	1010	
	Planteigo Sp. galijela				
GG	Rhy Golssperma (Host)	10			
	Planteigs p. palijda Rhy/idospema (H.) Hypschaens glassa E. pauciflora	0.1	500		
TG	E. pauciflora	25			
		50			
FG	St Johns Wort	0.1	50	410	
GG	St Johns Wart Mustrostype scalor	/	50		
	Shrus 1	5			
96	Comandra Consitolia	0-1	10		
96	Comandra filifornis	0-/	20		
	Forts 1 Trailing fren OD	0.8	30		
FG		0-1	50		
	Desmodium (ve list)				
	TG 1 28				
			14-2		
	99 4 11.2				
	FG 4 6.4				
	ALLIN 10				
			140		
	R.B. Friels Grey Fordon!				
	Grey Fentan!				
	F. Wren				
	W.T. Treesergres				
	Silverye				
	VI Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fe				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAIVITION TICIA SAIT	vey sirect		1 486 1 01 (
Date 31 1 19	Survey Name Methila	nys				
Recorders		Plot ID #31011901 Zone ID 679 Pd				
Photo #		Plot dimensions 20×50				
Datum 222472	Zone 56 6301959 Plot bearing along midline 726					
Easting -33.37682	Northing 150.01689	Record magnetic bearing along midline from 0 m point				
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m po	int and 50 m point, looking into plot	_			
IBRA region						
Subregion						
Likely Vegetation Class						
Plant Community Type	t Community Type 479 Condition state Poor					
Elevistics plot is centred on the midline at	0 m point 10 m either side Function r	lot is an extention of floristics plot out to 50 m	along midline (or equiv. area)			

ion / Structur	e plot (400m²)
le applicable size)	
10 x 40 m	Sum values*
Trees	2
Shrubs	0
Grasses etc	2
Forbs	3
Ferns	0
Other	6
Trees	6
Shrubs	0
Grasses etc	30
Forbs	5.6
Ferns	٥
Other	0
	Trees Shrubs Grasses etc Forbs Ferns Other Trees Shrubs Grasses etc Forbs Ferns Ferns Ferns Ferns Ferns Ferns Frees Frees Frees Frees Frees Frees Frees Frees

BAM Func	tion plo	ot (10)00m²)				
Dimension	S (circle a	pplicabl	e size)				
20x 50 m	10 x 1	100 m	ı				
Tree stem	DBH (c	m)	Notes on function attributes				
>80 (#)			Stem size class records # large trees (cf. benchmark)				
50 - 79	(#)	-	Record stems for living trees only, and for all species				
30 - 49	(+/-)	-	For multistemmed trees, record only the largest sten				
20 - 29	(+/-)	-	Presence of <5cm stems records regeneration				
10 - 19	(+/-)	-	Record # trees with hollows, not number of ho				
5 - 9	(+/-)	/	Count as one stem where tree is	multistemmed			
< 5	(+/-)	V	Hollow bearing stem may be a de	ead stem (incl. stag)			
# Trees with hollows		ows	<20cm	Total #			
			>20cm**	0			
Length of I	ogs			Total (m)			
•			or partly in contact with the ground	Activities and the second			

*These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used	d for BAM, other at	ttributes are useful f	or recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	80	90	90	80	70	82
Sub-plot score	Bare ground	0	0	0	0	0	0
(% cover)	Cryptogam	0	0	0	0	Ō	0
	Rock	0	0	0	Ŏ	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform		
Clearing (incl. logging)	3	0	Microrelief		
Cultivation	0		Slope lover slope		
Grazing (native / stock)	1	B	Aspect West		
Soil erosion	v		Soil surface texture Journ		
Firewood removal	0		Soil colour grey		
Fire (ground stratum, mid, canopy burnt?)	O		Site drainage (un off		
Storm damage	0		Distance to nearest water Zoom		
Weediness	2	R	Distance to nearest rock outcrop /cave 300n		

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

AL						
Notes Deard Carmand	adjaint	native seg.	l'ipeline	relignmen	t Collens Camparel.	Corest edge.

			Zone ID	
Genus species (tick if photographed or sample taken)	Cover %	101(90) Abund (count)		Stratum
77 3		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-, -,	- 3, 5, 5, 11
Franci Have (or blade Caller?)	-			
			1175	
3004907 Should		1	7/10	
	T	4		
TG Euc phots Coppaile laws, smooth had		/		
	5			
& Johns Wort		106	ME	
		7.00	7110	
Thickle (ahots)	0.1	30		
Acaena (sheep burr) (long flour bear		-		
Geranium solanderi	0.1.			
Totolim repens	5			
	0.5	300		
Scarlet alrement				
Pinte forts (plats)		300		
a Pou Casilladiera				
Sweet brian	0'1	5	HTE	
TG 2 G SG 0 GG 2 30 FG 3 5.6 brit 5.2				
DB Finels WT Treecreeper S; lvenge Pieg Carrawong Rubbit YFHonegeater A-Rowen				
	Pou siebendina Cocks Foot I Johns Wort Planteigo sp (photo) Hypo cliveris glasses Thistle (photo) Acaena (sheep burn) (long flour head Geranium solanderi Trifolium repens Oxalis perennans Scanlet pilipenel Prili borts (photo) Pou Cabilladiera Sweet binar TG 2 G SG 0 GG 2 30 FG 3 5-6	E. peus ciflora (or black saffer?) 3/acle berry 30011907 Shrub! 6uc phots (apprife (aus, smothbach)) Pou sieben auna Cocks Foot 5 Johns Wort Plantago so (phots) Hyps clearis glabra Feranium solanderi Trifolium repeus Oxalis perennans Oxalis perennans	5. peuciffora (or black sader?) 5 2 laile berry 5 30011907 Shrub! 0'5 1 Euc phots (apprik laws, smothback) 1 4 Poa sieber; aura 25 Cocks Foot 5 St Jams Wort 0'1 106 Plantago sp (phots) 60 Happe claveris glassa 5 Thistle (phots) 45 Acaena (theop hum) flory flour head 515 Geranium solanderi 0'1: 50 Trifolium repeus 5 Oxalis perennans 0:5 300 Simbat phymenal 0'1 300 Pinte forts (plate) 0'1 300 Pinte forts (plate) 0'1 500 Fou Casilladiera 5 Suet brian 0'1 5	E. punciffora (or black saffer.) 2 Junili berry 30011907 Shrubl Enc phots (appsite laws, smoothbal) Flac siebernann Cocks Foot 8 Johns Wort O'I 106 ME Plantago sp (phots) Hyps cliveris glabra Thistle (phots) Acaena (thesp burn) floor how to the form repeated of 1 30 Francism repeated of 5 Oralis perennans O'S 300 O'n's forts (phots) Fou (absilladdern Sucet brian O'I 5 NATE

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Posithy everle distribution

BAM Plot - Field Survey Sheet

Page 1 of ()

DAINT TOU TICIO 30	i vey silect	1 486 1 01 ()
Date 31 1119	Survey Name M. Ph. Wa	nys
Recorders		Plot ID # 310 1 9 03 Zone ID 679 4000
Photo #		Plot dimensions 20x 50
Datum	Zone 56	Plot bearing along midline 331
Easting 222162 Northing 6363022		Record magnetic bearing along midline from 0 m point
Beard pasting porthing at plot marker	(0 m point). Photos taken vertically and horizontally at 0m po	int and 50 m point, looking into plot

IBRA region

species)

High threat weed cover

Subregion

Likely Vegetation Class

Plant Community Type Green Pet on mg. 679 Condition state Good

Floristics plot is centred o	on the midline, at 0 m	point, 10 m either side
BAM Composit	ion / Structur	e plot (400m²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	3
Native	Shrubs	2
Richness	Grasses etc	4
(count of	Forbs	7
native species)	Ferns	0
	Other	6
	Trees	55
Cover	Shrubs	1-1
(sum of cover	Grasses etc	15.1
of natives	Forbs	20.7

011		4	0.00
Function plot is a	n extention of flori	stics plot out to 50 m along midline	(or equiv. area)
BAM Funct	ion plot (10)00m²)	
Dimension	S (circle applicabl	e size)	
20 x 50 m	10 x 100 m	n	
Tree stem	DBH (cm)	Notes on function attributes	5:
>80	(#) —	Stem size class records # large to	rees (cf. benchmark)
50 - 79	(#) 2	Record stems for living trees onl	y, and for all species
30 - 49	(+/-)	For multistemmed trees, record	only the largest stem
20 - 29	(+/-)	Presence of <5cm stems records	regeneration
10 - 19	(+/-)	Record # trees with hollows, not	number of hollows
5 - 9	(+/-)	Count as one stem where tree is	multistemmed
< 5	(+/-) V	Hollow bearing stem may be a d	ead stem (incl. stag)
# Trees wit	th hollows	<20cm ////	Total #
2		>20cm** //	6
Length of I	ogs		Total (m) 137
Measure length o	f logs >10cm, fully	or partly in contact with the groun	d, and within the plot.

*These values summarise the floristic data for input into BAM calculator

Ferns Other

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x 1	m plots)	Litter cover is used	for BAM, other attr	ibutes are useful for	recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	95	90	95	80	90	90
Sub-plot score	Bare ground	0	5	0	0	0	1
the state of the s	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	5	5	2

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform	
Clearing (incl. logging)	t	0	Microrelief	
Cultivation	0		Slope Lour Slope	
Grazing (native / stock)	9		Aspect SE	
Soil erosion	0		Soil surface texture (sam	
Firewood removal	0		Soil colour grey	
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off	
Storm damage	0	1 4	Distance to nearest water /oou	
Weediness	1	B	Distance to nearest rock outcrop /cave / ٥٥٠٠	

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Recorders	9 Survey Name Buth Many	Plot ID#3	10/1903	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratun
	Bursaine Spinson	0.1	1		
nc. stellulati	Black Suller ? (31011901 saugh)	5			
/	· Euc 1 Enealgabres outida?				
×	Geranium Colombian	25 5			
Lord Market	Por silvericera	5			
her proly	Tue 2 Encalyphes paniflora	28			
	Sheep bury (round thur Acaena on	ae relandiae			
E. Congle.	Sheep bur (Young flows) Acaena ends				
F6	Oxalés perennans	0.5	1000		
new	Backberry	5		MTE	
MIN	Sweet brian	0.5	5	HTE	
	Manteigo Sp (31011901)	5			
	Hypochaeris glabra	0.5	500		
	31011901 pinh borb	0-1	570		
GG	Grass 1 Phistider vagans	5			
	Tisfolim repens	100	560		
	Cocles Foot	/			
SG	Nother raspherry (plots) Rubus garris	lokes 1	5		
	St Johns work	0.1	50	ME	
FG	Dichendra repus	5			
	Echiery	0.1	20		
99	Pour Countladiera	5			
96	Aristida sp ramoso	0.1	10		
FG	tors 1 Peperula sispania	0.5	500		
	Forh 2	0-1	20		
	She For phots	0.1	10		
	Slieep sorrell	0./	SD	HTE	
FG	Chrysocophalum Semipapposum	0.1	5		
	/ /				
	TG 3 55				
	SG 2 11				
	GG 4 15·1				
	FG 7 20.7				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Britist Flot Ficia Sai	vey sirect	Page 1 or ()			
Date 31 1 19	Survey Name Mullin	(lary)			
Recorders		Plot ID # 3/0/1904 Zone ID 1093 Mool.			
Photo #		Plot dimensions 20 × 50			
Datum 721415	Zone 56 6303341	Plot bearing along midline USY			
Easting = 33. 373 09	Northing 150.00565	Record magnetic bearing along midline from 0 m point			
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m poin	nt and 50 m point, looking into plot			
IBRA region					
Subregion					
Likely Vegetation Class					
Plant Community Type	1093	Condition state Moclerate			
Floristics plot is centred on the midling at	Om point 10 m either side	obligan autoration of flusinting also as a 50 miles of the sixting also as a 10 miles of the			

BAM Composition / Structure plot (400m²) Dimensions (circle applicable size) 20 x 20 m 10 x 40 m Sum values* Trees 2 Native Shrubs 2 Richness Grasses etc 6 (count of **Forbs** 2 native species) Ferns 0 Other 0 Trees 50 Shrubs Cover 0.6 (sum of cover | Grasses etc 10.4 of natives **Forbs** species) Ferns 0 0 Other High threat weed cover *These values summarise the floristic data for input into BAM calculator

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area) BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: (#) >80 Stem size class records # large trees (cf. benchmark) (#) 50 - 79 Record stems for living trees only, and for all species 30 - 49 (+/-)For multistemmed trees, record only the largest stem 20 - 29 (+/-)Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed < 5 (+/-)Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows <20cm /// Total # >20cm** // Length of logs Total (m) 13 Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x 1	l m plots)	Litter cover is used	for BAM, other attri	butes are useful fo	r recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	100	90	85	85	90	90
Sub-plot score	Bare ground	b	0	5	10	0	3
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	U	U	6	U	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope lover slope
Grazing (native / stock)	0		Aspect North
Soil erosion	U		Soil surface texture / - am
Firewood removal	0		Soil colour grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	٥		Distance to nearest water 150 m
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Recorders	Survey Name Achillanys	Plot ID # 3/0/1904 Zone ID			
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
Sq	Caximin lawis	0.1	2		
94		0.1	100	UTE	
	St Johns Wort	5	595		
	Plantago sp	1	100		
50	Genin dealbater stide	0.5	10		
SS	Rhy Fidosperma (from 30/1/19) Themeda trandra	5			
99 99	Khy horospema (non 30/1/1)	6.1	5		
	Themeda Francisa	0.1	5		
55	VIII COM GATOSTIC	0.1	1	UTE	
HAN	Snut brian	5		1	
99	Poa sielseriana	5			
	Grass (globy)	01	10		
Jerovica?	7- Bur for (31011403)	0.1	5		
	Soneis (300119)	0.2	1	416	
PTW	Blackberry	105	-	4.0	
	Phalaris sp	5	100		
FG.		1	100		
0.	Paspalum sp	0.1	20		
99	Austrostypu scabra	-	-		
99	Lomendra f-lifornis	0.1	\$		
FG		0.1	20		
	Alypocheurs glaboa		20		
TG	E. peuciflora	20			
	First (smooth tall greate phis)				
TG	E. rossii	30			
		-			
		-			
	TG 2 50				
	SG 2 0.6				
	96 6 10.4				
	FG 2 5.1				
	HTW 0.6				
					4
		1			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definition)

Date 31 1/19	Survey Name M. Phillan	ugs
Recorders		Plot ID # 2101/905 Zone ID 1093 Pour
Photo #		Plot dimensions 20x50
Datum	Zone 55	Plot bearing along midline 65
Easting 758708	Northing 6295121	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (0 n	n point), Photos taken vertically and horizontally at 0m poi	nt and 50 m point, looking into plot
IBRA region		
Subregion		
Likely Vegetation Class		
Plant Community Type	1093	Condition state Poor
<u> </u>		

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Tionstes plot is centiled	on the midline, at 0 m p	onit, 10 in either side
BAM Composit	ion / Structure	plot (400m²)
Dimensions (circ	le applicable size)	
20(x 20) m	10 x 40 m	Sum values*
	Trees	1
Native	Shrubs	//
Richness	Grasses etc	6
(count of	Forbs	2
native species)	Ferns	/
	Other	ð
	Trees	5
Cover	Shrubs	9.5
(sum of cover	Grasses etc	51.6
of natives	Forbs	0.2
species)	Ferns	0.1
	Other	0
High threat we	ed cover	0

Function plot is a	n extention	of florist	cics plot out to 50 m along midline (or ed	quiv. area)		
BAM Funct	ion plo	ot (10	00m²)			
Dimension	S (circle a	pplicable	size)			
20 x 50 m	10 x 1	L00 m				
Tree stem	DBH (c	m)	Notes on function attributes:			
>80	(#)	r	Stem size class records # large trees (c	f. benchmark)		
50 - 79	(#)	#) Record stems for living trees only, and for all species				
30 - 49	(+/-)	ş-	For multistemmed trees, record only the	he largest stem		
20 - 29	(+/-)	_	Presence of <5cm stems records reger	eration		
10 - 19	(+/-)		Record # trees with hollows, not numb	er of hollows		
5 - 9	(+/-)	-	Count as one stem where tree is multis	stemmed		
< 5	(+/-)	V	Hollow bearing stem may be a dead st	em (incl. stag)		
# Trees wit	h hollo	ws	<20cm	Total #		
			>20cm**			
Length of le	ogs			Total (m)		
				5		
Measure length or	f logs >10cr	m, fully o	r partly in contact with the ground, and	within the plot.		
**Hollows of >20a	m are reco	orded for	habitat for some threatened species			

^{*}These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots)		Litter cover is used for BAM, other attributes are useful for recording site condition in general					
		1	2	3	4	5	Average
	Litter	50	80	go	80	60	70
Sub-plot score	Bare ground	40	15	٥	10	40	U
(% cover)	Cryptogam	5	5	15	Ø	Ô	5
	Rock	0	0	0	0	0	U

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NK	Microrelief
Cultivation	8		Slope Midslope
Grazing (native / stock)	ರ		Aspect SW
Soil erosion	0		Soil surface texture Surdy (xum
Firewood removal	0		Soil colour arej
Fire (ground stratum, mid, canopy burnt?)	6		Site drainage fun off
Storm damage	0		Distance to nearest water Zooun
Weediness	ı	6	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Previoe	conent	and	sad	compla	*		

Date <u>3///</u> Recorders	Survey Name McPhillenys	Plot ID #3/	Plot ID #3/0/1905 Zone I		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
G, 4	Themsela friendra	4035		N	4
	Exactic 1 Brachylown duplmonte	1		N	L
<u>59</u> 39		1	20	N	L
		28		Ň	L
94	proceed tribora Strepelia mylera	0.7	S	N	M
<u>SG</u>	The state of the s	1	50	N	1
46	Dianella sprevoluta	0./	100	N	
96	Yellow lily (phots) Hypoxis paginatus	0.7	50	N	1 1
EG SG	Chailanthe's sp		5	N	-
	Cassinia Carris aculeata		<u> </u>	TN T	
<u> </u>	ELL 1 (Long-level Box)	1005		N	
44	Noa Catrilladician de seleciona	18		/V	
<i>C</i>	Street	63		N	
SG	Alacia dealleta	0.1	3~~	·	
Sq	Real Dillaymin phylicoides	0.5	20	N	
sphodelus hi		0.1	20	E	
<u> </u>	Astroloma sp (photo)humitusun	-	<u>ja</u>	N A	
<u> </u>	Bursanie spinosa	0.1	1 1	N_	
<u> </u>	Olevia sp. (phots)	0.5	20	N.	
F4	Goodeniu pto hideracea	1	30	N	
F4	Ungsocephalin apiculaben	0.1	30	N	
F4	Hypochasis glasses	0.1	10	8	
Sq	Experied 3 Jonospogar virgation	7 0.1		N	
Sq	Milbrertia donsifolia	0.1	5	N	
94	Lomandra filifornis	0.0	50	N	
		 			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

		_		,
Date 14/8/18	Survey Na	me McMillan		1054
Recorders	JENNE CHENENTE	K.	Plot ID # MACO /	Zone ID A Autoria
Photo# MA	teo /		Plot dimensions 26	X50
Datum GDA	94 Zone	55	Plot bearing along mid	lline 98°
Easting 737	872 Northing	6293936	Record magnetic bearing along midli	ne from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region SOUTH EASTENTH HIGHLANDS

Subregion BATHURIT

Likely Vegetation Class frum TABLELANDS CRASY WOODLANDS

Plant Community Type 654 Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. are

BAM Composition / Structure plot (400m²)						
Dimensions (circle						
20 x 20 m	10 x 40 m	Sum values*				
	Trees	1				
Native	Shrubs	0				
Richness	Grasses etc	j				
(count of	Forbs	/				
native species)	Ferns	0				
A CONTRACTOR OF THE CONTRACTOR	Other	1				
	Trees	30				
Cover	Shrubs	O				
(sum of cover	Grasses etc	5				
of natives	Forbs	01				
species)	Ferns	0				
	Other	0.2				
High threat weed cover 5.1						

Function plot is an	extention of florist	ics plot out to 50 m along midline (or eq	uiv. area)		
BAM Funct	ion plot (10	00m²)			
Dimensions	(circle applicable	size)			
20 x/50 m	10 x 100 m				
Tree stem [DBH (cm)	Notes on function attributes:			
>80 (#) O Stem size class records # large trees (cf. benchmark)					
50 - 79 (#) O Record stems for living trees only, and for all species					
30 - 49	30 - 49 (+/-) For multistemmed trees, record only the largest stem				
20 - 29	(+/-)	Presence of <5cm stems records regeneration			
10 - 19	(+/-) -	Record # trees with hollows, not number of hollows			
5 - 9	(+/-) -	Count as one stem where tree is multistemmed			
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)			
# Trees wit	h hollows	<20cm	Total #		
	0	>20cm**	0		
Length of lo	gs		Total (m)		
			0		
Measure length of	logs >10cm, fully o	r partly in contact with the ground, and	within the plot.		
**Hallows of > 20c	m are recorded for	habitat for some threatened species			

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
W A 1 A 10-44	Litter	60	60	80	40	80	64
Sub-plot score	Bare ground	20	5	45	50	O	15.6
(% cover)	Cryptogam	0	0	0	Ó	O	0
	Rock	O	0	0	0	0	0

 $Litter\ /\ groundcover\ plots\ are\ located\ at\ 5,\ 15,\ 25,\ 3S,\ 45\ m\ (alternating\ sides)\ along\ the\ midline\ of\ Function\ plots\ properties and\ properties are\ properties at\ properties and\ properties are\ properties at\ properties$

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2_	O	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	3	R	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	2	R	Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	2	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

"iming code: R = recent (<3y), NR = not recent, O = old/historic

Notes very doney. Grasses / lois Sifficult to idulity his to climatic andiens

 $^{{}^{*}}$ These values summarise the floristic data for input into BAM calculator

	18 Survey Name Miphillani	1		1	
	ISME CARPENTER	Plot ID#		Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
74	Encologitus biolgesiand	30		N	Ũ.
FG	Mantago Carriestata	5		Ċ	
44	Bothmochlon macra	5		N	
FG	Chrysocephalin apiculatum	0.1	20	N	1
FG	Brassicer townsfortis	5		HTE	L_
FG	Verbascum virgatum	0.1	/	<i>6</i>	L
FG	Echien stantagineum	05	20	0	<u>Ĺ</u>
FG	Echin plantagineum Tollin custanim	10		E	4
04	Annyema sp. Hypericum perforatum	0.5	5	N	u.
FG	Hyperfour perforation	04	30	KITE	1
ASSESS 2 . 11. ON 17. 11.	/				
######################################					
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				SCHOOL STATE OF THE STATE OF TH	
				CONTRACTOR AND ADDRESS AND ADD	

				WTX EXPENSES AND SOME OF THE SECOND SOME OF THE SEC	
				OCCUPANTA CONTRACTOR OF THE STATE OF THE STA	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot - Field Surve	y Sheet		Page 1 of (
Date 14/8/18	Survey Name Mc Phillary	<i>i</i> ,	
Recorders ′ ノこ.			Zone ID Mon-nestri
Photo# M4e02		DI-LI:	PXSO
Datum GDA 94	Zone 55	Plot bearing along mid	
Easting 738582	Northing 6293807	Record magnetic bearing along midlin	ne from 0 m point
Record easting, northing at plot marker (0 m po	oint), Photos taken vertically and horizontally at 0m point and	50 m point, looking into plot	
BRA region Styl. CAST	ERN MIGMEAN DS		
Subregion Ration			1

Likely Vegetation Class GRASY WOODLAND Plant Community Type **Condition state**

Floristics plot is centred	on the midline, at 0 m p	oint, 10 m either side			
BAM Composition / Structure plot (400m²)					
Dimensions (circ	le applicable size)				
20 x/20 m	10 x 40 m	Sum values*			
	Trees	0			
Native	Shrubs	0			
Richness	Grasses etc	2			
(count of	Forbs	0			
native species)	Ferns	0			
	Other	0			
	Trees	0			
Cover	Shrubs	0			
(sum of cover	Grasses etc	7-3			
of natives	Forbs	0			
species)	Ferns	0			
	Other	0			
High threat weed cover /0 /					
*These values summarise the floristic data for input into BAM calculate					

BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: >80 (#)Stem size class records # large trees (cf. benchmark) 50 - 79 Record stems for living trees only, and for all species 30 - 49 For multistemmed trees, record only the largest stem 20 - 29 Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed < 5 Hollow bearing stem may be a dead stem (incl. stag)

Total#

0

Total (m)

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

<20cm >20cm**

Trees with hollows

Length of logs

*These values summarise the floristic data for input in	**Hollows of >20cm are recorded for habitat for some threatened species					
BAM Litter/ Groundcover (1 x 1 m	n plots)	Litter cover is used	for BAM, other attr	ributes are useful fo	r recording site con	dition in general
	1	2	3	4	5	Average
Litter	00	25	80	24	200	61

		1	2	3	4	5	Average
	Litter	90	85	85	30	20	61
Sub-plot score	Bare ground	0	5	9	20	0	6
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	U	0	O	0	0

Litter / groundcover plots are located at 5, 1S, 2S, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	3	R	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Very dry but very growth of exotic forts and grasses present. Few rechis

Date 14/8	,	Plot ID#	4.4.4	Zone ID ///	n. 10 - A
Recorders	JC		119002		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
FL	lactures serribles	70		6	<u> </u>
Fi	Branica Farmifortii	10		MIG	L-
FG GG SG	Erappostis leptostachya	0.5	50	N	4
-54	Rosa ribignosa	0.1	5		M
46	Bothnia Was macra	5		N	<u></u>
96, F4 64	Ono pardin geanthium	/	50	6	<u></u>
66	Malaris aquetica tilim plantagineum Avera barbata	20		5	<u></u>
FC	Echim stanforgineum	0-3	50	5	<u>i_</u>
G4	Avena barbata			E	_
-					

<u> </u>					

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L-11-11-11-11-11-11-11-11-11-11-11-11-11					
		- A SUBSECULATION - O			
					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAIVI PIOL - FIEID SUI	vey sneet	Page 1 of (,
Date <i>14/8/1</i> 8	Survey Name Milla	cerys	
Recorders JC		Plot ID # MACO3 Zone ID 85 Poor	
Photo# Mge 03		Plot dimensions ZOKTO	
Datum 40494	Zone 55	Plot bearing along midline /88"	
Easting 742728	Northing 629427/	Record magnetic bearing along midline from 0 m point	
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot	
IBRA region Stry E	AST HIGHLANDS		

Subregion BATHURST Likely Vegetation Class CASTERN RIVERING FORESTS Plant Community Type **Condition state**

Floristics plot is centred	on the midline, at u m p	oint, 10 m either side			
BAM Composition / Structure plot (400m²)					
Dimensions (circ					
20 x 20 m	10 x 40 m	Sum values*			
	Trees	1			
Native	Shrubs	0			
Richness	Grasses etc	3			
(count of	Forbs	0			
native species)	Ferns	0			
	Other	0			
	Trees	5			
Cover	Shrubs	O			
(sum of cover	Grasses etc	45.1			
of natives	Forbs	0			
species)	Ferns	0			
	Other	0			
High threat weed cover 0.6					
*These values summarise the floristic data for input into BAM calculator					

Function plot is an	Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)					
BAM Function plot (1000m²)						
Dimensions	circle applicable	size)	(C)(C)(A)(A)(A)(A)(A)(A)(A)(A)(A)(A)(A)(A)(A)			
20 x 50 m	10 x 100 m					
Tree stem [Tree stem DBH (cm) Notes on function attributes:					
>80	(#)	Stem size class records # large trees (of. benchmark)			
50 - 79	(#)	Record stems for living trees only, and	l for all species			
30 - 49	(+/-) —	For multistemmed trees, record only	:he largest stem			
20 - 29	(+/-) /	Presence of <5cm stems records rege	neration			
10 - 19	(+/-)	Record # trees with hollows, not num	per of hollows			
5 - 9	(+/-)	Count as one stem where tree is mult	stemmed			
< 5	(+/-)	Hollow bearing stem may be a dead st	em (incl. stag)			
# Trees witl	n hollows	<20cm	Total #			
	0	>20cm**				
Length of lo	gs		Total (m)			
1						

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general 2 3 4 5 Average Litter 90 70 80 100 90 86 **Sub-plot score** Bare ground 20 0 0 5 (% cover) Cryptogam 0 0 0 0 0 Rock 0 \bigcirc

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for RAM)

Disturbance	Severity	Timing	Landform	
Clearing (incl. logging)	3	0	Microrelief	
Cultivation	i	R	Slope	
Grazing (native / stock)	0		Aspect	***************************************
Soil erosion	6		Soil surface texture	***************************************
Firewood removal	0		Soil colour	
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage	
Storm damage	0		Distance to nearest water	
Weediness	2	R	Distance to nearest rock outcrop /cave	

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Notes Very sparse over storey and us mid-storey present. While graves dominates lower storey. Distribed by volvicles/ public use / gravery.

Date <i>14/8/1</i>	Survey Name Mc Ruillany				MANAGEMENT OF THE STATE OF THE
Recorders /	JC	Plot ID#	49e 03	Zone ID 85 Poor	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
74 F4 F4	Casciania cannighamii	5	,	N	4.
FG	Rumer orispus	0.1	10	É	L
FG	Rumes crispus Manusium ulgere Brasica tormefortii	01	3	6	L_
F4	Brassica tormefortis	0.2	20	478	-
GG	Mragnitz p.	5		N	L L
al	Pen Cabillardien	40		N	
Fi FG	Enoporolum acanthium	0.1	5	E	-
FG	Scolymus hispanicus	0.1	3	E	<u> </u>
66	Malaris aquatrica	20		6	4_
46	Sunces sp	0.1	5	N	L.
FG	Acetosella vulgaris Lactura semola	0'1	52	HITE	<u>L</u>
FG	Lactura Semola	0.5	100	5	L.
al de la field					

		***************************************		60400018401840184018401840184018401840184	
			n in the state of		
				ACCUSED AND AND AND AND AND AND AND AND AND AN	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DYIALLIOF - LIGIN 201AC	y sneet	Page 1 of (
Date /4/8/18	Survey Name McPhilloungs	1
Recorders / JC		Plot ID # MACOA Zone ID NG Poor
Photo # MAE 04		Plot dimensions 20x10
Datum GDA 94	Zone 55	Plot bearing along midline
Easting 777 909	Northing 6295189	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (0 m po	oint), Photos taken vertically and horizontally at 0m point and	50 m point, looking into plot
IBRA region Sty Eas	TERN HIGHLANDS	

Subregion

MOERATE MONTANE **Likely Vegetation Class** Plant Community Type **Condition state**

Floristics plot is centred on the midline, at 0 m point, 10 m either side

rioristics procis centred	on the midline, at 0 m p	omit, 10 m either side				
BAM Composition / Structure plot (400m²)						
Dimensions (circ	Dimensions (circle applicable size)					
20 x 20 m	10 x 40 m	Sum values*				
	Trees	0				
Native	Shrubs	/				
Richness	Grasses etc	5				
(count of	Forbs	Î				
native species)	Ferns	/				
	Other	0				
	Trees	0				
Cover	Shrubs	10				
(sum of cover	Grasses etc	23				
of natives	Forbs	0.1				
species)	Ferns	0.1				
1900 DE 010 150 150 150 150 150 150 150 150 150	Other	0				
High threat weed cover						
*Those values are a significant floridated at a final significant floridat						

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

runction plot is an	extention of fig	ristics plot out to 50 m along midline (or e	quiv. area)			
BAM Funct	ion plot (1	000m²)				
Dimensions	S (circle applicat	ole size)				
20/x 50 m	10 x 100 ı	m				
Tree stem [DBH (cm)	Notes on function attributes:				
>80	(#)	Stem size class records # large trees (o	cf. benchmark)			
50 - 79	(#) -	Record stems for living trees only, and	l for all species			
30 - 49	(+/-) -	For multistemmed trees, record only t	For multistemmed trees, record only the largest stem			
20 - 29	(+/-)	Presence of <5cm stems records reger	Presence of <5cm stems records regeneration			
10 - 19	(+/-)	Record # trees with hollows, not numb	Record # trees with hollows, not number of hollows			
5 - 9	(+/-) -	Count as one stem where tree is multi	stemmed			
< 5	(+/-)	Hollow bearing stem may be a dead st	em (incl. stag)			
# Trees witl	h hollows	<20cm	Total #			
		>20cm**	0			
Length of lo	gs		Total (m)			
			17			
Measure length of	logs >10cm, fully	or partly in contact with the ground, and	within the plot.			
**Hollows of >20cr	m are recorded f	or habitat for some threatened species				

*These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	880	60	80	02	65	63
Sub-plot score	Bare ground	5	30	15	10	25	17
(% cover)	Cryptogam	10	0	5	30	O	9
ACCUSATION AND ADMINISTRATION AN	Rock	O	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform	
Clearing (incl. logging)	3	0	Microrelief	
Cultivation	0		Slope	***************************************
Grazing (native / stock)	· Marie	R	Aspect	
Soil erosion	0		Soil surface texture	Manuscript
Firewood removal	0		Soil colour	NORTH COLUMN TO THE COLUMN TO
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage	******
Storm damage	0		Distance to nearest water	
Weediness	/	R	Distance to nearest rock outcrop /cave	

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Mixtu of nactive mel explice granus/ hola. Sponse native neid larger. No

	18 Survey Name Mc Phillurry	Dict ID #	110000	Zone ID	
tecorders /	JC	Plot ID # /			In.
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
<u>G</u>	Acacia deanii	10		N	M
FG.	Plantago Sp.	5-		5	<u> </u>
46	Avena parbate	0.1	100	6	L.
FG	Hypochneris glatra	5		5	<u></u>
64	Boshrise Mon macra	10		N	4
TE	Molley punita	27		Ē	U
64	hypdospenia pallidum	j	100	N	4
EĞ	Cheilanthes sp.	0.1	10	N	4
Gh	Gysolm dackfor		300	E	4
66	Aristola ramoser	1	10	N	<u> </u>
66	Panicum effusium	1	5-	N	<u></u>
FL	Eralium botys	0.1	5	E	<u> </u>
FG FG	Wallenbergia 10	0-1	10	N	4
Fly	Hypericum perforatum	0.5	100	MYE	4
	The state of the				
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A STATE OF THE STA					
- Andrews					
A CONTRACTOR OF THE PARTY OF TH					
- LANGE					
ORACE TROOPS					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

ldentify top 3 dominants in each stratum (use own stratum definitions)

IBRA region HIGHLANDS Ctre Subregion

Likely Vegetation Class Plant Community Type **Condition state** Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

F	on the initialite, at 0 mp				
BAM Composition / Structure plot (400m²)					
Dimensions (circ					
20 x 20 m	10x 40 m	Sum values*			
	Trees	3			
Native	Shrubs	4			
Richness	Grasses etc	6			
(count of	Forbs	4			
native species)	Ferns	0			
	Other	1			
	Trees	70			
Cover	Shrubs	15-6			
(sum of cover	Grasses etc	20.9			
of natives	Forbs	1.2			
species)	Ferns	0			
	Other	5			
High threat wee	ed cover	0.6			
*These values summarise the floristic data for input into BAM calculate					

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area) BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: >80 (#)Stem size class records # large trees (cf. benchmark) (#)50 - 79 Record stems for living trees only, and for all species 30 - 49 For multistemmed trees, record only the largest stem 20 - 29 Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 Count as one stem where tree is multistemmed < 5 Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows <20cm Total # 2 >20cm** \circ Length of logs Total (m)

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot. **Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	80	95	90	70	90	85
Sub-plot score	Bare ground	5	5	0	20	O	6
(% cover)	Cryptogam	5	٥	0	0	O	1 /
	Rock	0	0	0	0	0	

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	Ö	Microrelief
Cultivation	Ø		Slope
Grazing (native / stock)	į	R	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	/	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Notes Morgestion layer present. Girnes + Foly difficult to identify due today

Date /5/8	1/8 Survey Name Mithillary	1				
Recorders	JC	Plot ID #	MACOS	Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
SG	Casenia arenta	10		N	M	
SG	Acaria deanii	5		N	M	
lila	Phalans sp	15		E	<u></u>	
	Lomandra Congifolis	10		N	L	
96 S	Styphelia triflora	01	2	N	M	
44	Dianella revoluta	0.2	50	N	<u> </u>	
X	Brachyloma daphnoides	0.2	5	N	M	
46	Pea sieberiana Frodim cicutarium	0.2	200	N	<u> </u>	
FG	Gradien cicutarium	5		6	<u></u>	
F4	Grum marginale	0.1	20	N	<u> </u>	
Sq	Rosa rubignosa	0.5	10	MTC	M	
TG	Emalyphus goniscalys	50		N	4	
FG	Geranim graniticola Plantaip lancestata	0.1	10	N	<u></u>	
FZ	Planterys terrestata	0.2	40	5	<u> </u>	
Sc.	Rubus Inticosis	0.1	///	415	M	
66	Enegration Sp	/0		N	4	
04	Anyema miquelli	5		N	a	
96	Panicum efficien	0.1	2_	N	<u>C</u>	
FG	Acrobiche semulate	0.2	10	N	0	
TG	Encalyptus mannifera	5		N_	4	
TL	Eucalyptus sp.	15		N	4	
	, ,					
					<u> </u>	
- Acceptable Community Com						
- IANA WAR						
AACKCOOKS AND TO THE TOTAL CONTROL OF THE TOTAL CONTROL OT THE TOTAL CONTROL OF THE TOTAL CON						

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAINLINE LICIO DOLAC	yource		Page 101(
Date /5/8//8	Survey Name McPhillaurys		
Recorders ′ 」	/	Plot ID # MACO7	Zone ID 1093 4001
Photo# 114c 67		Plot dimensions Z) K] D
Datum GD4 94	Zone f	Plot bearing along midl	line 255
Easting 758988	Northing 6296050	Record magnetic bearing along midlin	ne from 0 m point
Record easting, northing at plot marker (0 m po	int), Photos taken vertically and horizontally at 0m point and !	50 m point, looking into plot	
IBRA region Sty EASTE	ERN PHYNDAND		

Subregion flice END

Likely Vegetation Class STY TABLECANDS DRY SCIEROPHYNE FORESTS

Plant Community Type 1093 Condition state Good.

Floristics plot is centred on the midline, at 0 m point, 10 m either side

Tionstics plot is centiled	on the midline, at 0 m p	onit, 10 m entiter side				
BAM Composition / Structure plot (400m²)						
Dimensions (circ	le applicable size)					
20 k 20 m	10 x 40 m	Sum values*				
	Trees	2				
Native	Shrubs	7				
Richness	Grasses etc	2				
(count of	Forbs	if				
native species)	Ferns	0				
	Other	/				
	Trees	95				
Cover	Shrubs	542				
(sum of cover	Grasses etc	10.5				
of natives	Forbs	0.4				
species)	Ferns	0				
	Other	5				
High threat we	High threat weed cover					

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

T directori piot is an	extention of nonst	nes piot out to so mit	acing illianine (or eq	arv. arcaj	
BAM Function plot (1000m²)					
Dimensions	(circle applicable	size)			
20⁄x 50 m	10 x 100 m				
Tree stem [DBH (cm)	Notes on functio	n attributes:		
>80	(#) O	Stem size class reco	rds # large trees (cf	. benchmark)	
50 - 79	(#) /	Record stems for liv	ring trees only, and	for all species	
30 - 49	(+/-) 0	For multistemmed trees, record only the largest stem			
20 - 29	(+/-) V	Presence of <5cm stems records regeneration			
10 - 19	(+/-)	Record # trees with	hollows, not numb	er of hollows	
5 - 9	(+/-)	Count as one stem v	where tree is multis	temmed	
< 5	(+/-)	Hollow bearing sten	n may be a dead ste	m (incl. stag)	
# Trees with	h hollows	<20cm	2	Total #	
	/	>20cm**	i	3	
Length of lo	ogs _{///}			Total (m) ろ	
Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.					
**Hollows of >20cm are recorded for habitat for some threatened species					

*These values summarise the floristic data for input into BAM calculator **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	100	90	90	95	60	87
Sub-plot score	Bare ground	0	0	5	Ø	40	9
(% cover)	Cryptogam	0	5	1	Ó	0	1-2
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	1	R	Aspect
Soil erosion	63		Soil surface texture
Firewood removal	9		Soil colour
Fire (ground stratum, mid, canopy burnt?)	9		Site drainage
Storm damage	9		Distance to nearest water
Weediness	j.	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent {<3y}, NR = not recent, O = old/historic

Notes	AU1	olgabation	layen	present.	Small pa	tel sur	rainolo	Ba Phus	dashil-
High	er di	venity/con	ver of	mid/sl	no laye	v Hon	and	sitis.	partolion.

Date 15/8/19 Survey Name M. Phillannys Recorders JC Plot ID # M4c07 Zone ID						
Recorders '	JC	Plot ID#	M407	Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
74	Eucalyptus mannifera	40		N	4	
76 76	Eucolophus amisculess lassinia arcuata Acacia cleania Acostriche serrulata	ST		N	G	
\$9 \$9 \$4 \$4 \$4	Cassinia arcusta	35		N	M	
59	Acaria cleanic	10		N	n	
\sim	Acrotriche serrulata	3	2	N	4	
FG	Seneres Sp	0.1	5	N	Ĺ	
<u> </u>	Brachestoura daphnoides	5		N	M	
	Dranella revoluta.	0'5	50	N	4	
74 04	Pinus radiceter	0.1	5	HTG	M	
04	Anyena miguellic	Ţ		N	CA	
<u>SG</u> SG	Acacia gunnii	0.1	/	N	M	
SG	Anyena mynellic Acacia junnie Dilluynies phylicoicles Leuispogen fletcheri Euchiten japonicus	011	2	N	M	
SC	Leuispogon fletcheri	<u> </u>	130	N	M	
FG	Euchiton japonices	0.1	30	N	1	
FG	alvensin manicisca	0-1	/	N	4	
44	Pou siebeniuna	10		N	6	
FG	Viola best betonicifolia	0.1	/	N	<u></u>	

					1	
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			1		1	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

			1460 101()		
Date 15/8/18	Survey Name M. Phillare	145	<i>i</i> 0		
Recorders /		Plot ID# MACOR	Zone ID 727 Anhata		
Photo# NAC 03		Plot dimensions Zex 50			
Datum GD4 94 Zone 55		Plot bearing along midline 27°			
Easting 760691 Northing 6297634		Record magnetic bearing along midline from 0 m point			
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m poi	nt and 50 m point, looking into plot			
IBRA region Sty EAS	TERN MICHLANDS				

Subregion END

Likely Vegetation Class

Plant Community Type

Condition state Market Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side							
BAM Composition / Structure plot (400m²)							
Dimensions (circle applicable size)							
20 x 20 m	10 x 40 m	Sum values*					
	Trees	2					
Native	Shrubs	3					
Richness	Grasses etc	4					
(count of	Forbs	9					
native species)	Ferns	· Manage					
	Other	0					
	Trees	75					
Cover	Shrubs	7					
(sum of cover	Grasses etc	95					
of natives	Forbs	3					
species)	Ferns	15					
	Other	0					
High threat weed cover							

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)						
BAM Funct	ion pl	ot (10	00m²)			
Dimension	S (circle :	applicable	size)			
20×50 m	10 x	100 m	The second secon			
Tree stem I	овн (с	cm)	Notes on function attributes:			
>80	(#)	0	Stem size class records # large trees (c	f. benchmark)		
50 - 79	(#)	(#) Record stems for living trees only, and for all species				
30 - 49	(+/-)	Marie.	For multistemmed trees, record only t	he largest stem		
20 - 29	(+/-)	See of the latest terminal ter	Presence of <5cm stems records reger	eration		
10 - 19	(+/-)	₩	Record # trees with hollows, not numb	er of hollows		
5 - 9	(+/-)	/	Count as one stem where tree is multis	stemmed		
< 5	(+/-)	Ser.	Hollow bearing stem may be a dead sto	em (incl. stag)		
# Trees witl	h holle	ows	<20cm	Total #		
			>20cm**	0		
Length of lo	gs		The state of the s	Total (m)		
				4		
Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.						
**Hollows of >20cm are recorded for habitat for some threatened species						

*These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used	for BAM, other att	ributes are useful f	or recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	70	100	50	80	100	80
Sub-plot score	Bare ground	0			~~	. ~	0
(% cover)	Cryptogam	0	yato-	5	_	*	1
	Rock	O	-		Made.		0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	6		Slope
Grazing (native / stock)	1	R	Aspect
Soil erosion	1	R	Soil surface texture
Firewood removal	6		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	7	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Almost ne materie apper layer parent. Regeneraling her species. Site distribed by public access, retrictes, biles.

Date / <u>5/8//</u> Recorders	Survey Name McPhillamy	Plot ID#	MAROS	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	aparate and a second	N, E, HTE	Stratum
SZ	Lomatia myricojolas	j	2_	N	M
F4	Veronica calycina	0.1	50	N	L-
5G	Pterioliem esculentum	15		N	Luce
14	Cytisus suspanius	5		HTE	m
54	Rubus fruticasus	1	10	MIE	M
F4	houm maginale	05	50	N	4
64	Comandra Congitolia	çi		N	L
FG	Airstriche serulata	0.1	10	N	4
Šć.	Acaria falcifornis	5		N	M
TG	Encalipatus mannifera	50		N	雄
TC	Encalipters dives	2.5		N	M
79 94	Pea sietenanne	50		N	L.
FG	Geranium granitiesta	0.5	50	N	6
FC	Chrysocephalin apiculatum	0.2	200	N	<u></u>
46	Joycea palijola	20		N	4
FG	Minuartia mediterranea	0.1	5-	E	4
<u>, , , , , , , , , , , , , , , , , , , </u>	Casinia accenta	1	3	N	M
<u> </u>	Minus (selicates	0.1	2-	HTE	m
FG		0.1	200	1	4
F4	Acaena novae-zelandcae	07	30°C	N	4_
FG	Hypochaesis glassa	0.1	100	5	<u></u>
FG	Viola betoricifolia	0.1	2_	N	
and the second s					
- A A A A A A A A A A A A A A A A A A A					
CONTRACTOR OF THE CONTRACTOR O	4444				
TALLET AND A STATE OF THE STATE					
				_	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date /5/8//8	Survey Name Nothillan	Janus				
Recorders / JC		Plot ID # MACOG	Zone ID 727 Pour			
Photo # 114009		Plot dimensions 20x50				
Datum GOA 94	Zone	Plot bearing along midline 105				
Easting 76/016	Northing 6297427	Record magnetic bearing along midl	ine from 0 m point			
Record easting, northing at plot marker (0 m p	point), Photos taken vertically and horizontally at 0m poi	nt and 50 m point, looking into plot				
IBRA region STM E	ASTERN HIGHLANDS					
Subregion HILL						
Likely Vegetation Class						
Plant Community Type 7	27	Condition state foor				

Floristics plot is centred on the midline, at 0 m point, 10 m either side

	on the midnine, at o m p	ome, 10 m cienci side				
BAM Composition / Structure plot (400m²)						
Dimensions (circle applicable size)						
20 x 20 m	10 x 40 m	Sum values*				
	Trees	/				
Native	Shrubs	4				
Richness	Grasses etc	4				
(count of	Forbs	/ 6				
native species)	Ferns	1				
	Other	0				
	Trees	85				
Cover	Shrubs	1.3				
(sum of cover	Grasses etc	95-1				
of natives	Forbs	9.9				
species)	Ferns	Ś				
	Other	0				
High threat weed cover						

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)					
BAM Funct	ion plot (10	00m²)			
Dimensions	S (circle applicable	size)		***************************************	
20 x 50 m	10 x 100 m				
Tree stem I	DBH (cm)	Notes on function	n attributes:		
>80	(#)	Stem size class reco	rds # large trees (cf	benchmark)	
50 - 79 (#) Record stems for living trees only, and for all species					
30 - 49	(+/-)	For multistemmed t	rees, record only th	e largest stem	
20 - 29	(+/-)	Presence of <5cm st	tems records regen	eration	
10 - 19	(+/-)	Record # trees with	hollows, not numb	er of hollows	
5 - 9	(+/-)	Count as one stem v	where tree is multis	temmed	
< 5	(+/-) √	Hollow bearing sten	n may be a dead ste	m (incl. stag)	
# Trees with	h hollows	<20cm		Total #	
(<u> </u>	>20cm**		0	
Length of Ic	ogs			Total (m)	

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	85	90	90	90	60	83
Sub-plot score	Bare ground	0	0	0	0	5)
(% cover)	Cryptogam	5	ن	5	5	20	7
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	3	R	Aspect
Soil erosion	Ö		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	0		Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

otes	111111111111111111111111111111111111111	The second secon	

Date 15/8/18				T		
Recorders ¹	JC '	Plot ID#	upono con constanto de la cons	Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
SG	Accecia falcifornis	/	0	N	14	
EG	Pteriolism escularteum	2	150	N	L	
94	Lomandra Congifolia	10		N	L_	
SC	Rubers fruticasces	0.5	6	HTG	m	
FG	Senecis quadridentatus	0.7	25	N		
66	Pou siebenana	<u> </u>		N	<u></u>	
46	Rytidospema pallidum	80		N	4	
SG	Cascinia sp.	0.1	/	<i>N</i>	M	
FG	Wahlenbergin sp.	0.1	50	N	<u> </u>	
Sci	Leucopogon virgatus	0.1	/	N	m	
44	Lomandra multiflora	0.1	10	N	Lan	
FG	Acropriche semilata		70	N	<u></u>	
FL	Hypochaen's glabra	0.1	20	5	<u> </u>	
FL	Alaena novar- Belandiare	0.1	100	N	<u></u>	
FL	Minuartia mediterranea	0.1	50_	5	<u></u>	
FG	Geranim graniticola	0.1	100	N	<u></u>	
FG	Linum marginale	0.2	100	N	<u> </u>	
SG	Hibbertia shrusifolia	0.1		N	M	
TC	Eucalyphus mennitera	5		N	U.	
FG .	Dichohdra repens	5		N	<u> </u>	
FG FG	Viola betonicifolia	/	200	N	<u> </u>	
F4	Veronica calycina	1	200	N.	<u> </u>	
FG	Chrysocepholion apicelatum		10	N		
	, , ,					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

	-		1 486 - 01 /
Date /5/8/18	Survey Name McPhillan	441	
Recorders / JC		Plot ID # MACIO	Zone ID Non-natur
Photo # MACIO		Plot dimensions	Zexso
Datum GDA 94	Zone ff	Plot bearing along mi	
Easting 76/920	Northing 6297937	Record magnetic bearing along mi	dline from 0 m point
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot	
IBRA region STM E	ASTERN HIGHLANDS		
	ENI)		
			1

Likely Vegetation Class

Plant Community Type

Non - native

Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Composition / Structure plot (400m²)						
Dimensions (circ	le applicable size)					
20 <i>(2</i> 0 m	10 x 40 m	Sum values*				
	Trees	0				
Native	Shrubs	0				
Richness	Grasses etc	(
(count of	Forbs	0				
native species)	Ferns	1				
	Other	0				
	Trees	O				
Cover	Shrubs	0				
(sum of cover	Grasses etc	0.1				
of natives	Forbs	0				
species)	Ferns	0.2				
	Other	0				
High threat weed cover /05						

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)									
BAM Funct	ion pl	ot (10	00m²)						
Dimensions	S (circle	applicable	size)	у у с					
20 x 50 m	10 x	100 m							
Tree stem [овн (cm)	Notes on function attributes:						
>80	>80 (#) O Stem size class records # large trees (cf. benchmark)								
50 - 79	(#) C Record stems for living trees only, and for all species								
30 - 49	(+/-)	-/-) For multistemmed trees, record only the largest stem							
20 - 29	(+/-)	1	Presence of <5cm stems records regen	eration					
10 - 19	(+/-)	L	Record # trees with hollows, not numb	er of hollows					
5 - 9	(+/-)	-	Count as one stem where tree is multis	temmed					
< 5	(+/-)		Hollow bearing stem may be a dead ste	em (incl. stag)					
# Trees with	n holl	ows	<20cm	Total #					
	O >20cm**								
Length of lo	Length of logs #11 *#1 ##1 ##1 ##1 ##1 ##1 AFT AFF Total (m)								
PHI HHI AH	57								
Measure length of	logs >10c	m, fully or	Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.						

*These values summarise the floristic data for input into BAM calculator **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used	for BAM, other at	tributes are useful fo	or recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	100	100	100	100	100	100
Sub-plot score	Bare ground	ç.		- No.			O
(% cover)	Cryptogam	- Andrews	,204 <u>.</u>	₃ 662		_	O
	Rock			-			0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	3	R	Slope
Grazing (native / stock)	0		Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes	Pinus	radiata	plensoction
			1

BAM Plot - Field Survey Sheet

Date 15 8	18 Survey Name McPhilla	mys			
Recorders		Plot ID#	14c10	The second secon	ni-nulin
GF code	Ganus enecies (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
TE	Orner moliceta	94		MIE	U
Se	Rubus Impressus	10		HTE	M
SC E4 F4	Ptendium Esculentum	0.2	20	N	Lace
F-4,	Manfago lancestato	01	3	C	L
46	Proces adjusta Lubus Inficosus Prendium Esculentum Mantago Cancestata Lomandra Congiletia	01	3	N	<u> </u>
	U .				
and the state of t					
			10000000		
		FC) Form (EG) Othe	(0.0)		

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Dittivition includes	achouree		rage I OI ()
Date /5/8/18	Survey Name McPhiller	uys	
Recorders / JC		Plot ID # 1940 (1	Zone ID 76 Malati
Photo# MAC11		Plot dimensions	20,50
Datum GDA94	Zone 55	Plot bearing along mi	dline 197
Easting 763094	Northing 629 8435	Record magnetic bearing along mic	lline from 0 m point
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m p	point and 50 m point, looking into plot	
IBRA region SOUTH	SASTERN MIGHLANDS		
Subregion			

Likely Vegetation Class

Plant Community Type 15 768

Condition state Makeraka

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Composition / Structure plot (400m²)						
Dimensions (circ	le applicable size)					
20 x 20 m	10 x 40 m	Sum values*				
Man of the state o	Trees	0				
Native	Shrubs	0				
Richness	Grasses etc	6				
(count of	Forbs	/				
native species)	Ferns	/				
	Other	0				
	Trees	0				
Cover	Shrubs	0				
(sum of cover	Grasses etc	56.1				
of natives	Forbs	70				
species)	Ferns	0.1				
	Other	0				
High threat wee	ed cover	5				

Function plot is an	extention of floris	tics plot out to 50 m along midline (or ed	uiv. area)	
BAM Funct	ion plot (10	00m²)		
Dimensions	(circle applicable	e size)		
20 x 50 m	10 x 100 m	1		
Tree stem [DBH (cm)	Notes on function attributes:		
>80	(#) O	Stem size class records # large trees (c	f. benchmark)	
50 - 79	(#) -	Record stems for living trees only, and for all species		
30 - 49	(+/-)	For multistemmed trees, record only the largest stem		
20 - 29	(+/-)	Presence of <5cm stems records regeneration		
10 - 19	(+/-)	Record # trees with hollows, not numb	er of hollows	
5 - 9	(+/-) ~	Count as one stem where tree is multis	temmed	
< 5	(+/-)	Hollow bearing stem may be a dead ste	em (incl. stag)	
# Trees wit	h hollows	<20cm	Total #	
		>20cm**	0	
Length of lo	gs	The second secon	Total (m)	
			2	
Measure length of	logs >10cm, fully o	or partly in contact with the ground, and	within the plot.	
Hollows of >20c	m are recorded for	habitat for some threatened species	*************************************	

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							ndition in general
		1	2	3	4	5	Average
	Litter	100	100	100	100	75	90
Sub-plot score	Bare ground	SARGE MALE.) make and the	مختريو	Appendix.	La	0
(% cover)	Cryptogam				namin _a		0
	Rock	g. and		Berlin Control	and the same of th		0

Litter / groundcover plots are located at 5, 15, 25, 35, 4S m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope
Grazing (native / stock)	0		Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Westand area (creek crossing anid Rines platation. Antic grand layer. Only existic mich upper layer.

^{*}These values summarise the floristic data for input into BAM calculator

Date 15/8/	18 Survey Name Michilany	18.			
	Survey Name M. Whillamy J.C. Ganus species (tick if photographed or sample taken)	Plot ID#	MAC 17	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
FG.	Hydro cotyle sibthapioides	70		N	1
66	Juneus effusus	5		Grand Contraction of the Contrac	4
44 44	Carex appressa	30		N	4
44	Correso fascicularis	0.1	20	N	L_
66	Masteris agnotica	0.3	100	Ë	l-m
46	Lomandra yo	j	10	N	L-
EG	Blechnum sp	01	5	N	1_
66	Eleocharis acuta	/5		N	4
ŜĠ	Rubus fruticosus	5		ME	m
44 84 44				N	И.
TG	Pinus rudiata	5		5	И.
4 1-1 4-10-1					
			111111		
1					
and the second s					

38001000000000 101 111					
A CAN STREET					
A STATE OF THE STA					
A A A A A A A A A A A A A A A A A A A					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

	7	1 280 1 01 /
Date 15/8/18	Survey Name Nothitanys	
Recorders / JC		Plot ID # MAC 12 Zone ID /197 Poor
Photo# MACIZ		Plot dimensions (OX (OC)
Datum 4D4 94	Zone 55	Plot bearing along midline / 以
Easting 765279	Northing 6298330	Record magnetic bearing along midline from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Floristics plot is centred	on the midline, at 0 m p	oint, 10 m either side
BAM Composit	ion / Structure	plot (400m²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF TH	Trees	O
Native	Shrubs	2
Richness	Grasses etc	Š
(count of	Forbs	4
native species)	Ferns	0
	Other	0
	Trees	O
Cover	Shrubs	0. 2
(sum of cover	Grasses etc	0.1
of natives	Forbs	04
species)	Ferns	0
	Other	0
High threat wee	ed cover	5-7

BAM Funct	ion plot (10	00m²)	
Dimensions	5 (circle applicable	size)	***************************************
20 x 50 m	10 £1 00 m		
Tree stem [OBH (cm)	Notes on function attributes:	
>80	(#)	Stem size class records # large trees (c	f. benchmark)
50 - 79	(#) —	Record stems for living trees only, and	for all species
30 - 49	(+/-)	For multistemmed trees, record only t	he largest stem
20 - 29	(+/-) -	Presence of <5cm stems records reger	neration
10 - 19	(+/-)	Record # trees with hollows, not numb	er of hollows
5 - 9	(+/-) -	Count as one stem where tree is multis	stemmed
< 5	(+/-)	Hollow bearing stem may be a dead ste	em (incl. stag)
# Trees with	h hollows	<20cm	Total #
	0	>20cm**	
Length of lo	gs		Total (m)
644 1101			9

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

*These values summaris	e the floristic data for inp	ut into BAM calcul	ator	**Hollows of >20	cm are recorded for	habitat for some th	reatened species
BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is us	sed for BAM, other att	ributes are useful fo	or recording site cor	ndition in general
		1	2	3	4	5	Average
	Litter	85	70	90	90	100	87
Sub-plot score	Bare ground	5	15	10		_	6
(% cover)	Cryptogam	5	,,	,	940	346***	1
	Rock	0	-	~			

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for RAM)

Disturbance	Severity	Timing	Landform	
Clearing (incl. logging)	3	2	Microrelief	MONTH AL
Cultivation	-		Slope	
Grazing (native / stock)	2		Aspect	
Soil erosion	_		Soil surface texture	
Firewood removal	~		Soil colour	
Fire (ground stratum, mid, canopy burnt?)	-		Site drainage	- Insure
Storm damage	_		Distance to nearest water	-
Weediness	i	R	Distance to nearest rock outcrop /cave	

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Cocation of underbony RA?

Date <i> 5 8 </i>	18 Survey Name McPhillanny	<u> </u>	2.000	1		
Recorders	X.	Plot ID# /1140 12		Zone ID		
iF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
99	Themsela triundra		25	N	4	
FG	Planterge Cancestata	01	150	6	L	
FG	Chrysocophalin appendation	0.1	5	N	L	
Sć	Rubus puticosus	0.1	5	416	M	
75	Rines prolicates	0.1	/	MIE	U	
SCt	Caninia acuata	0.1	3	N	M	
FLI	Aypenium perforatum	0.1	50	MIE	-	
44	Pou siebenane	<u> </u>	<i>5</i> 666	N	4	
FC.	Onopordum acouthium	0.1	3	6	۷	
<u>\$4</u>	Comatia chiifolia	0.1		N	<u> </u>	
44	Lomandra filiformis	0.7	30	N	4	
FL	Compa so.	0.1	20	6	<u> </u>	
FLI	Arstrike semulatu	0.1	5	N	4	
66	Phalanis sp.	0.2	300	L	4	
Fli	Wahlenbergie shicter	0.1	20	N	<u>L</u>	
<u> </u>	Lytisus sespanicus Acetosella vulgaris	5		MIE	m	
FG.	The losella vulgaris	0.2		HITE	<u></u>	
	V					
OCONO						
v						
					<u> </u>	
				- MANAGEMENT - MANAGEMENT		
					<u> </u>	
					ļ	
Marie Community						
100000			<u> </u>			
			<u> </u>			
	RAM Appendix 4) - Tree (TG) Shrub (SG), Grass & grasslike (GG), Forb (FG).					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAIVI PIOT - FIEIU SUI	vey sneet		rage I OI ()
Date 70 /6/18	Survey Name M. Phillian	uys	654
Recorders Kata	Hummil	Plot ID# MAC 13	Zone ID By Gazel W
Photo # MAC 13		Plot dimensions 2	OXIO
Datum CDA 94	Zone 55	Plot bearing along mid	dline 260
Easting 737667	Northing 629 3982	Record magnetic bearing along mid	line from 0 m point
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m po	oint and 50 m point, looking into plot	
IBRA region STUE	astern Highlands		
Subregion Batt	unst		
Likely Vegetation Class		any woodland	
Plant Community Type	bett	Condition	state de la

Plant Community Type

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Compositi	ion / Structure	plot (400m²)				
Dimensions (circl	e applicable size)					
20 k 20 m	10 x 40 m	Sum values*				
	Trees	1				
Native	Shrubs	O				
Richness	Grasses etc	49 7				
(count of	Forbs	4-				
native species)	Ferns	0				
	Other	ľ				
	Trees	15				
Cover	Shrubs	O				
(sum of cover	Grasses etc	/2.00				
of natives	Forbs	7.18				
species)	Ferns	0				
	Other	0.2				
High threat we	ed cover	2.1				

Function plot is an	extention of florist	ics plot out to 50 m a	nong midime (or eq	uiv. ai ea j
BAM Functi	ion plot (100	00m²)		
Dimensions	(circle applicable	size)		
20 x/50 m	10 x 100 m			
Tree stem [DBH (cm)	Notes on functio	n attributes:	
>80	(#)	Stem size class reco	ords # large trees (cf	. benchmark)
50 - 79	(#) 2	Record stems for liv	ing trees only, and	for all species
30 - 49	(+/-) -	For multistemmed	trees, record only th	e largest stem
20 - 29	(+/-) —	Presence of <5cm s	tems records regen	eration
10 - 19	(+/-)	Record # trees with	hollows, not numb	er of hollows
5 - 9	(+/-) —	Count as one stem	where tree is multis	temmed
< 5	(+/-)	Hollow bearing ster	n may be a dead ste	m (incl. stag)
# Trees witl	h hollows	<20cm	1	Total #
/		>20cm**	0	
Length of Ic	gs			Total (m)
15.5+3	S 0			45.5
Measure length of	logs >10cm, fully o	r partly in contact wi	th the ground, and	within the plot.
**Hollows of >20c	m are recorded for	habitat for some thr	eatened species	

*These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gr	oundcover (1 x 1	l m plots)	Litter cover is used	for BAM, other atti	ributes are useful fo	r recording site con	dition in general
		1	2	3	4	5	Average
	Litter	80	100	95	95	90	92
Sub-plot score	Bare ground	10	O	5	5	10	6
(% cover)	Cryptogam	port.	_{type} m,	yer.	Marie		0
	Rock	***		-		7400 PART	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion		A	Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Rotes day day with regenerating posses placements pearly prent on site. Bite brachs. Craving from Kangaraos, Rabbits.

Recorders 🤾	Survey Name M. Bhillaus	Plot ID # /	1000 0	Zone ID	
3F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		12
74		/ S	ADUITU (count)	N, E, HTE	Stratun
FG	Enculyptus mellisolora	1 2		3	4
FG.	Mamusim vulgare		100	E	l
<u>54</u>		2	10	476	
FL	Einselia nutary	-5	50	N	4
44	Bothrochlon macra	2	jo	<i>N</i>	-
66	Engraphis porvilloran	0.4	10	N	-
44	Panicum Efferen	0.1	5	N	
66	Austrostina scabia	10		N	L
54	Coloneaster	1	,	E	M
	Avena fatua	/	30	5	<u> </u>
66 66	Cynoclon dactylon	10		=	L_
FG	Gradium civitariam	10	٠٠٠.	E	L-
99	Erngrostis leptostachiga	0.1	/	N.	4
FG	Brasica torrefortie	0.1	10	4TE	4
04	Myene mywellie	0.5	1	N	U
FG	Edin plantageneum	0'1		6	4
FG	Portulaca stearacca	0-05	3	N	<u> </u>
<u>FG</u>	Tribulus terreshis	0.1	1	ϵ	الله الله
44	Lomandra extinctica	0.05	4	N	4-
66	Caesia so	005	3	N	4
FG	Ginadia hastata	2	15	W	-
- 64	Phalaris agaretica	0.1	10	E	
54	Rosa rubignosa	/	2	FITE	M
<u> </u>	Rubus fruticosus	01		475	m
FG	Gradium malacoides	05	25	E	<u> </u>
FG.	axulis perennans	0.05	5	\mathcal{N}	<u></u>
· · · · · · · · · · · · · · · · · · ·					
			The second secon	(11770)	
				- NO MARKET CANADA IN CONTRACTOR	
				WARNES OF THE STREET,	
		WWW.company			
				TO THE STATE OF TH	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 18/10/13	Survey Name W. Phillan		
Recorders JC, B	9	Plot ID # MACGS Zone ID	
Photo #		Plot dimensions 20100	
Datum	Zone	Plot bearing along midline	
Easting 720248	Northing 6293604	Record magnetic bearing along midline from 0 m point	
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m p	oint and 50 m point, looking into plot	
IBRA region			
Subregion			
Likely Vegetation Class			
Plant Community Type	***************************************	Condition state	

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composition / Structure plot (400m²)						
Dimensions (circl	le applicable size)					
20 x 20 m	10 x 40 m	Sum values*				
	Trees	2				
Native	Shrubs	0				
Richness	Grasses etc	Ø				
(count of	Forbs	8 /				
native species)	Ferns	0				
	Other	(
	Trees	50				
Cover	Shrubs	0				
(sum of cover	Grasses etc	0				
of natives	Forbs	0.1				
species)	Ferns	0				
	Other	5				
High threat we	ed cover	0				
*These values summarise	e the floristic data for in	put into BAM calculato				

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

runction piot is an	extention or nonst	ics plot out to 50 m a	tong manne (or eq	aiv. ai caj
BAM Funct	ion plot (100	00m²)		
Dimensions	(circle applicable	size)		
20 x 50 m	10 x 100 m			
Tree stem (OBH (cm)	Notes on function	n attributes:	
>80	(#) /	Stem size class reco	rds # large trees (cf	. benchmark)
50 - 79	(#) (Record stems for liv	ing trees only, and i	for all species
30 - 49	(+/-)	For multistemmed t	rees, record only th	e largest stem
20 - 29	(+/-)	Presence of <5cm st	ems records regen	eration
10 - 19	(+/-) -	Record # trees with	hollows, not numbe	er of hollows
5 - 9	(+/-) ~	Count as one stem v	where tree is multis	temmed
< 5	(+/-)	Hollow bearing sten	n may be a dead ste	m (incl. stag)
# Trees wit	h hollows	<20cm		Total #
	0	>20cm**		8
Length of Id	ogs			Total (m)
				2_
Measure length of	logs >10cm, fully o	r partly in contact wit	th the ground, and v	within the plot.
**Hollows of >20c	m are recorded for	habitat for some thre	eatened species	

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	50	40	80	80	50	60
Sub-plot score	Bare ground	5	0	0	0	0	/
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	O	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	.3	NR	Slope Mid slope
Grazing (native / stock)	3	R	Aspect '
Soil erosion	0		Soil surface texture Clay /sam
Firewood removal	3	R	Soil colour Gray
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage Run off
Storm damage	0		Distance to nearest water 700 m
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Recorders	JC 54	Plot ID#	MACGS	Zone ID	
iF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
79	E. melandy In melliodora	25		N	
TG	E. Apple Box	25		N	
	Canola	5		E	
	Trifolium repens	46		6	
	Cape Weed	5 46 25		E	
	Rumers sp (photo)	0.1	20	E	
	Grass 1 6 materia	30		,	
	Grass 2 B. macra helden thistle smooth Cutaear	5			
	holden thistly	0.1	5-	T	
	Smooth Cukrear	0.8	100	E	
	Mydicano so	0.1	200	E	
FG	Medicago Sp. Shraing nettle Vitica incisca Tholaris Sp. Middle Sp. America m.	0.1	50	Æ	
	Pholaris so	0.1	20	7/04	
09	Moderns Sp mistleter Sp. Angenia m. forts 1 (Mox 66)	5			
0.7	Fode 1 (Mor GG)	0.1	50		
	TOTAL (1100 CO)	0.1			
					-
					-
					-

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 16/10/2018	Survey Name	
Recorders JC, EG		Plot ID # MAC GG Zone ID
Photo #		Plot dimensions 20×50
Datum 949DA	Zone 55H	Plot bearing along midline 107
Easting 719 253	Northing 629 3971	Record magnetic bearing along midline from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type Non-new

Condition state

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	0
Native	Shrubs)
Richness	Grasses etc	1
(count of	Forbs	1
native species)	Ferns	0
	Other	0
Cover (sum of cover	Trees	0
	Shrubs	0.1
	Grasses etc	5
of natives	Forbs	6.1
species)	Ferns	0
	Other	0

BAM Func	tion plot (1	000m²)				
Dimension	S (circle applicab	le size)				
20 x 50 m	10 x 100 r	n				
Tree stem	DBH (cm)	Notes on function attribute	es:			
>80	(#)	Stem size class records # large	trees (cf. benchmark)			
50 - 79	(#)	Record stems for living trees only, and for all species				
30 - 49	(+/-)	For multistemmed trees, record only the largest ste				
20 - 29	(+/-)	Presence of <5cm stems records regeneration				
10 - 19	(+/-)	Record # trees with hollows, no	ot number of hollows			
5 - 9	(+/-)	Count as one stem where tree	is multistemmed			
< 5	(+/-)	Hollow bearing stem may be a dead stem (incl. stag)				
# Trees wit	th hollows	<20cm	Total #			
		>20cm**	0			
Length of I	ogs		Total (m)			
Measure length o	f logs >10cm, fully	or partly in contact with the grour	nd, and within the plot.			

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is use	d for BAM, other att	tributes are useful fo	or recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	90	95	100	80	80	89
Sub-plot score	Bare ground	0	0	0	0	5	1
(% cover)	Cryptogam	0	0	0	20	0	4
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	3	R	Slope lower sight
Grazing (native / stock)	3	R	Aspect west
Soil erosion	0		Soil surface texture Clay 10 am
Firewood removal	0		Soil colour Brown - gred
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage GUO OO
Storm damage	0		Distance to nearest water
Weediness	2	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Recorded Grogs here at the dam

Date 18/10/2018 Survey Name Recorders		Plot ID # Mac 66		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
TG	A	80		HE	
FG	Pinus radiator Oxalis Perenans Plantago SP. grass 1 Tacks 1	Oct	50		
19	Plantage GP	1	50		
11-	Plantago S.	5	30		
66 F6	1000	01	100		
16	Considerate pars	0.1	100		
	to Consultation of States	0.1			
11.	Smooth cats ears 6 Cynadan dadylan Phalaus SP Black DULY Shart Casina laevis	1	100		
66 56 56	Plake	5	100	ME	
56	Stack bury	0.1	2	*(
26	Salar allers	3,1			
			-		

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot -		Survey Nam	ne II.A	hi langs				Page 1 of (
Recorders _		Jan vey Han	ic Mor	ich denced 2	Plot ID #	MARRI	Zono ID /2	200 -
Photo #					Plot ID # MACG7 Zone ID /330 Pour			
Datum Zone 55					ing along mi			
Easting 7204	En n	Northing 6213623					dline from 0 m point	
Record easting, northin							anne nom o m pont	
IBRA region	0	,,	researcy and none	sireary at our point an	u 30 III poliit, 100kii	ig into piot		
Subregion							-	
Likely Vegetati	on Class							
Plant Commun		7.0				Condition	state heleloe	h hees Pe
Floristics plot is centred		Z.M.	e	Function plot is a	an extention of flor		m along midline (or e	
BAM Composit					tion plot (1		m drong mame (or c	equiv. areay
Dimensions (circ		7	1		1S (circle applicab			
20 x 20 m	10 x 40 m	Sum values	k	20 x 50 m	10 x 100 r			
	Trees	i i	-	Tree stem		Total Control		
Native	Shrubs	0	1	>80	(#) Z		tion attributes:	. f. L
Richness	Grasses etc		-	50 - 79	(#)	_	ecords # large trees (or living trees only, and	
(count of	Forbs	2	-	30 - 49	(+/-)			
native species)		0	-	20 - 29	(+/-)		ed trees, record only	
,	Other	0	-	10 - 19	(+/-)	Presence of <5cm stems records regeneration		
	Trees		-	5-9	(+/-)	Record # trees with hollows, not number of hollow		
Cover	Shrubs	50	-	< 5	(+/-)	Count as one stem where tree is multistemmed		
(sum of cover	Grasses etc	10	-	# Trees wit		<20cm i/	tem may be a dead s	1
of natives	Forbs	0.6	-	# ITEES WI	tii iioiiows	>20cm **		Total #
species)	Ferns	0	-	Length of I	000	>20CIII **		Tatal/w
-1	Other	0		Lengthorn	ogs			Total (m)
High threat we		0.5						
These values summarise)	tor			or partly in contact or habitat for some	with the ground, and	within the plot.
BAM Litter/ Gr				sed for BAM, other at				
		1	2	3	4	5	Average	1
	Litter	70	50	60	60	10	50	
Sub-plot score	Bare ground	0	0	6	5	5	3	
(% cover)	Cryptogam	0	0	0	0	0		-
	Rock	0	0	0	0	0	0	
itter / groundcover plots	are located at 5, 15, 2	25, 35, 45 m (alternatin	g sides) along the	midline of Function p				
Other plot infor	mation (not e	essential for B	AM)					
Disturbance		Severity	Timing	Landform				
Clearing (incl. logging)				Microrelief				
Cultivation			Slope					
irazing (native	/ stock)			Aspect				
oil erosion				Soil surface texture				
	val			Soil colour				
irewood remo		1		Site drainage				
CANADA CARACTERISTICS	nid, canopy burnt?)			Site draina	ge			
irewood remo ire (ground stratum, n torm damage	nid, canopy burnt?)				ge nearest wa	ter		

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
TG	APPle loox	50			
	Smooth catser	0.1	100		
F	Oxalis Se Peranous	0.1			
	Pumer (mac 65) trifolium SP	0.1			
	tisfolism SP	10			
66	grass 1	B 10		1	
60	2100007	810			
64	grass 1 (max 65) B. muron	810			
66	KKJU	810			
	Phonlary> St.	B10			
	medicago Palycdada	0.1	100		
	core used				
	Thiste (Photo)	0.1	20		
	erodium SP.	7	100		
	Canola	1	30		
FG AG	exula contet Pine 1805	0.5	60		
	Sheep Solle Acetosi vulgaris Plantago DP.	0.5	300	MIE	
	Plentoun St.	3.5	300		
				-	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

Date 18/10	2018	Survey Nam	e mcf.	lamys				
Recorders 5	c and EG	-		/	Plot ID#	Mac 68	Zone ID /3	O Poor
Photo #					Plot dime		0×50	
Datum 949	jolan	Zone 55	14		Plot beari	ng along mid	dline 105	c
Easting 72	21000	Northing (529361	5	Record magneti	c bearing along mid	line from 0 m point	
Record easting, northing	g at plot marker (0 m p	oint), Photos taken ve	tically and horizor	ntally at 0m point and	d 50 m point, lookir	ng into plot		
IBRA region								
Subregion								
Likely Vegetati	on Class							
Plant Commun	ity Type	330 Non-	nective			Condition	state 💆 Pag	1 (like
loristics plot is centred	on the midline, at 0 m	point, 10 m either side		Function plot is a	n extention of flor		m along midline (or e	
BAM Composit	ion / Structure	e plot (400m ²)		BAM Func	tion plot (10	000m²)		
Dimensions (circ	cle applicable size)	1		Dimension	S (circle applicab	le size)		
20 x 20 m	10 x 40 m	Sum values*			10 x 100 n			
	Trees		1	Tree stem		Notes on funct	ion attributes:	
Native	Shrubs	1	1	>80	(#)	7	cords # large trees (cf. benchmark
Richness	Grasses etc	3	1	50 - 79	(#)		living trees only, and	
(count of	Forbs	1		30 - 49	(+/-)		d trees, record only	
native species)	Ferns	6	1	20 - 29	(+/-)	-	stems records rege	
	Other	0		10 - 19	(+/-)			
	Trees	0.7	1	5 - 9	(+/-)		th hollows, not num	
Cover	Shrubs	011	1	< 5	(+/-)		m where tree is mult	
(sum of cover	Grasses etc	0.3	-	# Trees wit	1		em may be a dead s	1
of natives	Forbs	0.0		# Trees wit	in nonows	<20cm		Total #
species)	Ferns	0,1		Lawath of L		>20cm**		
species)	7.55	6		Length of I				Total (r
11-1-1-1	Other	22.	. 3		15.5 +27			52.5
ligh threat we		3 S/				or partly in contact or habitat for some t	with the ground, and	within the plo
BAM Litter/ Gre								1
will Electery Gre	Janacover (17	1	2	ed for BAM, other att	4			-
	Litter					5	Average	-
Sub-plot score		100	95	100	100	100	99	1
(% cover)		0	0	0	0	0	0	-
(70 cover)	Cryptogam	0	0	0	0	0		-
tter / groundcover plots	Rock	E 25 45 /	C added a later of		0	0	6	
other plot infor				mialine of Function p	JOIG			
isturbance	mation (not e		-	Landfaus			Î.	
learing (incl. lo	agging\	Severity	Timing	Landform			Į.	
ultivation	18811181	5	0	Microrelief				
	/ ata al.\	3	R		Per sicre			
razing (native	/ STOCK)	1			Varth			
0 1		Ũ				lay loom		
	val	0		Soil colour	greybo			
irewood remo				Site drainag	70 /	JAC .		
oil erosion irewood remov ire (ground stratum, n	nid, canopy burnt?)	0						
irewood remo	nid, canopy burnt?)	0			nearest wa			

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
	Pinus Condicator	S		LUCE	
	Blackbarry	25		LITTE	
Sq	Acacia dealbata	0.1	2		
TG	Evenly Atis & bridgesiana	0.1	1		
	Phonorus S. (Mac 67)	S			
	Smooth Cots ear Hypochaen's glaborer				
	Shelf Solskil helosu valgare	1-	200	HTE	
	a alder thistle	1	10		
	trifolium repens	0.1	50		
FG	Oxalis Peranans	0.1			
	grass / Elevaine pistachya	20		E	
Lamarek	ix aurea? grass 2	0,5			
	Foots 1 St. Johns Wort	0,1	5		
	Forb 2 (Photo)	0.1	20		
GG Car	ex bihenoviana Sedge + Eggens sp.	0.1	20		
99	Someus in Tunklas	0.5	810		
56	Cassinia of lawis	0.1	0		
ag	Cypenis Sp	0.1	50		
144					
	d d				
	I see				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

D/11111100 1101001			,
Date 18/10/2018	Survey Name Mcfillamy 9	MAC 76	
Recorders TC GOO	EG /	Plot ID # Mac 69	Zone ID V87 Good
Photo #		Plot dimensions 2	1 + 50
Datum 94900	Zone S5H	Plot bearing along mid	line (3)
Easting 721357	Northing B 6293493	Record magnetic bearing along midli	ne from 0 m point
Record easting, northing at plot marker (C	0 m point), Photos taken vertically and horizontally at 0m point an	d 50 m point, looking into plot	many.
IBRA region			
Subregion			
Likely Vegetation Class			
Plant Community Type	287	Condition s	state Later Goan
Floristics plot is centred on the midline, at	t 0 m point, 10 m either side Function plot is	an extention of floristics plot out to 50 m	along midline (or equiv. area)

BAM Composition / Structure plot (400m²) **Dimensions** (circle applicable size) 10 x 40 m Sum values* 20 x 20 m Trees Shrubs Native Richness Grasses etc (count of Forbs native species) Ferns 0 0 Other Trees 0:3 Shrubs Cover (sum of cover | Grasses etc of natives Forbs 0.4 species) Ferns 0 Other 0 High threat weed cover

Function plot is an extention of florist	ics plot out to 50 m along midline (or eq	uiv. area)
BAM Function plot (100	00m²)	
Dimensions (circle applicable	size)	
20 x 50 m 10 x 100 m		
Tree stem DBH (cm)	Notes on function attributes:	
>80 (#)	Stem size class records # large trees (cf	. benchmark)
50 - 79 (#) 1744 (Record stems for living trees only, and	for all species
30 - 49 (+/-)	For multistemmed trees, record only th	e largest stem
20 - 29 (+/-)	Presence of <5cm stems records regen	eration
10 - 19 (+/-) 👉	Record # trees with hollows, not numb	er of hollows
5 - 9 (+/-)	Count as one stem where tree is multis	temmed
< 5 (+/-) 👉	Hollow bearing stem may be a dead ste	em (incl. stag)
# Trees with hollows	<20cm TN	Total #
THE 4 PLO	>20cm** 11(/	10
Length of logs		Total (m)
42 + 32		74
Measure length of logs >10cm, fully o	r partly in contact with the ground, and	within the plot.

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	60	60	9	95	90	66
Sub-plot score	Bare ground	7_0	30	95	5	10	32
(% cover)	Cryptogam	٥	0	0	0	ð	0
	Rock	6	Ó	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)	74		Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

^{*}These values summarise the floristic data for input into BAM calculator

Date	Survey Name	A 155 E			
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
TG	Eucalyphol (adstring bort)	25	1 tree		U
TG	Longleof box	25	Itale		U
79	APPUDOY	10	itree		U
	Smooth cats ear	0.1	150		L
	Blackburry	5		ME	M
	ichalium sp.	0.1	50		L
66	Poa sieberi	I	10		L
99	bother cloamacter	10			L
FG	Senecio & prevaultojdes	001	10		1
FG	exalis firemans	0.1	100		L
	26/2101	0.1	1		m
Androlantho	ria Memora Offens (Martos)	5			1
	Forbi	0.1	10		L
FG	geranium & slavebri	Λ1	10		L
	Forto 2	0.1	10		L
	Plantago SP.	0.5	50		L
Sq Ceris	in lacuis Shares	0.1	1		N
	Jamandra St. Glifornis	0.1	So		4
GG SG: SG:	Acacian dealbata	0.1	0		M
SC	Cossinia & aculeata	0.1	2		L
	1 ecosp	0,1			1
FG	Dais Cumbon ofur preissians	0.1	50		L
49	Jes & Echinopogan avalas	1 0.5	50		L
	San	3 0.5	20		
	į				
	A.				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 19/10/2018	Survey Name McCillamy	>	
Recorders JC and E	E	Plot ID # MAC 71	Zone ID
Photo #		Plot dimensions	
Datum 3dan4	Zone SSH	Plot bearing along mi	dline 131°
Easting 721635	Northing 6293317	Record magnetic bearing along mid	dline from 0 m point
Record easting, northing at plot marker (0	m point), Photos taken vertically and horizontally at 0m po	oint and 50 m point, looking into plot	_
IBRA region			
Subregion			
Likely Vegetation Class			
Plant Community Type	287	Condition	state Good

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composit	ion / Structur	e plot (400m²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	3
Native	Shrubs	2
Richness	Grasses etc	2
(count of	Forbs	8
native species)	Ferns	0
	Other	0
	Trees	70
Cover	Shrubs	2
(sum of cover	Grasses etc	10:1
of natives	Forbs	2.58
species)	Ferns	G
	Other	0
High threat we	ed cover	5.1

Function plot is a	n extention of flori	stics plot out to 50 m along midline	(or equiv. area)
BAM Func	tion plot (10	000m²)	
Dimension	S (circle applicabl	e size)	
20 x 50 m	10 x 100 m	n	
Tree stem	DBH (cm)	Notes on function attributes	:
>80	(#)	Stem size class records # large tr	ees (cf. benchmark)
50 - 79	(#) 1774	Record stems for living trees onl	y, and for all species
30 - 49	(+/-) +	For multistemmed trees, record	only the largest stem
20 - 29	(+/-) +	Presence of <5cm stems records	regeneration
10 - 19	(+/-) +	Record # trees with hollows, not	number of hollows
5 - 9	(+/-) +	Count as one stem where tree is	multistemmed
< 5	(+/-)	Hollow bearing stem may be a d	ead stem (incl. stag)
# Trees wi	th hollows	<20cm 174 /	Total #
TEL 2	B	>20cm**	6
Length of I	ogs		Total (m)

*These values summarise the floristic data for input into BAM calculator **Hollows of

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is use	ed for BAM, other at	tributes are useful f	or recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	10	70	100	95	95	74
Sub-plot score	Bare ground	90	20	0	5	5	24
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	6	6	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date	Survey Name				
Recorders		Plot ID#	MACTI	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratur
FG	Sheep soreH einadaia nutans	01	50		
	Smooth Calsear	0.1	100		
	Blackberry	5		MIE	
99	Poa Silveri meionectes	15			
	Phalaus SP	5			
SG	Aracia dilbala deulbuta	1	5		
FG	N. 1:0 P. 1. A- A-	0.1	100		
FG	accord Stracure Sp.	0.1	100		
	grass 1	1	200		
TG	Applebox 60				
FG	Haloragus SP.	0:1	100		
FG	geranium (Abouts) sohneliri	0.5	200		
7	Senecio & (18/10/18)	0.1	20		
Acetoso			50	MITE	
	Rune + SP.	0.1	10		
FG	Viola SP. (Photo) but.	0.1	50		
FG	facto I fellaria media	1	200	E	
SG	Cassinia belle 10 (Marc TO)	1	5		
Fa	Farb 2 Aurofriche perrulata?	0.9			
	golden thistle	0.1	50		
	Plantage I. (Photo)		56		
TG	Everyptis dives	5			
Ta	adation box	5			
96	lamandran SP. Gilifornis	0.1	20		
	The state of the s		100		
	TG=3				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

		1 486 1 01 ()
Date 19/10/2018	Survey Name McFillamy	
Recorders JC and 6		Plot ID # MAC 72 Zone ID
Photo #	V2 =	Plot dimensions 20 +50
Datum	Zone	Plot bearing along midline 255° 2.55°
Easting 719966	Northing 6293648	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (C	m point), Photos taken vertically and horizontally at 0m p	oint and 50 m point, looking into plot
IBRA region		
Subregion		
Likely Vegetation Class		
Plant Community Type		Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side

ion / Structur	e plot (400m²)
le applicable size)	
10 x 40 m	Sum values ³
Trees	1
Shrubs	
Grasses etc	0
Forbs	0
Ferns	0
Other	0
Trees	61
Shrubs	0.1
Grasses etc	0
Forbs	0
Ferns	0
Other	0
	10 x 40 m Trees Shrubs Grasses etc Forbs Ferns Other Trees Shrubs Grasses etc Forbs Ferns Ferns Ferns Ferns Ferns Ferns Ferns

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Func	tion plot (10	000m²)	
Dimension	S (circle applicab	le size)	
20 x 50 m	10 x 100 n	n	
Tree stem	DBH (cm)	Notes on function attribut	es:
>80	(#)	Stem size class records # large	trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees o	nly, and for all species
30 - 49	(+/-)	For multistemmed trees, recor	d only the largest stem
20 - 29	(+/-)	Presence of <5cm stems recor	ds regeneration
10 - 19	(+/-)	Record # trees with hollows, n	ot number of hollows
5 - 9	(+/-)	Count as one stem where tree	is multistemmed
< 5	(+/-) +	Hollow bearing stem may be a	dead stem (incl. stag)
# Trees wit	th hollows	<20cm	Total #
		>20cm**	0
Length of I	ogs		Total (m)
	29+21		50
Measure length o	f logs >10cm, fully	or partly in contact with the grou	nd, and within the plot.

*These values summarise the floristic data for input into BAM calculator *+Hollows of >20cm are recorded for habitat for some threatened specie:

BAM Litter/ Gr	oundcover (1 x :	1 m plots)	Litter cover is use	d for BAM, other at	tributes are useful fo	r recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	100	90	95	100	90	95
Sub-plot score	Bare ground	0	8	5	0	0	2
(% cover)	Cryptogam	0	5	0	0	0	1
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief
Cultivation	3	R	Slope UPLU SIOPL
Grazing (native / stock)	2	R	Aspect East
Soil erosion	O		Soil surface texture Clay - loam
Firewood removal	0		Soil colour gray-Brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage CUN Off
Storm damage	0		Distance to nearest water 2
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date	Survey Name				
Recorders		Plot ID#	MAC72	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
TG	Eucalyetus, long-leaf box	0.1	12		
, ,	Eucalyptus, long-leaf box Pinus raidionta	80			
	Pattersons curse	0.1	30		
	Pattersons and Sheep Sorrell Retoselle vulgare	0.1	100	MIE	1
	smooth cats ed	0.1	So		
		30			
	grass 1 Phalorus of.	5			
	trifolium (18/10/18)	0.1	50		
	trifolium (18/10/18) Oxalis Perennans	0.1	56		
SG	Cassinia SP.	0.1	1		
	Rumer St.	0.1	1		
					1
		-			
		-			
	+	1			
		-			
					-

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

			/
Date 19/10/2013	Survey Name Mc F. Harry	3	
Recorders Jo and EG		Plot ID # MAC 73	Zone ID Pour
Photo #		Plot dimensions 20	×50
Datum 949d/k	Zone SSH	Plot bearing along mid	line 283°
Easting 722-097	Northing 6292986	Record magnetic bearing along midling	ne from 0 m point
Record easting, northing at plot marker (0 r	n point), Photos taken vertically and horizontally at 0m po	oint and S0 m point, looking into plot	
IBRA region			

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composit	ion / Structure	plot (400m²)
Dimensions (circ		
20 x 20 m	10 x 40 m	Sum values*
	Trees	1
Native	Shrubs	0
Richness	Grasses etc	4
(count of	Forbs	2
native species)	Ferns	0
	Other	0
	Trees	5
Cover	Shrubs	0
(sum of cover	Grasses etc	5.7
of natives	Forbs	0-6
species)	Ferns	0
	Other	0
High threat wee	ed cover	0.1
*These values summarise	the floristic data for in	put into BAM calculate

	TOTAL CONTRACTOR CONTR			
Function plot is ar	n extention of florist	tics plot out to 50 m a	along midline (or eq	uiv. area)
BAM Funct	ion plot (10	00m²)		
Dimension	S (circle applicable	size)		
20 x 50 m	10 x 100 m			
Tree stem	DBH (cm)	Notes on functio	n attributes:	
>80	(#)	Stem size class reco	rds # large trees (cf	. benchmark)
50 - 79	(#)	Record stems for liv	ring trees only, and	for all species
30 - 49	(+/-)	For multistemmed t	rees, record only th	ne largest stem
20 - 29	(+/-)	Presence of <5cm s	tems records regen	eration
10 - 19	(+/-)	Record # trees with	hollows, not numb	er of hollows
5 - 9	(+/-) +	Count as one stem	where tree is multis	temmed
< 5	(+/-) <i>†</i> -	Hollow bearing ster	n may be a dead ste	em (incl. stag)
# Trees wit	h hollows	<20cm ///		Total #
**************************************		>20cm** //		6
Length of lo	ogs	AND CONTROL OF THE PARTY OF THE		Total (m)
				8 m

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

^{**}Hollows of >20cm are recorded for habitat for some threatened species These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	40	₹ 0	90	90	95	87
Sub-plot score	Bare ground	10	(0)	10	(0)	6	9
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	O	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	NR	Microrelief,
Cultivation	0		Slope Slope
Grazing (native / stock)	3	R	Aspect
Soil erosion	ం		Soil surface texture Cley-10000
Firewood removal	0		Soil colour yrly-brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage Con off
Storm damage	0		Distance to nearest water
Weediness	2	7	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

pastern. Legenerating Eucolyphus mulanssylon.

:127

Date 19/LO/	2018 Survey Name	Dlot ID #	MA: 72	Zone ID	
	Convergencies with the second	-	MAC73		C
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HIE	Stratun
0.	grass I Vulpia myuros	5			
94	91095 2 Micro laena stroides 91095 3 Phaleris minor	5		N	-
	grass 3 Phalans nunor	30		8	
	grass 4 Pentameris airoides	20		E	
	Trifolium (Photo) repun	1	300	5	
GG	Junkus St. homas caulis	0.1	20	N	
	smooth cab car	1	200	E	
	Losto I Gamochaeta calviceps	0.1	20	E	
FG	Oxalis Perennan	0.5	200	N	
	Thistle (Photo)	0.1	1	E	
	forb2	0.1	50	E	
N	Isolopis hatenana Sedge 1 Gypones	0.1	100	N	
	forts 3	0.1	20	N	
GG	910355	0.5	So	N	
	Pattersons curse	0.1	5 o	NE	
FG	geranium SP. (Photo) Splande	1 0.1	20	N	
TG	Yellow box	5		N	
	Blackbury	0.1	2	HTC	
	Plantong S.	0.1	40		
	Plantaga St.	0.1	20	E	
	Sedge 2 Cypenes bruifolis		40	E	
44	Enneupogon nigricans	0.1	50	N	
	TG 1 5				
	SG 0 CC 4 5.7				
	19				
	FG 2 0.6				
	Arrw 0,1		1		
					-

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 19/18/2013	Survey Name McAillamy	7
Recorders To and G	G	Plot ID # MACTY Zone ID 287 Good
Photo #		Plot dimensions 20×50
Datum 949DA	Zone 55 <i>H</i>	Plot bearing along midline 178°
Easting 722286	Northing 629 286.0	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (m point), Photos taken vertically and horizontally at 0m pc	oint and 50 m point, looking into plot
IBRA region		

Subregion

Likely Vegetation Class

287 **Plant Community Type**

Condition state

		<u> </u>
Floristics plot is centred of	on the midline, at 0 m p	oint, 10 m either side
BAM Composit	ion / Structure	plot (400m²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	2_
Native	Shrubs	3
Richness	Grasses etc	5
(count of	Forbs	10
native species)	Ferns	O
	Other	0
	Trees	80
Cover	Shrubs	0.3
(sum of cover	Grasses etc	13.1
of natives	Forbs	1.2
species)	Ferns	0
	Other	C
High threat we	ed cover	ĺ

Function plot is an	extention of florist	ics plot out to 50 m along midline (or ec	uìv. area)
BAM Functi	ion plot (100	00m²)	
Dimensions	(circle applicable	size)	
20 x 50 m	10 x 100 m		
Tree stem [DBH (cm)	Notes on function attributes:	
>80	(#)	Stem size class records # large trees (c	f. benchmark)
50 - 79	(#) ∦	Record stems for living trees only, and	for all species
30 - 49	(+/-) +	For multistemmed trees, record only th	ne largest stem
20 - 29	(+/-) +	Presence of <5cm stems records regen	eration
10 - 19	(+/-) +	Record # trees with hollows, not numb	er of hollows
5 - 9	(+/-) 🚣	Count as one stem where tree is multis	temmed
< 5	(+/-)	Hollow bearing stem may be a dead st	em (incl. stag)
# Trees witl	h hollows	<20cm ///	Total #
Size.		>20cm** /	4
Length of lo	gs		Total (m)
			29 m
		r partly in contact with the ground, and	within the plot.

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
1 2 3 4 5 Average							
***************************************	Litter	90	80	75	60	30	77
Sub-plot score	Bare ground	10	10	20	20	10	14
(% cover)	Cryptogam	٥	0	5	0	5	2_
	Rock	Ö	0	0	20	5	2

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	NR	Microrelief
Cultivation	٥		Slope UPLUSIAL
Grazing (native / stock)	3	R	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage (of off
Storm damage	0		Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Grazed pasture under remnant Eucalyphus. Some requeation

^{*}These values summarise the floristic data for input into BAM calculator

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
TG	Stringy book Red Stringybook	30		N	
TG	long-leafed box	50		N	
99	Pog Silberi	10		N	
9.51	Sedges (MAC 73)	05	50	N	
Acaena	celulata orecen of.	0.1	So		
SG	hibbertia obtusefolia	0.1	20	N	
- /	Thus sp. haterages of thragynus	0.1	20	N	
SG	Pultenea microphylla	0.1	100	N	
	Aularis M. 9 rass 3 (MAC 73)	5	100		
GG.	Microlama ship y ross 2 (MAC)3)	1	50		
SG	Cassinia aculeata	0.1	I		
Wurmbea	divica early nancy (Photo)	0.1	3		
FG	Forb 1 Moenchia crecta	0.5	100		
FG	Viola SC. (MAC71) bent.	0.1	10		
•	Sedge	0.1	40		
FG Projen		0.1	10		
- 0:	ephalum agic. Doisy 1 Gar	0.1	40		
-	phus preisinus Daisy 2 (Photo)	0:1	20		-
FG	Oxalis Perennans	0.5	200		
GG.		0.1	10		
49	Linus homelyantunkus SP. (MAC 73)	0.11	524	MIE	
49	Bothrea cloa macra	1	100	0110	
	forb 2	0.1	20		
FG	geranium St. (MGC73)	0.1	10		
	Marthon Shrob I Grafaegus monogina	1	2	E	
99	Longoda SP. Milonis	17 1	5		
	oleren st.	1	1		
	Shows 2 Melicytos dentat	us 0.1	1		
Cc	Isolerosis hookeriana	0.5			
<u>GG</u>	Cycens brevilations	0.5			
	1,00000				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

	- /		, age i or ()
Date 19/10/2018	Survey Name McAllemy	,5	THE PARTY OF THE P
Recorders Jc and G		Plot ID # MQC 75 Zone ID	
Photo #		Plot dimensions 20 ×50	
Datum 949dA	Zone 55H	Plot bearing along midline 301	3
Easting 722373	Northing 629 2184	Record magnetic bearing along midline from 0 m point	M
Record easting, northing at plot marker (0 r	n point), Photos taken vertically and horizontally at 0m p	oint and 50 m point, looking into plot	
IBRA region			

Subregion Likely Vegetation Class

Plant Community Type Non - new tive Floristics plot is centred on the midline, at 0 m point, 10 m either side

Function plot is an extention of floristics plot out to 50 m along midl

Condition state

BAM Composit	ion / Structure	plot (400m²)
Dimensions (circ	le applicable size)	
20 x(20 m	10 x 40 m	Sum values*
	Trees	0
Native	Shrubs	0
Richness	Grasses etc	2
(count of	Forbs	1
native species)	Ferns	0
	Other	0
	Trees	0
Cover	Shrubs	0
(sum of cover	Grasses etc	01
of natives	Forbs	0.1
species)	Ferns	0
	Other	0
High threat wee	ed cover	0.1

Function plot is an	extention of florist	tics plot out to 50 m along midline (or ed	juiv. area)
BAM Funct	ion plot (10	00m²)	
Dimensions	5 (circle applicable	size)	
20 x 50 m	10 x 100 m		
Tree stem [DBH (cm)	Notes on function attributes:	
>80	(#)	Stem size class records # large trees (c	f. benchmark)
50 - 79	(#) —	Record stems for living trees only, and	for all species
30 - 49	(+/-) —	For multistemmed trees, record only the	ne largest stem
20 - 29	(+/-) —	Presence of <5cm stems records regen	eration
10 - 19	(+/-) -	Record # trees with hollows, not numb	er of hollows
5 - 9	(+/-)	Count as one stem where tree is multis	stemmed
< 5	(+/-) —	Hollow bearing stem may be a dead ste	em (incl. stag)
# Trees witl	h hollows	<20cm	Total #
		>20cm**	0
Length of lo	gs		Total (m)
			0
Measure length of	logs >10cm, fully or	r partly in contact with the ground, and	within the plot.
**Hollows of >20cr	m are recorded for	habitat for some threatened species	

These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general							
		1	2	3	4	5	Average
	Litter	90	90	95	95	95	93
Sub-plot score	Bare ground	10	10	Ø S	5	5	Ū
(% cover)	Cryptogam	0	0	0	٥	0	0
	Rock	6	0	0	D	0	0

Litter / groundcover plots are located at S, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Mighment through cleved pasture, trying softs and back into remners

Date	Survey Name				
Recorders		Plot ID #		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
	patkisons curse	0.5	200	E	
	smooth catsear	0.1	50	B	
	trifolium of (Mac 73)	25		E	
	midicago SP.	16		E	
	Sheep screen Actora vulgaris	0.1	50	ME	
	sheep screen Acetosa vulgan grass, Eleusine historya			E	
	forbl	5		E	
		0.1	1	6	
	gorden tristle erodium SP.	0.1	10	E	
FG	oxalis punnans	0.1	50	N	
	501000 / 11000	0,1	50	B	
	gross & Vulpin nythis	20		B	
44	Greens brevifolier Isolepis bokeriana	01		N	
66	Isolepis hookeriana	0.1	100	N	
	/				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot - Field Sur	vey Sheet	Page 1 of			
Date 19/10/2018	Survey Name McGllam	19			
Recorders To and	EU	Plot ID # MAC 7 6 Zone ID 287 Miller			
Photo #		Plot dimensions 20x50			
Datum	Zone	Plot bearing along midline 1900			
Easting 72263	Northing 6291861	Record magnetic bearing along midline from 0 m point			
Record easting, northing at plot marker (C	m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot			
IBRA region					
Subregion					
Likely Vegetation Class		Ban			
Plant Community Type	2 2 7	Condition state Good Profes			

Floristics plot is centred	on the midline, at 0 m p	oint, 10 m either side
BAM Composit	ion / Structure	plot (400m ²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	No.
Native	Shrubs	
Richness	Grasses etc	3
(count of	Forbs	7
native species)	Ferns	0
	Other	1
	Trees	40
Cover	Shrubs	5
(sum of cover	Grasses etc	6.1
of natives	Forbs	1.1
species)	Ferns	0
	Other	0.1
High threat wee	ed cover	0.1
*These values summarise	the floristic data for in	put into BAM calculato

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Funct	ion plot (10	00m²)			
Dimension	S (circle applicable	e size)			
20 x 50 m	10 x 100 m				
Tree stem I	DBH (cm)	Notes on function att	ributes:		
>80	(#)	Stem size class records #	large trees (cf	. benchmark)	
50 - 79	(#)	Record stems for living trees only, and for all species			
30 - 49	(+/-) +-	For multistemmed trees, record only the largest stem			
20 - 29	(+/-) 🐇	Presence of <5cm stems records regeneration			
10 - 19	(+/-) *	Record # trees with hollows, not number of hollows			
5 - 9	(+/-) +	Count as one stem where	tree is multis	temmed	
< 5	(+/-) 🕆	Hollow bearing stem may	be a dead ste	em (incl. stag)	
# Trees wit	h hollows	<20cm		Total #	
		>20cm**		0	
Length of lo	ogs			Total (m) 5m	
Measure length of	logs >10cm, fully o	or partly in contact with the	ground, and v	within the plot.	

BAM Litter/ Groundcover (1 x 1 m plots)			Litter cover is used for BAM, other attributes are useful for recording site condition in general				
		1	2	3	4	5	Average
	Litter	60	10	50	90	90	58
Sub-plot score	Bare ground	20	60	50	<i>∂</i>	5	27
(% cover)	Cryptogam	0	0	0	5	0	1
	Rock	0	5	0	0	5	2

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratur
TG	langual box E-garisculys.	40			
. FG	accust. Acaena enclimata		100		
Brenda	Cowlerta Penelia of	0.1	20		
47-51-5	Smooth cats ed	0.1	50		1
FG	dichondra refers	0.5	200		
99	Bothes clay macra	5			
	Blackberry	0.1	S	MIE	
	Plantago Sp.	0.1			
	Romer St.	0.1	1		
99	Jamandra SP. Glifomus	0.1	5		
envolvulus angi	Missinus Australian Bindweed	0,/	1		
Carleria he		0.7	20		
1 (dentatus Sharbl (Mgc 74)	5			
TEG	Senecio 3. prenantholiles	0.1	5		11.
	farb (photo)	0.1	20		
99	Pon Silberi	1	50		
	hypochaeris St (Photo)	0.1	1		
	Eleusin brishely grass 1 (Mac 75)	1	50	E	-
f 1 1	missianus Daisy (photo)	0.1	50		
/	forbi	0.1	5		
FS	Oxalis Perennans	0.1	50		
	Medicago Sp. (Mac 75)	1	100		
	0 0				
				7.	
0					
7					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Cover area examples: 0.1% = 63x63cm. 0.5% = 1.4x1.4m, 1% = 2x2 \overrightarrow{m} , 5% = 4x5m, 25% = 10x10m

Date 19/10/	2019	Survey Name	MACE	llamys				
	rand 50		14121	11-1-110	Plot ID#	MACTT	Zone ID /3	o Poer
Photo #	0 0 1 101 0 0				Plot dime		750	
Datum 949	dA	Zone 55L	2		Plot beari	ng along mid		0
Easting 722	520	Northing 62	29155	6	Record magneti	c bearing along midli		
Record easting, northing	at plot marker (0 m p	oint), Photos taken vertic	ally and horizo	ontally at 0m point and	l 50 m point, lookir	g into plot		
IBRA region								
Subregion								
Likely Vegetation	on Class							
Plant Commun	ity Type /	330				Condition	state Paeler	set he
Floristics plot is centred			stics plot out to 50 m	along midline (or e	equiv. area)			
BAM Composit		tion plot (10						
Dimensions (circle applicable size)				Dimensions (circle applicable size)				
20 x 20 m 10 x 40 m Sum values*				20 x 50 m 10 x 100 m				
	Trees)		Tree stem	DBH (cm)	Notes on functi	on attributes:	
Native	Shrubs	0		>80	(#)	Stem size class rea	cords # large trees (cf. benchmark)
Richness	Grasses etc	2		50 - 79	(#) ▮	Record stems for living trees only, and for all		
(count of	Forbs	1		30 - 49	(+/-)	For multistemmed	d trees, record only	the largest stem
native species)	Ferns	0		20 - 29	(+/-)	Presence of <5cm	stems records rege	neration
	Other	1		10 - 19	(+/-)	Record # trees wit	h hollows, not num	ber of hollows
	Trees	25		5 - 9	(+/-)	Count as one sten	n where tree is mult	istemmed
Cover	Shrubs	0		< 5	(+/-) +	Hollow bearing ste	em may be a dead s	tem (incl. stag)
(sum of cover	Grasses etc	0.2		# Trees wit	th hollows	<20cm		Total #
of natives	Forbs	0.1				>20cm**		
species)	Ferns	6		Length of I	ogs			Total (m
	Other	1						
High threat we		0.2				or partly in contact v		l within the plot
		input into BAM calculator			2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	or habitat for some th		1
BAM Litter/ Gro	ounacover (1			sed for BAM, other at	T	_	T	
	1.20	1	2	3	4	5	Average	_
Cub alat	Litter	60	70	50	50	70	13	-
Sub-plot score		5	10	10	20	20		-
(% cover)	Cryptogam	0	0	0	0	0	0	

		1	2	3	4	5	Average
	Litter	60	70	50	50	70	60
Sub-plot score	Bare ground	5	10	10	20	20	13
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	Ó	0	0	0	6	0

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)			Microrelief
Cultivation			Slope
Grazing (native / stock)			Aspect
Soil erosion			Soil surface texture
Firewood removal			Soil colour
Fire (ground stratum, mid, canopy burnt?)			Site drainage
Storm damage			Distance to nearest water
Weediness			Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

N	0	t	e	S

Date	Survey Name			Zone ID		
Recorders		Plot ID #		Zone ID	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
TG	yellow box	25				
	Smooth cats ear	0.1	50			
04	mistrate St.	1	2			
	Pattersons curse	0.1	50			
,	medicage SP. I	5				
Ela	elsine historygoss 1 (Mac 75)	40				
	trifolium	0.1	100			
Va	Apia mycros grass 2 Brassica SP. (Photo) L.	10				
	Brassica St. (Photo) 1.	10.1	18	MTE		
	Hore hound	0.1	10			
	eradium St. (Mac 76)	0.1	20	-		
	Bladsburg	0.1	1	MITE		
	Blackbury grass 3	10				
	Runex St.	0.1	10			
FG	Gradium Sp. 2	0.1	20			
66	Pog Cubillactiveries	0.1	1			
96	Panicum effusn	0.1	1			
	TG 1 25					
	54.0					
	G6 2 0.2					
	FG. 1 01					
	04 1					
					1	

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with \leq 5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 4/12/1		y Sheet						Page 1 of		
	8	Survey Nam	ie Mck	Willamys	1					
Recorders					Plot ID # A	1AC41201	Zone ID			
Photo #					Plot dime	nsions 20	rso			
Datum 55		Zone			Plot bearing along midline					
Easting 725	707	Northing	62905	84	Record magnetic bearing along midline from 0 m point					
Record easting, northing	g at plot marker (0 m p	ooint), Photos taken ve	rtically and horizo	ontally at 0m point and	d 50 m point, lookin	g into plot				
IBRA region										
Subregion										
Likely Vegetati	on Class									
Plant Commun	ity Type	No PCT				Condition	state			
Floristics plot is centred	on the midline, at 0 m	point, 10 m either side		Function plot is a	an extention of flori	stics plot out to 50 r	n along midline (or e	quiv. area)		
BAM Composit	ion / Structur	e plot (400m²)	BAM Func	tion plot (10	000m²)				
Dimensions (circ	cle applicable size)			Dimension	1S (circle applicable	e size)				
20 x 20 m	10 x 40 m	Sum values*	•	20 x 50 m	10 x 100 m	1				
	Trees	0		Tree stem	DBH (cm)	Notes on funct	ion attributes:			
Native	Shrubs	0		>80	(#)	7	cords # large trees (c	f, benchmark)		
Richness	Grasses etc	3	1	50 - 79	(#)		living trees only, and			
(count of	Forbs	0	1	30 - 49	(+/-) —	-	d trees, record only t			
native species)		0	-	20 - 29	(+/-)		stems records reger			
mative openies,	Other	0	-	10 - 19	(+/-)					
	Trees		-	5-9	(+/-)		th hollows, not numb			
	Shrubs	0	-	< 5	1		m where tree is multi			
Cover			-		(+/-) —	122	em may be a dead st	1		
(sum of cover	Grasses etc	1.1	-	# Trees wit	th nollows	<20cm		Total #		
	Forbs	0			0	>20cm**		T-1-1/		
species) Ferns		0	-	Length of l	ogs			Total (m		
	Other	0								
High threat we		//]			or partly in contact or habitat for some t	with the ground, and	within the plot		
These values summarise BAM Litter/ Gro										
DAINI LILLETY GIL	Janacover (I	1	2	sed for BAM, other att	4	5	Average	-		
	Litter		40	20				-		
7 . l l . l		30		7	30	50	34	-		
Sub-plot score		60	40	60	60	30	50	-		
(% cover)	Cryptogam	0	0	0	0	0	0	-		
	Rock	1.0	0	0	0	0	0			
itter / groundcover plots				midline of Function p	olot					
Other plot infor	mation (not e			1 16						
Disturbance		Severity	Timing	Landform						
Clearing (incl. lo	gging)	3	0	Microrelief	11 11					
Cultivation		3	K	Slope	Opper Ste	16				
Grazing (native / stock)		3	R	Aspect	North "	_	,			
		U		Soil surface	etexture	Dundy 1	sam			
	Firewood removal			Soil colour		brown				
oil erosion	741	Ire (ground stratum, mid, canopy burnt?)		Site drainage um off						
oil erosion irewood remov		0		Site drainag	1 00	Distance to nearest water 100 m				
oil erosion irewood remov ire (ground stratum, m		0				-/-	n			
oil erosion irewood remov		0 0	R	Distance to	nearest wa	-/-				
oil erosion irewood remov ire (ground stratum, m torm damage	nid, canopy burnt?) nce, 1=slight, 2=mode	rate, 3= severe	R	Distance to	nearest wa	ter 100				

Date	Survey Name					
Recorders		Plot ID#		Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
	Petersons Curs (Echium plantagineum	10		E		
	Bressica tourifotii	1.3	100	E		
	Gorda Brassica deracea	12	50	E		
	Streep sorred Acetosella vulgans	10		E		
- Addition	Bronners (photo) prodeaceus	~		E		
	Phalanis . So aguatica	1	100			
		10		E E E		
	Fine seedled gras (phot) Ventautens Missochaeris & Talona airides	\$ 0.5	200	6		
	Willam was Pylidesperma martisola	0.5	100	W		
Hordeum lepain		5		N E E		
10,000	Cut Lail's Trifolium arvense	/	300	E		
	Daisy (ohots) Moroculus monstrosus	0.1	20	E		
	Paddock Lovegrass Eragrosis loxostachyo		20	N		
Vulpia myuros	Pune lite mes / hots)	25		E		
bra cupaniana		1	100	E		
me cogranianes	Jub 1 (photo)	0.7	5			
	Button like groves Eleusine tostachya		50	N		
	species in grows position in the safe					
	Gres					
		1.1				
	3					
W-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1						
	A CONTRACT OF THE CONTRACT OF					
		Section 10				
	A A A A A A A A A A A A A A A A A A A					
		ONIA WATER TO THE				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM	Plot	- Field	Survey	Sheet
-----	------	---------	--------	-------

DAIVITION TICIO				
Date 4/12/18	Survey Name McPhillany	45		
Recorders		Plot ID # MAC4/202 Zone ID		
Photo #		Plot dimensions 20 % (TO		
Datum	Zone	Plot bearing along midline \(\mathcal{U}^*\)		
Easting 77.4660 Northing 629.0788		Record magnetic bearing along midline from 0 m point		
	0 m point), Photos taken vertically and horizontally at 0m p	oint and 50 m point, looking into plot		

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

BAM Compositi	on / Structure	e plot (400m²)
Dimensions (circl	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	0
Native	Shrubs	O
Richness	Grasses etc	1
(count of native species)	Forbs	1
	Ferns	0
	Other	0
	Trees	0
Cover	Shrubs	0
(sum of cover	Grasses etc	5
of natives	Forbs	0-1
species)	Ferns	0
	Other	0

BAM Funct	tion plot (10	00m²)	
Dimension	S (circle applicable	e size)	
20 x 50 m	10 x 100 m	1	
Tree stem	DBH (cm)	Notes on function attribu	ites:
>80	(#) —	Stem size class records # larg	ge trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees	only, and for all species
30 - 49	(+/-) —	For multistemmed trees, rec	ord only the largest stem
20 - 29	(+/-) —	Presence of <5cm stems reco	ords regeneration
10 - 19	(+/-) -	Record # trees with hollows,	not number of hollows
5 - 9	(+/-) -	Count as one stem where tre	ee is multistemmed
< 5	(+/-) -	Hollow bearing stem may be	a dead stem (incl. stag)
# Trees wi	th hollows	<20cm	Total #
		>20cm**	0
Length of	ogs		Total (m)
Measure length	of logs >10cm, fully	or partly in contact with the gr	ound, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gre	oundcover (1 x 1	m plots)	Litter cover is use	d for BAM, other at	tributes are useful fo	r recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	56	70	40	50	30	48
Sub-plot score		(7)	30	10	20	60	40
(% cover)	Cryptogam	0	0	0	0	0	0
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Rock	0	0	D	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	3	R	Slope Mid Sloppe
Grazing (native / stock)	3	R	Aspect North
Soil erosion	0		Soil surface texture Sandy barn
Firewood removal	0		Soil colour Brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage (un ff
Storm damage	0		Distance to nearest water 500m
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes	As	M92 4120 1
	^	^

Date 111/18 Survey Name						
Recorders		Plot ID #//	H41202	Zone ID		
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum	
	Browns (41201) hordeaceus	5		ϵ		
	Phalens sp. aguatic	的多多		E		
	Kumpy sa	0.1	20	E		
	Tenian I one areas Innestration on the	5'		N		
	Hypochaeris glatera Patersons Euse Edium planlagineur	0.1	50	E		
	Patersons Eurse Edin plantagineur	0.5	50	E		
	Hveria barberta	100	100	E		
	Sheep served Heefosella vulgaris	1	580	E		
	Sheen served Hochwella Vulgaris	<u> </u>	500	E		
000000000000000000000000000000000000000	Rye brass Lolium perenne Brussica sp. tourifotii Gors I Persicaria prostruta		500	E		
	Branica so founilati	0.1		6		
FG	bouch I Person in restrict	0.9		\overline{N}		
	Joseph Polycus in frograma					
PM7457.11					ļ	
				THE CHARGE TO SECURITION OF THE CONTROL OF THE CONT		
		172000-1				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

RAM	Plot -	Field	Survey	Sheet
-----	--------	-------	--------	-------

DWIALLIOF - LICIN DAL	ac 4 211222		
Date 4/12/18	Survey Name	McPhillamy.	
Recorders			Plot ID # MAC41203 Zone ID
Photo #			Plot dimensions 20x50
Datum	Zone		Plot bearing along midline 24°
Easting 726299	Northing 62	90799	Record magnetic bearing along midline from 0 m point
Lasting 100011		ly and harizontally at 0m point and	d 50 m point. looking into plot

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

		L. 10ithor side
Floristics plot is centred o		
BAM Compositi	on / Structure	plot (400m²)
Dimensions (circl	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	0
Native	Shrubs	00
Richness	Grasses etc	2
(count of	Forbs	3
native species)	Ferns	0
	Other	U
	Trees	0
Cover	Shrubs	O
(sum of cover	Grasses etc	1.5
of natives	Forbs	0.3
species)	Ferns	0
	Other	0
High threat we	ed cover	

Function plot is an	extention of floristi	ics plot out to 50 m along midline (or equ	uiv. area)
BAM Functi	on plot (100	00m²)	
Dimensions	(circle applicable	size)	
20 x 50 m	10 x 100 m		!
Tree stem [BH (cm)	Notes on function attributes:	
>80	(#)	Stem size class records # large trees (cf	. benchmark)
50 - 79	(#)	Record stems for living trees only, and	for all species
30 - 49	(+/-)	For multistemmed trees, record only th	ne largest stem
20 - 29	(+/-) ~	Presence of <5cm stems records regen	eration
10 - 19	(+/-)	Record # trees with hollows, not numb	er of hollows
5 - 9	(+/-)	Count as one stem where tree is multis	temmed
< 5	(+/-)	Hollow bearing stem may be a dead ste	em (incl. stag)
# Trees wit	h hollows	<20cm	Total #
		>20cm**	0
Length of lo	ogs		Total (m)
Measure length of	logs >10cm, fully c	or partly in contact with the ground, and	within the plot.
**!!.!!	m are recorded for	habitat for some threatened species	

*These values summarise the floristic data for input into BAM calculator

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)		Litter cover is used for BAM, other attributes are useful for recording site condition in general					
	· [1	2	3	4	5	Average
	Litter	90	90	95	60	80	83
Sub-plot score	Bare ground		5	0	3٥	15	11
•	Cryptogam	Ó	0	0	0	0	0
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Rock	0	O	0	Ø	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	ව	0	Slope Drain age floor
Grazing (native / stock)	3	R	Aspect East.
Soil erosion	0		Soil surface texture (lay /sam
Firewood removal	0		Soil colour boxum grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run ou
Storm damage	0		Distance to nearest water 70 m
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Himing cod	ie: R = recent (<39), NN = not re
Notes	Wedge fail Eagle
	St. Perelash
	E. Rosella

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
99	Phalaris sp. aguatica Bromus from 41201, 02 hardencen	So			
99	Bromus from 41201, 02 hardencen	1 10		E	
<u>FS</u>	Hypocharis glabon Rumer sp.	0.5	200	ϵ	
<u> </u>		0.7	25	E	
<u>FG</u>	Pateron Curse Echim plantagineur		70		
<u> </u>	Carex Sp. (with Pholains type head appres	a 0.5	10	N	
44	Prelasele Jac grass Eragrostis leptostaly	a 1	100	N	
FG	Torb) (41202) Persicaria prostrata	0.1	5	N	
	Creeping oxalis perennans	0-1	10	N	
<u>ag</u>	Jorkshine tog Holeus lanatus	0.1	/0	EN	
FG.	Geranyon nielle.	0.7	50		
99	Solix fragilis	5		E	
<u> </u>	Sallix fragilis	61	6	C	
	Cras				
	7 1.5	444			
	Forb				
	3 0.3				
7720C20E00000000000000000000000000000000					

	Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fer				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

B	AM	Plot -	Field	Survey	Sheet
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Date 4/12/18	Survey Name M. Millamys		
Recorders	/	Plot ID #MC41204	Zone ID
Photo #		Plot dimensions 207	070
Datum	Zone	Plot bearing along mid	
Easting 726341	Northing 629 0330	Record magnetic bearing along midl	ine from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

on the midline, at 0 m point, 10 m either side

Dimensions (circle	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	1
Native	Shrubs	0
Richness	Grasses etc	4
(count of	Forbs	3
native species)	Ferns	0
	Other	0
	Trees	25
Cover	Shrubs	0
(sum of cover	Grasses etc	12
of natives	Forbs	0.3
species)	Ferns	0
	Other	0

Function plot is ar	n extention of floris	tics plot out to 50 m along midline	e (or equiv. area)
BAM Funct	ion plot (10	00m²)	
Dimension	S (circle applicable	e size)	
20 x 50 m	10 x 100 m		
Tree stem	DBH (cm)	Notes on function attribute	s:
>80	(#) /	Stem size class records # large	trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees or	nly, and for all species
30 - 49	(+/-) /	For multistemmed trees, recor	d only the largest stem
20 - 29	(+/-)	Presence of <5cm stems record	ds regeneration
10 - 19	(+/-)	Record # trees with hollows, no	ot number of hollows
5 - 9	(+/-)	Count as one stem where tree	is multistemmed
< 5	(+/-)	Hollow bearing stem may be a	dead stem (incl. stag)
# Trees wi	th hollows	<20cm /	Total #
T-		>20cm**	1
Length of	logs		Total (m)
Measure length		or partly in contact with the grou	

**Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gre	oundcover (1 x 1	L m plots)	Litter cover is used t	for BAM, other attr	ributes are useful fo	or recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	40	80	80	40	60	
Sub-plot score	Bare ground	50	5	0	50	40	
	Cryptogam	0	0	0	0	0	
	Rock	0	0	0	0	0	

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	0		Slope Drainey Floor
Grazing (native / stock)	2	R	Aspect –
Soil erosion	10	R	Soil surface texture Clay (sam
Firewood removal	O		Soil colour Brann/grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage un on
Storm damage	0		Distance to nearest water /O
Weediness	3	R	Distance to nearest rock outcrop /cave D

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

BAM Plot - Field Survey Sheet

Date 4/12/	Survey Name				
Recorders		Plot ID #	1441204	Zone ID	NAME OF THE PARTY
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratui
	Malanis agualicas	25		8	
44	lomandra longo folia	1	70	N	
	Bronus (Hersites) hordeaceus	5		6	1
	Brasica (p	0 . /	20	6	
GG	Grass I Austrostina nocloser	185			
	Great Brome Bronus diandre		20	N	
	Hypschaens glasses	0.7	50		-
	Blue Helistrope Helistropium	0.7		E	<u> </u>
	Rosa sp rubignosa ampiexica	ule D. 5	5	E	
V	Grass 2	0.5	40.0	<u> </u>	
Marie Control of the	Halleberry Rusus	0.7	/00	1	
TG	E. blakely		<u>-</u>	<u> </u>	
99		463	13	N	
907	a i spoul		50	<u> </u>	
	Patersons Curse Echina plantagin	eun 05	/0	ε	
	Feb photo Tifolium angustifolio	in 0.1	20	<u> </u>	
	Simpernel Lysimachin arvense		5	E	
FG	Araeva ovina	0./	/0	E	
FG	Forb 1 (41202) Persicania prosh		5	<u>N</u>	
- 1 -	meeping Oxally perennans	0.1	20	N	
FG	Sister Hustly	07	/6	5	
9	Fols 2 plats Alternanthere argusts		./0	N	
44	Grass 3 Anthosachne sabra	0.5	10	N	
	St Joles Wot Hypericeum perfora	tur 0.5	30	E	
	Vulpia myonis!	100	(00	E	
	Possible Black Gum out of plot ne	of to aps	picy?		
	1 14 souphed. Thoto of tre	24 -	<u></u>		
	mooth white boancles.				
					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	livais				
	4	12			
	Colos				
	3	0.3			-
	Tree	25			
				,	

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAIVI PIOL - F			2 2/	/ .			- Address of the Control of the Cont	-0 (/
Date 4/12/18	>	Survey Name	Method	Janrys	Υ			
Recorders					Plot ID # MACAIZOS Zone ID			
Photo #					Plot dimensions 2000			
Datum		Zone			l	g along midli		
Easting 7265	OS	Northing 6	290615		Record magnetic b	pearing along midline	from 0 m point	
Record easting, northing	at plot marker (0 m poir	nt), Photos taken verti	cally and horizontal	ly at 0m point and 5	50 m point, looking	into plot	1	
IBRA region	445000				DECEMBER OF THE PROPERTY OF TH			
Subregion								
Likely Vegetation	n Class				***************************************			
Plant Communi	ty Type 🖊	to PCT.				Condition s		OL 1987
Floristics plot is centred o	on the midline, at 0 m po	oint, 10 m either side				_	along midline (or eq	uiv. area)
BAM Composition / Structure plot (400m²) BAM Function plot (1000m²)								
Dimensions (circl	e applicable size)			Dimensions	(circle applicable	size)		
20 x 20 m	10 x 40 m	Sum values*		20 x 50 m	10 x 100 m			
	Trees	0		Tree stem I	OBH (cm)	Notes on functio	n attributes:	
Native	Shrubs	0		>80	(#) ~	Stem size class rec	ords # large trees (cf	. benchmark)
Richness	Grasses etc	30=7		50 - 79	(#)	Record stems for li	ving trees only, and	for all species
(count of	Forbs	2000		30 - 49	(+/-)	For multistemmed	trees, record only th	ne largest stem
	Ferns	0		20 - 29	(+/-)	Presence of <5cm stems records regeneration		
-	Other	0		10 - 19	(+/-)	Record # trees with	n hollows, not numb	er of hollows
	Trees	0		5 - 9	(+/-) ~	Count as one stem	where tree is multis	temmed
Cover	Shrubs	6		< 5	(+/-)	Hollow bearing ste	m may be a dead sto	em (incl. stag)
(sum of cover	Grasses etc	0.7		# Trees wit	h hollows	<20cm		Total #
of natives	Forbs	0.2				>20cm**		0
species)	Ferns	0		Length of le	ogs			Total (m)
	Other	0						0
High threat we	L	J		Measure length o	f logs >10cm, fully o	or partly in contact w	ith the ground, and	within the plot.
*These values summarise		nput into BAM calculat	or	**Hollows of >20	cm are recorded for	r habitat for some th	reatened species	
BAM Litter/ Gr	oundcover (1 >	1 m plots)	Litter cover is used	for BAM, other att		or recording site con	dition in general	
		1	2	3	4	5	Average	
	Litter	10	5	10	/0	50	17	_
Sub-plot score	Bare ground	Bo	90	80	80	30	72	1
(% cover)	Cryptogam	0	00	0	0	0	0	_
	Rock	0	0	0	0	0	0	
Litter / groundcover plot				nidline of Function p	olot			
Other plot info	rmation (not e	ssential for B	AM)	· ·				
Disturbance		Severity	Timing	g Landform				
Clearing (incl. le	ogging)	3	0	Microrelie ⁻	f			
Cultivation		3	0	Slope				
Grazing (native	/ stock)	3	R	Aspect				
Soil erosion		0		Soil surfac	e texture			
Eiromood rome	22/2	7		Soil colour				

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, 0 = old/historic

Notes Conjuncted confor burner.

To north of plot nature yeg (phopo).

Light manufacture of figure fallow.

Level Side of enterine to MACAN OF. KH-Version 1.1- Date 1/12/2017.

0

0

2,

Fire (ground stratum, mid, canopy burnt?)

Storm damage

Weediness

Site drainage

Distance to nearest water

Distance to nearest rock outcrop /cave

Date	Survey Name				
Recorders		Plot ID#/	MEAREN	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratur
99	Bronus (41201) hordeaceus	_		E	
GG	Grass 1 (41204) Austrostipa nodosa	0.5	50	N	
FG 94 FG	Hypschaens glabra	5		E	
94	Grass 3 (+1204) Anthosachne scalma	0.1	30	N	
FG	Sestimus Inspanicus	0.1	30	E	
FG FG	arichmed Polycarpon khaphyllis	n 0.2	100	ε	
FG	Brussicer sp.	0-1	20	E	
tamen's airon	des Fine corded was (41201)	0./	SO	8	
QG	Malaris & aquatica	E 1	2000	Ē	
FC	Euphorbia (Shot) dallachyana	0.1	100		
Fa	Pusing tearls (4201) Tatoling areas.	R 0-1	50	N E	
FG FC	Forb 2 (41204) Alternunthera angustitolis	a 0° 1	573	N	
FG.	bed Forts (phote) Maliola cardinjane	0.1	00/	E	
44	Digitaria (mindenill) Chlori bruncate	07	5	N	
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	,				
TO CANADA AND AND AND AND AND AND AND AND AN	Encalyptus blidgesiana in veg near	Sest,			
	/*				
ali		0.7			
FC		0.2			
,					
				,,	
					†

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DEMINITOR LICIOLDER	C 4 811923				
Date 4/12/18	Survey Name McPhul	Harry			
Recorders		7	Plot ID #//////// 06	Zone ID	
Photo#	Plot dimensions Zoxfo				
Datum	Zone	C. C	Plot bearing along mid	line <u>63</u>	
Easting 727403	Northing 62876	658	Record magnetic bearing along midline from 0 m point		
Record easting, northing at plot marker (0 r	m point), Photos taken vertically and horizon	tally at 0m point and	50 m point, looking into plot		
IBRA region					
Subregion					
Likely Vegetation Class			4200	- A	
Plant Community Type	1340		Condition s	tate	
Floristics plot is centred on the midline, at (Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)			
Tiotisces pieces contact of the time.		2.			

Floristics plot is centred on the midline, at 0 m point, 10 m either side						
BAM Composit	BAM Composition / Structure plot (400m²)					
Dimensions (circle	Dimensions (circle applicable size)					
20 x 20 m	10 x 40 m	Sum values*				
	Trees)				
Native	Shrubs	0				
Richness	Grasses etc	2_				
(count of	Forbs	2				
native species)	Ferns	0				
4	Other	٥				
	Trees	50				
Cover	Shrubs	0				
(sum of cover	Grasses etc	10.1				
of natives	Forbs	0.2				
species)	Ferns	0				
	Other	0				
High threat weed cover						

			1 0 4		
Function plot is an	extention of florist	ics plot out to 50 m a	along midline (or equ	uiv. area)	
BAM Funct	ion plot (100	00m²)			
Dimensions	(circle applicable	size)			
20 x 50 m	10 x 100 m				
Tree stem [DBH (cm)	Notes on functio	n attributes:		
>80	(#)	Stem size class reco	ords # large trees (cf	. benchmark)	
50 - 79	(#)/// 3	Record stems for liv	ving trees only, and t	for all species	
30 - 49	(+/-) ✓	For multistemmed	trees, record only th	e largest stem	
20 - 29	(+/-) ~	Presence of <5cm s	tems records regen	eration	
10 - 19	(+/-) -	Record # trees with	hollows, not numb	er of hollows	
5 - 9	(+/-)	Count as one stem	where tree is multis	temmed	
< 5	(+/-)	Hollow bearing ster	n may be a dead ste	m (incl. stag)	
# Trees wit	h hollows	<20cm	2	Total #	
	/	>20cm**		Correction Contraction Contrac	
Length of lo	ogs			Total (m)	
GANGING MICHAEL STATE OF THE ST				8	
Measure length of	Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.				
Measure length of	logs >10cm, fully o	r partly in contact wi	ith the ground, and	within the plot.	

**Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Groundcover (1 x 1 m plots)			Litter cover is used for BAM, other attributes are useful for recording site condition in general				
-		1	2	3	4	5	Average
	Litter	RO	50	50	60	5	49
Sub-plot score	Bare ground	10	50	Ю	40	80	38
-	Cryptogam	0	0	O	O	0	0
•	Rock	0	0	Ō	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	2	0	Slope Mid Slope
Grazing (native / stock)	3	R	Aspect Noth
Soil erosion	0		Soil surface texture Sand & Isam
Firewood removal	0		Soil colour Grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water 10m
Weediness	2	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Recorders	Survey Name	Diot ID 4	110012	70K- ID	
F code	Genus species (tick if photographed or sample taken)		1141206	Zone ID	Tav
	, //	Cover %	Abund (count)	N, E, HTE	Stratun
79	E-blakelyi	50		N	+
99	Grass 1 (4120) Austrostina noclosa	10	6-6	N	-
99			SO		
FG	Gronus (4101) hordeaceus	0.1	5	N	
99	Grass 1. (4/201) hordeaceus	0.8	20	E	
	Gorb 1		10		-
11	7	0.1	20	r	-
FG	Hypochaeris Lebra	0.1	80	E	
	Ah. m. A		10	N	-
Ty		0-1	50		-
99	Paeldsele Lovegreus Eragrostis lephoslachy		10	N	
Fa	Carre Weel Actotheca calendular	21	10	NEE	-
FG		0'1	10		
- H	Red fob (41205) Madiola huncata	01/	20	E	
	,				
					-
			,		
		•			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot - Field	Survey Sheet	1		Page 1 o	f (
Date 4/12/18	Survey Name	McPhi lany	A	I	
Recorders		/	Plot ID # 1004/207	Zone ID	
110001.0.0.			Diet dimensions	alaco	

Plot dimensions 20050 Photo # Plot bearing along midline Zone Datum

Record magnetic bearing along midline from 0 m point Northing Easting 728 739

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Compositi	on / Structure	e plot (400m²)
Dimensions (circl	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
Native	Trees	0
	Shrubs	0
Richness	Grasses etc	4
(count of	Forbs	6
native species)	Ferns	0
	Other	0
	Trees	0
Cover	Shrubs	0
(sum of cover	Grasses etc	1.7
of natives	Forbs	1.4
species)	Ferns	0
	Other	0
High threat we	ed cover	5.6

BAM Funct	ion plot (10	00m²)	
	S (circle applicable		
20 k 50 m	10 x 100 m	1	
Tree stem	DBH (cm)	Notes on function attribut	es:
>80	(#) -	Stem size class records # large	trees (cf. benchmark)
50 - 79	(#)	Record stems for living trees o	nly, and for all species
30 - 49	(+/-) —	For multistemmed trees, record only the largest stem	
20 - 29	(+/-) -	Presence of <5cm stems recor	ds regeneration
10 - 19	(+/-)	Record # trees with hollows, n	ot number of hollows
5 - 9	(+/-)	Count as one stem where tree	is multistemmed
< 5	(+/-) -	Hollow bearing stem may be a	dead stem (incl. stag)
# Trees wi	th hollows	<20cm	Total #
		>20cm**	0
Length of I	ogs	·	Total (m)

*These values summarise the floristic data for input into BAM calculator

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot. **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gro	- T	1	2	for BAM, other attr	4	5	Average
	Litter	30	40	30	50	20	34
Sub-plot score		60	40	70	50	80	60
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	2	NR	Slope Drainage Floor
Grazing (native / stock)	2	R	Aspect East
Soil erosion		R	Soil surface texture Clay / sum
Firewood removal	0		Soil colour grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run on
Storm damage	0		Distance to nearest water 20 m
Weediness	7	R	Distance to nearest rock outcrop /cave 5000

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
64	Rye Grass Lolium perenne	25		E	
FG	Wallenbegin sp	0.1	50	N	
GC	Bronus (41201) pordeaceus	30		E	
Fa	Hypochaeris glasma	185	500	E	
TG	Creeping exalis perennans	0.8	200	N	
FG	Cut tails (41201) Trifolim areven	Je 015	100	E	
FG	Forb 1 Petrorhagin & sp.	0.1	20	E	
GG	Phalaris aquatices	0.1	30	E	
66	Whent Grass (41201)	0.5	100	E	
49	Sheep some helosella vulgaris	0.5	50	E	
FG	Forb 2 to Pseudo gnaphatism luteral.	bum 0.1	100	N	
GG	Strikety Craw (Eragrostis) Poa annua	0-1	50	E	
GG	Plume your (41201) Vulpia myuros	1	Leso	E	
FG	Farts 3 Euchiton sphaericus	0.1	Su	N.	
99	Paddale Coregnes Engrostis lepteslachya	/		N	
	Thist be photo	0.1	10	E	
FG	Anstral Banear Cymhonotus lawsoni	mus 0-1	5	N	
99	Button-like arms Elacusine Instach		10	N	
FG	Red Fab (41205) Modisla bruncata			E	
FG	For 1 (41202) Persicania prestrata	0.5	10	N	
FG	Blue Welistroppium amplesicante	011	1	E	
GG	Small head welleday grass Ryhilospenia man			N	
FG	Brussica sp.	0.1	5	E	
9	Grass 1 (41204) Austrashipa	01	20	N	
74	Salin fragitis noclosa	5	0	E	
	aren				
	MI	1-7			
	Forts				
	H4 1	1.4	-		
		12,1			
		7	. —		

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAINT Tot - Held Survey Sheet						
Date 5/12/18	Survey Name Wellitlamy					
Recorders		0	Plot ID #MAC5120)	Zone ID		
Photo #			Plot dimensions ZOXX			
Datum	Zone		Plot bearing along midline 189			
Easting 732380	Northing 6291	Northing 6291757 Record magnetic bearing along midline from 0 m point				
Record easting, northing at plot marke	r (0 m point), Photos taken vertically and	horizontally at 0m poin	t and 50 m point, looking into plot			
IBRA region						
Subregion						
Likely Vegetation Class						
Plant Community Type	1330		Condition	state Moderate		
Floristics plot is centred on the midline,	at 0 m point, 10 m either side	Function plo	t is an extention of floristics plot out to 50	m along midline (or equiv. area)		
BAM Composition / Stru	icture plot (400m²)	BAM Fu	inction plot (1000m²)			
Dimensions (circle applicable si	ze)	Dimens	ions (circle applicable size)			

BAM Composit Dimensions (circ		1
20 x 20 m	10 x 40 m	Sum values*
	Trees	3
Native	Shrubs	0
Richness	Grasses etc	5
(count of native species)	Forbs	3
	Ferns	0
	Other	0
	Trees	46
Cover	Shrubs	0
(sum of cover	Grasses etc	5.8
of natives	Forbs	5.6
species)	Ferns	0
	Other	0

Function plot is a	an extention of flor	istics plot out to 50 m along midline	(or equiv. area)	
BAM Func	tion plot (1	000m²)		
Dimension	1S (circle applicab	le size)		
20 x 50 m	10 x 100 r	n		
Tree stem	DBH (cm)	Notes on function attributes	:	
>80	(#)	Stem size class records # large tr	ees (cf. benchmark)	
50 - 79	(#)11/ 4	Record stems for living trees only	y, and for all species	
30 - 49	(+/-) V	For multistemmed trees, record only the largest stem Presence of <5cm stems records regeneration		
20 - 29	(+/-)			
10 - 19	(+/-) /	Record # trees with hollows, not	number of hollows	
5 - 9	(+/-)	Count as one stem where tree is	multistemmed	
< 5	(+/-)	Hollow bearing stem may be a de	ead stem (incl. stag)	
# Trees wi	th hollows	<20cm ## # 1	Total #	
如本	V	>20cm**///	5 70	
Length of I	+ 141 44 444		Total (m)	
The state of the s		or partly in contact with the ground	, and within the plot.	

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording site condition in general Average Litter Sub-plot score Bare ground (% cover) Cryptogam Rock

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope Mid Slape
Grazing (native / stock)	1	R	Aspect Wen
Soil erosion	1	0	Soil surface texture Gunden Clay Journ
Firewood removal	0		Soil colour gren
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage un off
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Pipeline crosses unabreak gerphalicular to plot.	R Songland A. Magrie S Songland N. Miller E Roseller N. Miller	
	Red Rump	

Date 5/12/18 Survey Name Mullillary Plot ID # M#C51201 Zone ID					
iF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratum
T4	Eucalyphus bridgeraner	/	7	N	0 21 04 4 04
		25	2	N	
TG.		20	1		
TG	Encolyptus mediodora		2	N	
**************************************	bronus hordaceous	5		-	
	Gronus sp atharticus & Horehound Marrubian vulgare	5		E	
	Horehound Marrusium Vulgare	57			
FG.	Einadia mitans		超	N	
Section of the sectio	Eclism plantagineeren	/	50		
FG	Walterbegra Sp	0.1	50	N	-
***************************************	Hypschaeris glabra	0.1	100	E.	
FG	Oxalis perennens	0.5	100	N	
	Lolium perenne	10		E	
9	Oxalis perennens Lolium pren perenne Aristida sp ramosa	0.2	50	N	
9	This troshpa padosa	5		N	
	Brassica sp. Hordeeum leporinum	/	/OG	E	
	Wheat grass Hordeum reportmen	j	200	6	
	Kurney Sa.	0.1	20	6	
	linear Brown Bronnes diandons	75		E	
99	Evagostes lepts stackya	0.4	/0	N	
	Shew comes Hickorella ungaris	0.5	100		
56	Rhyhidosperma montresta Phataxis 3p Cocles Foot partylis Grass 1 Poa Sielseriana	07	20	N	
	Phataxia (Cocles Foot partyle)	0.5	50	E	
	Grass I Poa sieberiana	0.1	5		
CiG	Ry hilosperma sp (Ing bead) cuespitosum	0.1	10	N	
	and the second second				
	Torn				
	True	46			
the transfer of the transfer o	Gasi				
	(1005)	5-8			
		7 0			
	Ch				
	Fob	8-1			
	5	5.6			
					<u> </u>
	1		I	I	I

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 5/12/18	Survey Name McPhillamy	rage For ()
Recorders	/	Plot ID #MACS/202 Zone ID
Photo #		Plot dimensions /0 x / 00
Datum	Zone	Plot bearing along midline 87°
Easting 733226	Northing 629 1844	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (C	m point), Photos taken vertically and horizontally at 0m point ar	nd 50 m point, looking into plot

IBRA region

Subregion

20 x 20 m

Native

Richness

(count of

native species)

Cover

(sum of cover

of natives

species)

High threat weed cover

Likely Vegetation Class

Dimensions (circle applicable size)

Plant Community Type No

Floristics plot is centred on the midline, at 0 m point, 10 m either side BAM Composition / Structure plot (400m²)

10 x 40 m

Grasses etc

Trees

Forbs

Ferns

Other

Trees

Shrubs

Forbs

Ferns

Other

Grasses etc

Shrubs

Sum values*

0

0

0

2

0

0

0

0

0

0.2

0

0

Condition state Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m²)	
----------------------------	--

Dimensions (circle applicable size) 20 x 50 m 10 x 100 m

Tree stem DBH (cm) Notes on function attributes:

>80 (#)50 - 79 (#)30 - 49 (+/-)20 - 29(+/-)10 - 19 (+/-)(+/-) 5 - 9 Count as one stem where tree is multistemmed

Stem size class records # large trees (cf. benchmark) Record stems for living trees only, and for all species For multistemmed trees, record only the largest stem

Presence of <5cm stems records regeneration Record # trees with hollows, not number of hollows

(+/-)Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows <20cm Total #

>20cm**

Length of logs

< 5

Total (m)

*These values summarise the floristic data for input into BAM calculator

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot. **Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x :	l m plots)	Litter cover is use	d for BAM, other att	ributes are useful fo	r recording site co	ondition in general
		1	2	3	4	5	Average
Sub-plot score (% cover)	Litter	90	90	95	80	70	85
	Bare ground	0	5	0	10	20	7
	Cryptogam	0	0	0	O	0	0
	Rock	0	0	0	0	O	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform		
Clearing (incl. logging)	3	0	Microrelief		
Cultivation	0		Slope Upper slope		
Grazing (native / stock) / NR Aspect					
Soil erosion O			Soil surface texture Surely Clay Loans		
Firewood removal	0		Soil colour Grey		
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage un If		
Storm damage 0			Distance to nearest water 300 m		
Weediness	3	R	Distance to nearest rock outcrop /cave		

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Date 5/12/18	Survey Name M. Philanny	Dist ID "	lane or	700-10	
Recorders			MAC51202	Zone ID	le.
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratum
	Branica bomefatti	30		5 Hrs	1
	Echim plantagineum	5		Б	
	Cepidian (Asts) africanum	10		E	
	Whim perenne	25		E	
	Sheep somet Acetosella vulgares	25		EHTE	
	Hordesim Jessinum (abed grass)	0.5	100	E Hre	
Goose Grass	hatter like pur	0.1	50	E	
	Sestel Histly Onopordum aconthium Tribulus terrestris	5		E	
	Tribulus terreshis	5	50	E	
FG	Padalana Armeren	70-1	20	N	
F4	Displani so manilio	0.1	100		
1 7	Matter Malva nealerta	0-1	70	N	
	Cundon della Am	10		E	
	Dysphania sp pamilio Matton Malva neglecta Cyroclon declifon Bronus horcleaceus Iolium perenne Capre Weed Arctotheca calendula	0.1	50	E	
	Lalium nevenne	0.1	56	E	
	C. Her to Hoose redendula	0.1	10	E	
	Carrie Weeker MICTOTALES EMEMBERIA		, 0		
					1
		A	1		
		028	retur		
			1		-
			1		
					1000
			1	1	1

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 5/12/	12	Survey Name	10 0	1.71 day	111			
Recorders	18	Jaivey Warrie	101010	rittany	Plot ID # 4	1AC51203	Zone ID M	1.1.
Photo #							250	jacou Ce
Datum		Zone			1	ng along mic	- 2	
Easting 736	715	Northing 6	19318	7-		bearing along midl	//	
- 1/	at plot marker (0 m po	pint), Photos taken verticall	0/10	itally at 0m point and	 50 m point, lookin	g into plot		
IBRA region							7	
Subregion								
Likely Vegetation	on Class							
Plant Communi		54				Condition	state Mahur	maes or
			Function plot is a	n extention of flori		n along midline (or e		
BAM Composition / Structure plot (400m²)			BAM Func	tion plot (10	000m²)			
			Dimension	S (circle applicabl	e size)	1		
20 x 20 m	10 x 40 m	Sum values*		20 k 50 m 10 x 100 m				
	Trees	1		Tree stem DBH (cm) Notes on function attributes:				
Native	Shrubs	0		>80	(#)	Stem size class re	cords # large trees (cf. benchmark
Richness	Grasses etc	4		50 - 79	(#)2_	Record stems for living trees only, and for all spec For multistemmed trees, record only the largest s		
(count of	Forbs	8		30 - 49	(+/-)			
native species)	Ferns	0		20 - 29	(+/-)	Presence of <5cm	stems records rege	neration
	Other	1		10 - 19	(+/-)	Record # trees wi	th hollows, not num	per of hollows
	Trees	25		5 - 9	(+/-)	Count as one ster	n where tree is mult	stemmed
Cover	Shrubs	6		< 5	(+/-)	Hollow bearing st	em may be a dead st	em (incl. stag
(sum of cover	Grasses etc	21.2		# Trees wit	h hollows	<20cm		Total #
of natives	Forbs	1-2			0	>20cm**		
species)	Ferns	O		Length of I	ogs			Total (r
	Other	1		III				3
High threat we	ed cover	10.1		Measure length of logs >10cm, fully or partly in contact with the ground, and within the pl				
		nput into BAM calculator		**Hollows of >20	cm are recorded fo	r habitat for some t	hreatened species	
BAM Litter/ Gre	oundcover (1			ed for BAM, other at			1	-
		1	2	3	4	5	Average	-
	Litter	50	60	50	80	100	68	1
Sub-plot score		50	40	40	10	0	28	
(% cover)	Cryptogam	0	0	0	0	0	0	
	Rock	0	0	0	0	0	0	

		1	2	3	4	5	Average
	Litter	50	60	50	80	100	68
Sub-plot score	Bare ground	50	40	40	10	0	28
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	Ó	Microrelief
Cultivation		NR	Slope Hill crest
Grazing (native / stock)	2	R	Aspect East
Soil erosion	0		Soil surface texture Sandy lown
Firewood removal	0		Soil colour grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water
Weediness	V	2	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes		

Date 5/12/1	Survey Name	ml			-
Recorders '			145/203	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
T4	Encalyptus mellisclora	25		N	
	Lolin perenne	0.5	200	0	
9		20		N	
	Bronus hordeavers 3p. authorticus	0.5	300	E	
	Brassica tournifortis	10		EW	iv
F4		0.5	50	N	
	arent brome Bronnes diandres	0-1	20	E Ha	J
FG		0.1	5	N	
	Horehound Marrusian Vulgare	0.5	10	E	
	Cocks Foot Duetylis Homerata	0.1	20	5	
FG	Evodium (very tookled leaf) cicertarium	0.1	50	N	
FG	Wallenbegin communis	0.1	20	N	
	Vulpia nujoris	0.1	50		
96	Rhytidos penna montresta caespitosum	1	200	N	
	Trifolium betepense arvence	0.7	50	Ē	
	Ednin plantagineum	6.1	20	Ē	
	Appocheceris glabora	0.1	50	E	
	Tribulus terrestris	0.1	20	E	
	Avena barbata	0.1	20	E	
	Cynodon dachfon	0.5		E	
	Trifolium ressens	0.1	50	E	
FG	Vi Hadring Sp (phot) dissection	011	5	N	
(Pirk fort (phots) Spergularia rubia	0.1	1	E	
Pa	Daisy (phots) Euchiton sphaenicas	0.1	5	N	
GG	Garage (green & granter) sinderna	0.1	5	N	
09	Amyerna sp. penelula	1	2	N	
99	Bothnischlon mucra (sample)	0.1	5	N	
FG	Oxulis perennen-	0.1	5	N	
FG	Walstenbergin of (under gracity	0.1	-	N	
	Euphorbia (4/12/18) maculate		25	E	
	Suprovera (4/12/18) maintain	61	63		
	Gu				
	Fees	. 1			
	8	1.2			
		2. 2			
	Gravs	21.2			
	7	-			
	N/A .				
	Other				
		1			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 6/12	110	Survey Name	10 01-11				Page 1 of (
Recorders	18	Survey Ivallie	M. Phillany	Diet ID #	110000	Zone ID	
Photo #				Plot ID #//	14661201	The second second	
Datum		Zone			nsions 2		
Easting 7389	TA		(12		ing along mid		6
1101		Northing 6293 oint), Photos taken vertically an				me nom o m pome	
IBRA region	, ac ploc marker (o m p	ome, i notos taken verticany an	a nonzontany at om point and	30 III poliit, iookii	ig into plot	7	
Subregion						-	
Likely Vegetati	on Class						
Plant Commun		NO PCT.			Condition	stato	
Floristics plot is centred			Function plot is a	n extention of flor	istics plot out to 50 r	2 700 00	equiv. area)
			tion plot (1	_		equiti ai caj	
Dimensions (circ		7		S (circle applicab		T	
20/x 20 m	10 x 40 m	Sum values*		10 x 100 r			
	Trees	6	Tree stem		Notes on funct	ion attributor	
Native	Shrubs	0	>80	(#)		cords # large trees (of handhmark)
Richness	Grasses etc	1	50 - 79	(#)	_	living trees only, an	
(count of	Forbs	1	30 - 49	(+/-) _	-	d trees, record only	
native species)		0	20 - 29	(+/-)		stems records rege	
	Other	D	10 - 19	(+/-)		th hollows, not num	
	Trees	0	5 - 9	(+/-)		m where tree is mult	
Cover	Shrubs	O	< 5	(+/-)		em may be a dead s	
(sum of cover	Grasses etc	0.5	# Trees wit	1, , ,	<20cm	em may be a dead s	Total #
of natives	Forbs	0.1			>20cm**		0
species)	Ferns	0	Length of I	ogs			Total (m)
	Other	0		0			0
ligh threat wed	ed cover	0.5	Measure length o	f logs >10cm, fully	or partly in contact v	with the ground and	within the plot
		nput into BAM calculator			or habitat for some t		ami the plots

BAM Litter/ Groundcover (1 x 1 m plots)		Litter cover is used for BAM, other attributes are useful for recording site condition					
		1	2	3	4	5	Average
	Litter	50	30	50	40	30	40
Sub-plot score	Bare ground	40	50	30	40	50	47
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	D	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	0	Microrelief
Cultivation	3	R	Slope Plain
Grazing (native / stock)	0		Aspect
Soil erosion	0		Soil surface texture Class (sam
Firewood removal	0		Soil colour Grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage hun on
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Notes Cutivated Date crop Signary
M. Lapuir

	Survey Name M. Mulanys	Dist ID # *	101 14 -	700-10	
Recorders		Plot ID # //		Zone ID	I a
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
	Cynodon daefylon	25		5	
	Malan's aquaticus	5		E	
	Brassica horms fortis	0.7	100	E HAW	
FG	Geraniom sp molle Bronus hordeaceus Shraginités australis River Tuyock	0.1	10	_	
	Bromus hordeaceus	0-1	50	Ē	
	Phragim les australis	/	200	N	
GG	River Tuxock	0.2	5	N	
	Edium plantergineum	0.1	5	E	
	Scotch Thisthe	25		5	
	Rumaen SA.	0.1	100		
	Avena sa. (out crop) saliva	50		Ē	
	Avena sp. (out crop) sativa Creephy fort from max+roz resacarica Phennel West Foeniculum Julgare	0.1	5	E	
	Phennel West Foeniculum Julgare	- /	10	E	
			1		

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 6/12/18	Survey Name	
Recorders		Plot ID #MACGNOZ Zone ID
Photo #		Plot dimensions 20x (7)
Datum	Zone	Plot bearing along midline 230°
Easting 756516	Northing 627 4485	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker	(0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot
IBRA region		

Subregion

Likely Vegetation Class

Plant Community Type

133

Condition state Vidibale

BAM Compositi		1
20 x 20 m	10 x 40 m	Sum values*
	Trees	1
Native	Shrubs	0
Richness	Grasses etc	0
(count of	Forbs	3
native species)	Ferns	0
	Other	0
	Trees	25
Cover	Shrubs	0
(sum of cover	Grasses etc	0
of natives	Forbs	0.7
species)	Ferns	0
	Other	0

Function plot is a	n extention of floris	tics plot out to 50 m along midli	ne (or equiv. area)
BAM Funct	tion plot (10	000m²)	
Dimension	S (circle applicable	e size)	
20 x 50 m	10 x 100 m	1	
Tree stem	DBH (cm)	Notes on function attribut	es:
>80	(#) -	Stem size class records # large	e trees (cf. benchmark)
50 - 79	(#) /	Record stems for living trees of	only, and for all species
30 - 49	(+/-) -	For multistemmed trees, reco	rd only the largest stem
20 - 29	(+/-) ~	Presence of <5cm stems reco	rds regeneration
10 - 19	(+/-) -	Record # trees with hollows, r	not number of hollows
5 - 9	(+/-)	Count as one stem where tree	e is multistemmed
< 5	(+/-)	Hollow bearing stem may be a	a dead stem (incl. stag)
# Trees wi	th hollows	<20cm 2_	Total #
	1	>20cm** /	3
Length of I	ogs		Total (m)
Measure length o	of logs >10cm, fully	or partly in contact with the gro	und, and within the plot.

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x :	1 m plots)	Litter cover is used	for BAM, other at	ttributes are useful f	or recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	60	80	90	70	90	78
Sub-plot score	Bare ground	30	10	0	10	5	11
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief .
Cultivation	0		Slope Unper slope
Grazing (native / stock)		R	Aspect Sw
Soil erosion	0		Soil surface texture Sound
Firewood removal	23	R	Soil colour brown
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run off
Storm damage	0		Distance to nearest water 400 m
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes Clevel graving land with

Br. Somewhat Gulow Israel

KH - Version 1.1 - Date 1/12/2017

Recorders	18 Survey Name McMillanys	Plot ID # /	1461202	Zone ID		
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun	
TG	E. mellischora	25		N		
	Malya negleita	1	100	5		
	Lolium serenne	1	200	É		
	Hordeum leprinum	25		Ē		
	Malva neglecta Lolium perenne Hordeum leporinum Bronns diandrus	25		EMW		
	Shrging nett le Urbica incisa Cocles Foot Dactylis glomerata	1	50	E	-	
FG	Chrain nett 18 Urbica incisa	0.5	50	N		
	Cocles Foot Ductulis almerata	0.1	20	E		
	Blackberry	0.1	1	EHW		
	Geranian so (61201) molle	0.1	5			
	Afripley (phots Chenspoding album	0.1	5	E		
	Cynoden dactifon	5		E		
	Atriples (phots) Chenspeding album Cynoclen dactigton Brassica tourifortii	0 -1	20	EHW		
	Hypochaen's glaska	0:1	50	E		
	Trifolium arvense	0.1	20	E N		
FG	Hypochaen's glatka Trifolium arvenre Dysphenia pumilio	0.1	10	N		
	Marrubiim Vulgare Acefosella vulgaris Tihadia nufans	0.1	5	E		
	Acetosella vulgaris	0.1	20	EHW		
FG	tihadia nufours	0.1	5	N		

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 6/12/			111	2/ 1/	-				
0//	//8	Survey Name	Mut	hillow			- 15		
Recorders						9661203	Zone ID		
Photo #					Plot dimen		150		
Datum		Zone				g along midl			
Easting 7526	73	Northing (MANA		Record magnetic bearing along midline from 0 m point				
Record easting, northing	at plot marker (0 m po	int), Photos taken vert	ically and horizon	tally at 0m point and	50 m point, looking	; into plot	1		
BRA region									
Subregion									
Likely Vegetation	on Class		- 11				26	Mod	
Plant Communi		0	30.	5		Condition s		getatror	
loristics plot is centred o			1			tics plot out to 50 m	along midline (or eq	uiv. area)	
BAM Compositi	on / Structure	plot (400m²)			tion plot (10				
Dimensions (circl	e applicable size)				S (circle applicable				
20 x 20 m	10 x 40 m	Sum values*		20 x 50 m	10 x 100 m				
	Trees	2		Tree stem	DBH (cm)	Notes on function	on attributes:		
Native	Shrubs	3		>80	(#)	Stem size class rec	ords # large trees (c	f. benchmark)	
Richness	Grasses etc	2		50 - 79	(#)	Record stems for I	iving trees only, and	for all species	
(count of	Forbs	4		30 - 49	(+/-)	For multistemmed	trees, record only the	ne largest stem	
native species)	Ferns	0		20 - 29	(+/-)	Presence of <5cm	stems records regen	eration	
	Other	0		10 - 19	(+/-) V	Record # trees wit	h hollows, not numb	er of hollows	
	Trees	2		5 - 9	(+/-)	Count as one stem	where tree is multis	stemmed	
Cover	Shrubs	11		< 5	(+/-)	Hollow bearing ste	em may be a dead st	em (incl. stag)	
(sum of cover	Grasses etc	0.6		# Trees wi	th hollows	<20cm		Total #	
of natives	Forbs	1.3		>20cm**		0			
species)	Ferns	0		Length of I	ogs			Total (m	
	Other	0	1					0	
			7	Alexander and		or partly in contact v	vith the ground, and	within the plot.	
High threat we	ed cover	1.5							
*These values summaris	e the floristic data for i	nput into BAM calcula		**Hollows of >20	cm are recorded fo	or habitat for some th	nreatened species		
*These values summaris	e the floristic data for i	nput into BAM calcula	Litter cover is us	**Hollows of >20	cm are recorded fo	or habitat for some the	nreatened species		
*These values summaris	e the floristic data for i	nput into BAM calcula x 1 m plots)	Litter cover is us	**Hollows of >20 ed for BAM, other at	ocm are recorded for tributes are useful t	for recording site cor	ndition in general Average		
*These values summaris	e the floristic data for i	nput into BAM calcula x 1 m plots)	Litter cover is us	**Hollows of >20	ocm are recorded for tributes are useful 4 90	or habitat for some the	Average	-	
*These values summaris	e the floristic data for i oundcover (1)	nput into BAM calcula x 1 m plots)	Litter cover is us 2 80	**Hollows of >20 ed for BAM, other at	ocm are recorded for tributes are useful to the desired of the des	or habitat for some the	Average \$ 7	-	
*These values summaris BAM Litter/ Gr	e the floristic data for i oundcover (1)	nput into BAM calcula x 1 m plots) 1 90	Litter cover is us 2 80	**Hollows of >20 ed for BAM, other at	com are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover)	Litter Bare ground Cryptogam Rock	nput into BAM calcula x 1 m plots) 1 90 0 6	Litter cover is us 2 80 0	**Hollows of >20 ed for BAM, other at	com are recorded for tributes are useful to the same of the same o	or habitat for some the	Average \$ 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2	nput into BAM calcula x 1 m plots) 1 70 0 0 25, 35, 45 m (alternatir	Litter cover is us 2 80 0 0 one sides) along the	**Hollows of >20 ed for BAM, other at	com are recorded for tributes are useful to the same of the same o	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover)	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2	nput into BAM calcula x 1 m plots) 1 70 0 0 25, 35, 45 m (alternatir	Litter cover is us 2 80 0 0 one sides) along the	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function	com are recorded for tributes are useful to the same of the same o	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2	nput into BAM calcula x 1 m plots) 1 70 0 0 25, 35, 45 m (alternatir	Litter cover is us 2 80 0 0 one sides) along the	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function	dem are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7	nput into BAM calcula x 1 m plots) 1 90 0 0 25, 35, 45 m (alternating essential for B	Litter cover is us 2 80 0 0 one sides) along the	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function	com are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7	nput into BAM calcula x 1 m plots) 1 70 0 25, 35, 45 m (alternatives sential for Bessential	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function	dem are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7 rmation (not experience)	nput into BAM calcula x 1 m plots) 1 90 0 25, 35, 45 m (alternatir essential for B Severity 3	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 75 0 0 emidline of Function Landform Microrelie	com are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7		
Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le Cultivation Grazing (native	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7 rmation (not experience)	nput into BAM calcula x 1 m plots) 1 70 0 25, 35, 45 m (alternatives sential for Bessential	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 midline of Function Landform Microrelie Slope	com are recorded for tributes are useful to the same useful to the sam	or habitat for some the	Average 8 7 0		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7 rmation (not e	nput into BAM calcula x 1 m plots) 1 90 0 25, 35, 45 m (alternatiressential for B Severity 3 0 0	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function Landform Microrelie Slope Aspect	dem are recorded for tributes are useful to the same useful to the sam	or habitat for some the for recording site cords of the form of th	Average 8 7 0		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le Cultivation Grazing (native Soil erosion	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2 rmation (not e	nput into BAM calcula x 1 m plots) 1 90 0 25, 35, 45 m (alternativessential for B Severity 3 0 0	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 0 emidline of Function Landform Microrelie Slope Aspect Soil surface	com are recorded for tributes are useful to the same useful to the sam	or habitat for some the for recording site cores of the forest of th	Average 8 7 0		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le Cultivation Grazing (native Soil erosion Firewood remo	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2 rmation (not e	nput into BAM calcula x 1 m plots) 1 90 0 25, 35, 45 m (alternativessential for B Severity 3 0 0 0 0 0 0 0 0 0 0 0 0	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 0 midline of Function Landform Microrelie Slope Aspect Soil surfact Soil coloui Site draina Distance t	dem are recorded for tributes are useful tributes are useful to the same useful to the sa	Gay low	Average 87 0		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le Cultivation Grazing (native Soil erosion Firewood remo	Litter Bare ground Cryptogam Rock s are located at 5, 15, 2 rmation (not e	nput into BAM calcula x 1 m plots) 1 70 0 25, 35, 45 m (alternativessential for B Severity 3 0 0 0 0 0 0 0 0 0 0 0 0	Litter cover is us 2 80 0 0 ng sides) along the AM) Timing	**Hollows of >20 ed for BAM, other at 3 7 0 0 midline of Function Landform Microrelie Slope Aspect Soil surfact Soil coloui Site draina Distance t	dem are recorded for tributes are useful tributes are useful to the same useful to the sa	or habitat for some the for recording site cords of the form of th	Average 87 0		
*These values summaris BAM Litter/ Gr Sub-plot score (% cover) Litter/groundcover plot Other plot info Disturbance Clearing (incl. le Cultivation Grazing (native Soil erosion Firewood remo	Litter Bare ground Cryptogam Rock s are located at 5, 15, 7 rmation (not 6) Ogging) / stock) pval mid, canopy burnt?)	nput into BAM calcula x 1 m plots) 1 70 0 0 25, 35, 45 m (alternativessential for B Severity 3 0 0 0 0 0 0 0 0 0 0 0 0	Litter cover is us 2 80 0 0 mg sides) along the AM) Timing 0	**Hollows of >20 ed for BAM, other at 3 7 0 0 midline of Function Landform Microrelie Slope Aspect Soil surfact Soil coloui Site draina Distance t	de texture Gray	Gay low The state of the state	Average 87 0		

KH - Version 1.1 - Date 1/12/2017

ecorders		Plot ID # M	AC61203	Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)		Stratun
	Dactylis glamerata	80		Б	ou acan
	Prickly letterce	0.1	50	£	
	Gronius hordeaceus	5		E	
	Totolium avense	0.1	100	E	
	Villa Salix fragilis	1	0	EHTW	
	Brassica tournifotis	0.5	100	E Hav	
FG	Chrysocephalum aproulation	1	50	N	
	flantago So.	0.7	20	6	
FG	Excaliptus blakelyi	0.1	100	N	
TG	Eucalyptus blakelyi	1	D	N	
	Coljum perenne	0.1	100	E	
FG	Willensy ma communes	0.1	70	N	
EG		0.50=1	50	N	
SG	Acacie (domini a ciracen	5		N	
	Estymus hispanjous	0.1	10	E	
	Mordeum leporinum	0.1	20	E	
FG	Rumer prominie	01/	10	N	
	Mypochaesis glassen	0.1	30	E	
	Large Hypochacre's Jugar good head	0.1	100	E	
69	Rytidospenia raes pitosum	0.1	20	N	
TG	Ryticlosperma raespitosum River Dack Casuarina cumphyhauriana	1	1	N	
Sq	Hercie (shots)	5		N	
SG Rive	- Callistanian citriners	1	1	N	
		,	7		
	Tree				
	2	2			
	Shows				
	3	11			
	Folo				
	4	1.3			
	areis	7			
	2	0.6			

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Intact

BAM	Plot	_	Field	Survey	Sheet
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BAIVI PIUL - FIEIU JU	il vey bileet	
Date 7/12/18	Survey Name M. Philler	448
Recorders		Plot ID # MHC71201 Zone ID
Photo #		Plot dimensions 20x50
Datum	Zone	Plot bearing along midline 766
Easting 776650	Northing 6303448	Record magnetic bearing along midline from 0 m point
	(0 m point), Photos taken vertically and horizontally at 0m p	oint and 50 m point, looking into plot
IBRA region	4	
Subregion		
Likely Vegetation Class		

Plant Community Type (093

BAM Compositi	on / Structure	e plot (400m²)
Dimensions (circl	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	2
Native	Shrubs	7
Richness	Grasses etc	7
(count of	Forbs	8
native species)	Ferns	0
	Other	0
A STATE OF THE PARTY OF THE PAR	Trees	70
Cover	Shrubs	8-7
(sum of cover	Grasses etc	\$6.6
of natives	Forbs	1-2-
species)	Ferns	0
	Other	
High threat we	ed cover	0.6
*These values summaris	e the floristic data for	input into BAM calcula

Function plot is an	extention of floristi	cs plot out to 50 m along midline (or equ	iiv. area)		
BAM Functi	on plot (100)0m²)			
Dimensions	(circle applicable s	size)			
20 x 50 m	20 x 50 m 10 x 100 m				
Tree stem DBH (cm) Notes on function attributes:					
>80	(#) /	Stem size class records # large trees (cf.	. benchmark)		
50 - 79 (#) Record stems for living trees			for all species		
30 - 49 (+/-) For multistemmed trees, record only the largest stem			e largest stem		
20 - 29	(+/-)	Presence of <5cm stems records regeneration			
10 - 19	(+/-)	Record # trees with hollows, not number of hollows			
5 - 9	(+/-) 🗸	Count as one stem where tree is multis	temmed		
< 5	(+/-)	Hollow bearing stem may be a dead ste	em (incl. stag)		
# Trees wit	h hollows	<20cm	Total #		
		>20cm**			
Length of lo	ogs		Total (m)		
litt flet			12		
24	f logs >10cm, fully o	or partly in contact with the ground, and	within the plot.		
		habitat for some threatened species			

Condition state

Litter cover is used for BAM, other attributes are useful for recording site condition in general BAM Litter/ Groundcover (1 x 1 m plots) 5 **Average** 2 90 90 80 95 95 Litter 0 0 0 Sub-plot score | Bare ground 0 O O 0 (% cover) Cryptogam

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

0

Other plot information (not essential for BAM)

Rock

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	1	NR	Microrelief
Cultivation	0		Slope mid-slope.
Grazing (native / stock)	0		Aspect South
Soil erosion	6		Soil surface texture <i>Quy faum</i>
Firewood removal	1	R	Soil colour Grey
Fire (ground stratum, mid, canopy burnt?)	il and	NR	Site drainage yun off
Storm damage	0		Distance to nearest water LOOM
Weediness	1	R	Distance to nearest rock outcrop /cave

6

0

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Recorders	Survey Name McMaillanys	Plot ID #MAC7(20) Zone ID			
GF code	Genus species (*) 1 %			Zone ID	_
	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
raumosa TG		30			
74	- The state of	30			
FG	Forb / Lencopogon appressus	0.5	20		
59	Pea ((phoss) Villayina phylicoides	/	20		
SG	Pea 2 (phots) Daviesia Ceptophylla	1	20		
as	Hardenbregia vislaceer	0.5	10		
GG	Comandra filifornis	5			
eg	Poa siebenama	60			
99	Themseda triandra	15			
99	Diunella	15	50		
	Plantago 3p.	0:1	50		
1	St Johns Want Hypericum perforation		10	im.l	-
Sin	Carried Literal and proportion	,		HTW	
	of the foundation in	-/	10		
90	Gruss I Pa induta				
RG.	10000	5			
59		0.8	10		
	Mihertin shlessifolia	0.1	5		
SG	Hacia dealbuta (silve wattle?)	51			
09	Amyema (phote)	5			
SG	Acdica 1	0.5	0		
3	Haeldrenny	0.5	7-	MW	
FG	Oxalis perennans	0.1	10		
FG	Pea 3 fossione busifolier	0.1	/	HOT N	
15	Nahlenbergia sp gracilenta	0.1	50		
FG	Chrysocephaleun aproulation	0.1	5		
	Myon charge glaters	0.1	20		
FG	Habragis sp	0.1	20		
TG	Euc 3? (photo 851) no soilles E. mannifere	1 5			
FS	Trigger Plant Stylidium graminifolium	0.1	5		
FE	Davin (photos 852-853)	0.1	100		
SG /	Youen sp? heterophylla	0.1	1	N	
	The state of the s		,	10	
	TG 2 70				
	SG 7 8.7				
	44 7 866				
	FG & 1:2-				
	0				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 24918	Survey Name McPhillan	ys
Recorders 1		Plot ID # MACAO101 Zone ID
Photo #		Plot dimensions 20x50
Datum GD494	Zone MGASS	Plot bearing along midline 31°
Easting 770658	Northing 6300945	Record magnetic bearing along midline from 0 m point
Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot
IBRA region SM Ees	1- Highlands	

Subregion

Likely Vegetation Class

Plant Community Type 197- Snew Gran - Montain Gum

Condition state

Floristics plot is centred on the midline, at 0 m point, 10 m either side					
BAM Composition / Structure plot (400m²)					
Dimensions (circ	le applicable size)				
20 x 20 m	10 x 40 m	Sum values*			
446.500	Trees	3			
Native	Shrubs	84			
Richness	Grasses etc	3			
(count of	Forbs	8			
native species)	Ferns				
	Other	0			
	Trees	76			
Cover	Shrubs	0.8			
(sum of cover	Grasses etc	45.2			
of natives	Forbs	0.8			
species)	Ferns	20			
·	Other	0			
High threat wee	ed cover	0			
*These values summarise the floristic data for input into BAM calculat					

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area) RAM Function plot (1000m²)

BAM Funct	ion plot (10	00m²)		
Dimensions	(circle applicable	size)	200000000000000000000000000000000000000	
20 x 50 m	10 x 100 m			
Tree stem (DBH (cm)	Notes on function attributes:		
>80	(#)	Stem size class records # large trees (c	f. benchmark)	
50 - 79	(#) !!!	Record stems for living trees only, and	for all species	
30 - 49	(+/-)	For multistemmed trees, record only the largest stem		
20 - 29	(+/-)	Presence of <5cm stems records regeneration		
10 - 19 (+/-)		Record # trees with hollows, not number of hollows		
5 - 9 (+/-) 🗸		Count as one stem where tree is multistemmed		
< 5	(+/-)	Hollow bearing stem may be a dead ste	em (incl. stag)	
# Trees witl	h hollows	<20cm il	Total #	
	V	>20cm**/		
Length of lo			Total (m)	
Ism 4ft +tf!	48			
Measure length of	logs >10cm, fully o	r partly in contact with the ground, and	within the plot.	

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots)			Litter cover is used for BAM, other attributes are useful for recording site condition in general				
		1	2	3	4	5	Average
	Litter	100	90	90	90	95	93
Sub-plot score	Bare ground	0	0	0	0	0	0
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	0	0	0	Ó	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for RAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2 1	0	Microrelief
Cultivation	0		Slope Opperslype.
Grazing (native / stock)	0		Aspect NNE
Soil erosion	0		Soil surface texture Clay-Isam
Firewood removal	0		Soil colour from
Fire (ground stratum, mid, canopy burnt?)	O		Site drainage fun Af
Storm damage	0		Distance to nearest water
Weediness	D		Distance to nearest rock outcrop /cave

5everity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

,	it not reaching o oray motoria	i.
Notes I peline m		un foetle chain
- Ast Reven	- Long Santoll	WT Treeenegre
- Crimson Roselly	-5. 8. w - Emburen	KH - Version 1.1 - Date 1/12,

KH - Version 1.1 - Date 1/12/2017

	Genus species (tick if photographed or sample taken) Scribbly Gum, E. 1055ii? Encalyphis splaw ciffora Bracken Phenchian esculentum Pour sieben cum Lomandra Conzi folia Epicorid SDI Acrotiche staracata Lomandra fillomis Bluck watth Acacia induncy bu Forb I Torb I hadenia sp. Hardenburgen violance	5 01 01	Abund (count)	Zone ID N, E, HTE	Stratum
TG TG EG GG GG SG TG FG FG	Surbbly hum, E. 1055ij? Encalzehus Splanciflora Bracken Ptericlian esculentum Poet siebeniama Lomandra longifolia Epacrid SP) Acrotiche divancata Lomandra fillomis Bluck wattle Acacia rubuncy bu Torb 1 Torb 2 hoodenia sp.	25 50 20 40 5 01	3 20 4		
16 EG GG GG GG TG FG FG	Encalzeho spl punciflora Bracken Phenolican esculentum Pour sieben auen Lomandra Pouzi folia Exacrid SP) Austriche divancata Lomandra fillomis Black with Acacia rulemey bu Forb 1 Tools 2 hoodenia sp.	50 20 40 5 01 01	20		
EG GG GG Sty GG TG FG FG	Poer sieben anna Longendra longs folie Epecrid SP) Aurstriche Strancata Longuelra fillomis Black Matte Acacia rulumy bn Forb 2 Godenia sp.	20 40 5 01 01	20		
G4 G4 X1 G4 T4 F4 F4	Longuelra longifolia Epacrid SD) Acrotiche divancata Longuelra fillomis Bluck wattle Acacia rulensey bu Torb 1 Torb 2 hoodenia sp.	40 5 01 01	20		
44 44 44 74 74 74 74	Esmandra longé folice Escavid SP) Austriche divaricata Comunilm filifornis Black watth Acacia rubung bin Forb 1 Tools 2 Goodenia sp.	5 0 1	20		
54 64 74 FL FL	Consumbra filifornis Black watth Acacia rubuning ber Tools 2 Goodenia sp.	0-1	20		
64 74 F6 F6	Black watte Acacia rubuney ber	0-1	20		
74 FG FG FG	Blush with Acacia rulenney bur	<i>1</i>	4		
FG FG FG	Forb 2 Godenia sp. god	nd O-1	<u> </u>	l .	
FL FL	Foils 2 Godenia sp.	100			
T.	1-01/2 Underna Sp.		200		
	Marchaeles are Willer 1.10.		50		
56	THE THE PROPERTY OF THE PERTY O	101	10		
	Hardenberger islaves (15 mg) Acacia 501 implema mediterrane	7	3		
华		0.1	10	<u> </u>	<u> </u>
Fa	Daisy of (Purply in photo)	0''	200	Brachyson	ne decipie
Sc	Busaria spinosa	0.5	2		
FE	My pocher des	01	SD		
FG	Respused honocarpus tetraginus	0.1	300		
FR-	Fel 4	0.1	20		
FG	Kidney weed Pichondra repens	0.1	200		
74	Duisy 2 Senecis diaschides	0-1	1		
FE	Diving 3 Umgocophulus aprilatur	0.1	10		
174	For 5 Viola beforicifolia	0.1	l		
Fa	Fols 6	0.1	50		
G 4	Grass Mirolaena shipoides	0.1	5		
54	Pen 181 Hibbertia Strisi Folia	0.1	3		
34	Ziena consoides?				
	french Griscians.				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 249/18	Survey Name Muchilla	ryk			
Recorders		Plot ID # Mc240902 Zone ID			
Photo #		Plot dimensions ZOX50			
Datum 40494	Zone MAQ 55	Plot bearing along midline 359°			
Easting 77/266	Northing 6301507	Record magnetic bearing along midline from 0 m point			
Record easting, northing at plot marker	(0 m point), Photos taken vertically and horizontally at 0m	point and 50 m point, looking into plot			
IBRA region					
Subregion					
Likely Vegetation Class					
Plant Community Type	1197	Condition state			

Floristics plot is centred on the midline, at 0 m point, 10 m either side

BAM Composit	ion / Structur	e plot (400m²)
Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	3
Native Richness (count of native species)	Shrubs	4
	Grasses etc	5
	Forbs	10
	Ferns	0
	Other	
	Trees	95
Cover	Shrubs	0.8
(sum of cover	Grasses etc	65-2
of natives species)	Forbs	1.9
	Ferns	0
	Other	0.1
High threat we	ed cover	0.2

BAM Function plot (1000m²) Dimensions (circle applicable size) 20 x 50 m 10 x 100 m Tree stem DBH (cm) Notes on function attributes: >80 (#) / Stem size class records # large trees (cf. benchmark) 50 - 79 (#)111 Record stems for living trees only, and for all species 30 - 49 For multistemmed trees, record only the largest stem 20 - 29 (+/-) Presence of <5cm stems records regeneration 10 - 19 Record # trees with hollows, not number of hollows 5 - 9 (+/-)Count as one stem where tree is multistemmed < 5 Hollow bearing stem may be a dead stem (incl. stag) # Trees with hollows <20cm Total #

>20cm**

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Length of logs HH HH HH HH HH HH HH HH HH MY MY Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

Total (m)

**Hollows of >20cm are recorded for habitat for some threatened species *These values summarise the floristic data for input into BAM calculator

BAM Litter/ Gr	oundcover (1 x	1 m plots)	Litter cover is used	for BAM, other attr	ributes are useful fo	r recording site c	ondition in general
		1	2	3	4	5	Average
	Litter						90
Sub-plot score	Bare ground						0
(% cover)	Cryptogam						0
	Rock						0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	1	0	Microrelief
Cultivation	0		Slope Upper s/spe
Grazing (native / stock)	0		Aspect N
Soil erosion	0		Soil surface texture (ky-lxm
Firewood removal	0		Soil colour boun
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage run aff
Storm damage	0		Distance to nearest water
Weediness	0		Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

	1 111
Notes	Wantsat.
	Fl. Kangerna
	C. Rosella

Date A9/	Survey Name McPhillamy		146240902	Zone ID		
	Scarrie mosics (in this term to be a selected)					
F code	Genus species (tick if photographed or sample taken)	Cover %	1	N, E, HTE	Stratum	
\$ 54	Blockberry	0 - 1	2	HTE	M	
\$4	Hidney weed Dichonda repens	1	1000		-	
Gh	Comandra Israilolia	5			L	
51	" " flifornis	0.1	50		-	
64	los sielseriana	30			L	
5-4	Daisy 1 (MAC 240,01)	0.1	100		L	
94	Gran 1 (" ") Micolaever shpoint	les 0.1	5		1	
99	Pou sp 2 (abillardieree	30			V	
× 7-9	Frois 1 Minuartia mediterranea	0.1	10		L	
74	Fuct	10			y	
FG	Ferb 2 Geranium solanderi	0.1	200		L	
+ 59	Sestel Brown Cytisus suspends	0.1	3	MTE	M	
SS	Hardenbergia violuven	0.5	30		M	
FG	Respond Gonocarpus tetragynus	0.1	50		1	
FG,	Appochuerais glaborer	0.1	20		L	
09		0.1	1		L	
Sh	Epained Monotoca Sisparia	0.1	1		M	
FG	Easpwort for MAIZ40901 11. 1	0.1	50		L	
F-4	Diangle leaf fort from MAC 24090	01	2000		L	
54	Rea 2 Hoven heterophylla	0.1	3		m	
54	Pea I from MACZ4090 shksifolia	0.1	3		L	
TS	Daisy from MACZ40901 like CHAP	3-1	50		L	
TG	Acaiia 2 melomoxy lon	10			M	
14	Eucz dalympleana	60			и	
The	Exis delignoferra	10			#	
Ty.	Euch panciflera	25			70A L	
39	Exocarpor shickers	0.1	1		M	
FG	Acaena ovina	0.1	100		1	
FG	beronsia beforicitation					
69	Veronica calucina	0.1			L	
		1				
	TG 2 95					
	SG 4 08 FG 10 1.9					
	FG 10 1.9					
	96 5 105.2					
	061 01					
	HTW 01					
	,					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Record	love	18 Survey Name M. Millany	Plot ID # 4	90250901	Zone ID		
		Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N. E. HTE	Stratum	
SF cod	T4	•	5				
		Le panciflora Acarea dealbata	6	6			
	\$4		35				
	E4	bracker Climan	25		HTE		
×	SG	Switch brown Cytisus scapariles Thistle photo	1	50	F		
K	FG	Thistle phos	0-1	1000	E		
K	64	Montago po Hypochaeris Glabra Phularis sp	0.1	1000	E		
¥	F4	Hypochaeres glasta		1000	E		
*	66	Phularis sf	30		N		
	46	Pea Sieberierris	20		MIE		
×	54	Bluckberry	25	5	PIIZ		
	FG	Epacril ground wer (MACZ40901)	0.1	30			
/	FG	(sollar Everlasting? (scenypla)	0.1	1000			
/	FG	CHAP-like daisy		1000			
_	181	Heada melansky lsa	5	20			
	F4	Gerenim solunderi	-	100			
	46	Weeping Grass Big Dandelion, Leithor lieures Com	0-5	20	E		
*	FG	hig Dandelion, toother leaves con	6.1	1			
*	Fu	Sheep sowell Acetosa valgaris	.0.1	20	ME		
X	FG	Medicago polymorpha	0.1				
	44	Themsele triandra	-	50			
1	64	Pau Cabillediera	0.5	30			
1							
1			-				
	\						
	A	Xerochysum Visiosum.					
						+	
		FG 2 10	-				
		8 1 5					
		GG 4 21-1					
		FG 4 0.4					
		EG 35					
		HTW 25					

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10m

Date 25/9/18		Millamy			Page 1 of (
Recorders				1		MAC250901	Zone ID		
Photo # A fa	or BAM 1.	lot			Site dim	1 1			
Datum		Zone			Site bearing along midline				
Easting		Northing				etic bearing along midli			
IBRA region									
Subregion									
Likely Vegetati	ion Class								
Plant Commun									
Weather: (sun		wind/tompora	turo otal						
dieriast,	cool me	orming	2 2.63						
Butterfly Speci	es Observed								
Species	Number	Breeding (Y/N)	Larvae	Location	Behaviou	ır			
		1/77							
N									
NP'						200			
V									
Blackthorn (Bu	rsaria)								
Present (Y/N)	Condition	Extent	Cover (%)	Grazed (Y/N)	Habit		Comments		
N									
Ants Observed:	465	imon B	Ack An	J75.	•				
Flowering Plant									
Species					Butt	erflies present	t (Y/N)		
Leonin de	alle to			,		ormes presen	(1/14)		
Acaceà de Acacià mel	a comment			N.					
Jeaua mel	arrylor	1 .							
Veeds			1	Other Insec	cts Present				
pecies		Cover	1	Species		Comments			
isteh brown		15	1	Jus		22			
Black berry		25		lem or	Eves.				
Malonis agreet	21.111	30		1					



Plant Community Type

Likely Vegetation Class

Ins can Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Condition state V. Cor

Dimensions (circ	le applicable size)	
20 x 20 m	10 x 40 m	Sum values*
Native Richness (count of native species)	Trees	1
	Shrubs	1
	Grasses etc	3
	Forbs	5
	Ferns	1
	Other	0
	Trees	5
Cover	Shrubs	0.1
(sum of cover	Grasses etc	0.1
of natives	Forbs	0.5
species)	Ferns	5
	Other	Ď

BAM Func	tion plot (1	000m²)				
Dimension	S (circle applicab	le size)				
20 x 50 m	10 x 100 r	n				
Tree stem	DBH (cm)	Notes on function attrib	outes:			
>80	(#)	Stem size class records # la	rge trees (cf. benchmark)			
50 - 79	(#)	Record stems for living tree				
30 - 49	(+/-)	For multistemmed trees, re	cord only the largest stem			
20 - 29	(+/-)	Presence of <5cm stems records regeneration				
10 - 19	(+/-) V	Record # trees with hollows				
5 - 9	(+/-)	Count as one stem where tr				
< 5	(+/-)	Hollow bearing stem may be	e a dead stem (incl. stag)			
# Trees wit	h hollows	<20cm	Total #			
		>20cm**	0			
Length of l	ogs		Total (m)			
Measure length o	f logs >10cm, fully	or partly in contact with the gr	Lound, and within the plot.			

**Hollows of >20cm are recorded for habitat for some threatened species These values summarise the floristic data for input into BAM calculator DAMA Littor/ Grou

		1	2	3	4	5	Average
	Litter	80	100	90	100	95	93
Sub-plot score	Bare ground	0	0	O	0	0	0
(% cover)	Cryptogam	0	D	0	р	6	6
	Rock	0	0	0	ð	6	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	3	R	Slope Upper Slope
Grazing (native / stock)	1	R	Aspect ENE
Soil erosion	0		Soil surface texture Clan Jam
Firewood removal	0		Soil colour light brown I grey
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage cun st
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic



BAM Plot - Field Survey Sheet

Date		Survey Name				
Recor	ders		Plot ID#		Zone ID	
GF cod	de	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
	66	Pou losilladiera	5			
L	TG	Pinns radiates	90		MIE	
f	al	Pholais Sp.	0.5	100	E	
<u> </u>	FG	Geranium solandari	0.1	200		
	TG	Fracia mentensy fon	\$	2		
	G4	6	0.1	20		
4	F4	(t bo I danake line Taraxacem sp. 1 he	1/2 m 0 1	10	Ē	
y	FG	Cut has dandelion to the liter the CHAP- with decisy Chryscoffer appoint	Un 01	100	B	
V	5-6	Plantago sp	0.1	500	B	
yi-	FG	Alypochaeris glabra	0.1	500	E	
	FG	Auren Forb I Acaena echinata	0-1	200	4.	
	59	Forb 2 Genocarpus humidis	0.1	200		
		Pilisnelra revens	0.1	1000		
	FG	Bracken Hendium exculentum	5			
	EG	Vine 1 (Gyaine?) Desmodian guan		5		
A-	0	Blackberry	10		MIE	
8 1	Sh	Linner manginedy St. John's Work.	01	10'	MTE	
	56		0.1	1		
		Pou siebenaux	1	100		
A	Fi	Thistle from MAC 250901	0.1	20	ō	
Oli	4	Pou Cabillar dierei	1	50		
		The Cost of the Cost				
		TG 1 5				
		55 1 0.1				
		GG 3 01				
		FG 5 0.5				
		64 1 5				
		09 (
		trew 10				
		THE TOTAL PROPERTY OF THE PROP				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BATHURST COPPER WINGED BUTTERFLY SITE ASSESSMENT

Page 1 of ()

					SIAIPIA I		rage I Oi (
Date 3-5/	7/18	Survey Nar	ne Mu	Willanys	(
Recorders	772				Site ID #A	140250902 Ze	one ID	
Photo # 1/2	for MA	240902	BAM		Site dimer	nsions Jok/o	S	
Datum		Zone			Site bearii			
Easting		Northing			Record magnetic	bearing along midline fro	om 0 m point	
IBRA region								
Subregion								
Likely Vegetati	on Class							
Plant Commun	ity Type							
Weather: (sunr	ny/overcast/v	vind/temperat	ture etc)					
Sunny. Co	lar. light to	mre.		WWW.	occommon to the t			
	, , , , , , ,							
Butterfly Speci	es Observed							
2		Breeding			T			
Species	Number	(Y/N)	Larvae	Location	Behaviour			
()						00000000000000000000000000000000000000		
<u> </u>							AVEN 1990-000 AVEN AVEN AVEN AVEN AVEN AVEN AVEN AVEN	
						20000000000000000000000000000000000000		
Blackthorn (Bu	rsaria)			1.	1	T		
Present (Y/N)	Condition	Extent	Cover (%)	Grazed	Habit	Co	omments	
AMERICAN CONTRACTOR CO				(Y/N)				
N		,				***************************************		
Ants Observed:							***************************************	
Ants Observed.								
Flowering Plant	ts							
Species					Rutte	rflies present ()	////	
				Butterflies present (Y/N)				
Acuia me	lans)cy for	È ,						
	**************************************	×		***************************************			······································	
Weeds			7	Other Inco	cts Present	The second secon	7 M 000	
Species		Cover	-	Species	cis Fieseiil	Comments	ONIMANA PARA PARA PARA PARA PARA PARA PARA P	
	· ·		-	Sheries		Comments		
Pinys raels		90	-		The state of the s		A. C.	
Bleetilven	1	10					Lander of the Control	
Phalaris		0.5					XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	

Date 25/9/18	Survey Name McPhillanny	3			
Recorders	,	Plot ID #MAC250903 Zone ID			
Photo #		Plot dimensions Zox SO			
Datum	Zone	Plot bearing along midline 135			
Easting 771905	Northing 630/567	Record magnetic bearing along midline from 0 m point			

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state

	C p.ot (400m)
le applicable size)	
10 x 40 m	Sum values*
Trees	2
Shrubs	0
Grasses etc	6
Forbs	4
Ferns	0
Other	0
Trees	10
Shrubs	0
Grasses etc	11.2
Forbs	0.8
Ferns	0
Other	0
	Trees Shrubs Grasses etc Forbs Ferns Other Trees Shrubs Grasses etc Forbs Ferns

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Funct	tion plot (10	00m²)			
Dimension	S (circle applicable	e size)			
20 x 50 m	10 x 100 m	n			
Tree stem	DBH (cm)	Notes on function attribut	tes:		
>80	(#)	Stem size class records # large	e trees (cf. benchmark)		
50 - 79	(#)	Record stems for living trees of	only, and for all species		
30 - 49	(+/-) For multistemmed trees, record only the largest stem				
20 - 29	(+/-) 🗸	Presence of <5cm stems reco	rds regeneration		
10 - 19	(+/-)	Record # trees with hollows, r	not number of hollows		
5 - 9	(+/-) V	Count as one stem where tree	e is multistemmed		
< 5	(+/-) —	Hollow bearing stem may be a	a dead stem (incl. stag)		
# Trees wit	th hollows	<20cm	Total #		
		>20cm**	O		
Length of I	ogs		Total (m) 92		
Measure length o	of logs >10cm, fully	or partly in contact with the gro	und, and within the plot.		

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x 1	l m plots)	Litter cover is used	I for BAM, other attr	ibutes are useful fo	or recording site co	ndition in general
		1	2	3	4	5	Average
	Litter	80	90	100	85	95	90
Sub-plot score	Bare ground	0	5	0	0	0	1
(% cover)	Cryptogam	5	5	0	0	0	2
	Rock	0	0	0	0	0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	3	R	Slope
Grazing (native / stock)	1	R	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	3	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing cod	de: R = recent (<3y), NR = not recen	t, O = old/historic
Notes	Grey Fantail	E. Spilvy !!!
	WT. Treeeregeer	R. Winstler
	G.S. Thrush	W. Named ME

ate 25 9	Field Survey Sheet Survey Name Melhillamys				Page 2 of
	SC /	Plot ID #/\/	10250903	Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
75		5			
TG	Fracia molemony ton (Uncle 1D from Fred + Samp	4) (
79	Pinus radienta	70		WE	
7G FG	Dichondra repens	0.5	2000		
F4 54	Forb 1 (Mc250902)	0.1	100		
59	Blackberry	50		MTE	
94	Comandra Gilfornis	0.1	5		
Fin	CHAP- Way devisy	6.1.	500		
FL	Hypocheuris ylabor	0.1	500	E	
94	Por labilladerea	5			
EG	Bracken	5			
94	Weeping Grees	01	2		
Colo	Weeping Grees	0.3	100		
Fig	Cut-leaf dandelion Taxaxacum sp	. 0 1	20	C	
FG	Epacrill grandisver (ME 190901)	0.1	5		
64	Pou velseriana	5			
64	Pour Sp. (small)	0.5			
FG	Mentago 30.				
	E. viminalis over road.				
	79 2 10				
	Sq		14.2		
	99 6 11·2 FG 4 0·8				
	thm 50				

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

DAIHUNJI	LOFFEIN VV	HAOFD DO				Tage For
Date 25/9/	18	Survey Nan	ne Mace	Phillary	3	
Recorders /	16		······································		Site ID # NA	
Photo# 1/4	for BAM s	rite				sions 20250
Datum		Zone		www.managerine		g along midline
Easting		Northing			Record magnetic	pearing along midline from 0 m point
IBRA region						
Subregion						
Likely Vegetation		, ,				
Plant Commun	ity Type 🥏	vininale	<u> </u>			
Weather: (sunr	ny/overcast/w	/ind/temperat	ure etc)		1541-75400-6550	
Sugar to	ol Breez	9 J .				
Sanny is Prevaile	e dan con	elittor				
provide) 1000	<i>y</i>				
Butterfly Specie	es Observed					
Datterny Specific	1	Breeding				
Species	Number	(Y/N)	Larvae	Location	Behaviour	
		107.57				
 						
<u> </u>						
Blackthorn (Bu	rsaria)					
Present (Y/N)	Condition	Extent	Cover (%)	Grazed	 Habit	Comments
Present (1/14)	Condition	LXtent	COVET (70)	(Y/N)	Tiable .	
N						
10	HORENOOPHO					
	A I			,,		
Ants Observed	: Non	٠				
		AND MAKEN				
Flowering Plan	ts			1		
Species			***************************************		Butte	rflies present (Y/N)
None.				$\mid \mathcal{N} \mid$		
10 mm.						
		ANTENNA DE CONTRA DE				- AASSACOO
	· · · · · · · · · · · · · · · · · · ·		····- 1			
Weeds			_	***************************************	ects Present	
Species		Cover	_	Species		Comments
Pihres radia		70		MARKET TO THE PARTY OF THE PART		
Blackbern	1	50.			- Annaba Modela Della Maria	



Workers

ate 25/9/18	?	Survey Name	Melli	lamys				
ecorders				/	Plot ID #M	4050904	Zone ID	
hoto#					Plot dimen	isions 201	150	
atum		Zone			Plot bearin	ng along mid	line /	
asting 77176	<	Northing 65	01702		Record magnetic	bearing along midlin	e from 0 m point	
	at plot marker (0 m po	int), Photos taken vertic	ally and horizont	tally at 0m point and 5	50 m point, looking	; into plot	-	
RA region								
ubregion								
kely Vegetation	n Class							
lant Communi		97				Condition s	tate /m	Lact.
oristics plot is centred o	on the midline, at 0 m p	point, 10 m either side		Function plot is an	extention of floris	tics plot out to 50 m	along midline (or ed	uiv. area)
AM Compositi	on / Structure	e plot (400m²)		BAM Funct	ion plot (10	00m²)		
imensions (circl	e applicable size)			Dimensions	(circle applicable	e size)		
0 x 20 m	10 x 40 m	Sum values*		20/x 50 m	10 x 100 m	1		
	Trees	3		Tree stem I	DBH (cm)	Notes on function	on attributes:	
Native	Shrubs	1		>80	(#)	Stem size class red	cords # large trees (c	f. benchmark)
Richness	Grasses etc	2		50 - 79	(#) 14	Record stems for	living trees only, and	for all species
(count of	Forbs	10		30 - 49	(+/-)	For multistemmed	l trees, record only t	he largest stem
ative species)		2		20 - 29	(+/-)	Presence of <5cm	stems records reger	neration
	Other	3		10 - 19	(+/-)	Record # trees wit	th hollows, not numb	er of hollows
	Trees	85		5 - 9	(+/-) V	Count as one sten	n where tree is multi	stemmed
Cover	Shrubs	5		< 5	(+/-)	Hollow bearing ste	em may be a dead st	em (incl. stag)
Cover (sum of cover	Grasses etc	20-6		# Trees wit		<20cm //		Total #
of natives	Forbs	2.7		11 11 000 1110		>20cm**		2
species)				Length of le	ngs	1 200111		Total (m)
species)	Ferns	25.1		Lengthorn	063			78
	Other	1.6		. Victorio de Contra	(I 10 f.il.	or partly in contact v	with the ground and	
ligh threat we		nput into BAM calculate	r			or habitat for some the		within the plot.
AM Litter/ Gr				ed for BAM, other att	ributes are useful t	for recording site co	ndition in general	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,	1	2	3	4	5	Average	1
	Litter	90	80	95	90	80	1	
Sub-plot score		6	5	5	5	0		1
(% cover)	Cryptogam	0	0	0	\$0	0		1
(70 00001)	Rock	0	0	0	0	0		
tter / groundcover plot		25, 35, 45 m (alternating		midline of Function p				
		essential for BA						
Disturbance	(Timing	Landform				
Clearing (incl. lo	ogging)	2	0	Microrelie	F			
Cultivation	00-01	0		Slope i//	idslope			
Grazing (native	/ stock)	ĵ			Went			
oil erosion	, stock)	0		Soil surface	e texture	To Clary	low	
irewood remo	wal	0		Soil colour	Malla	- Brown		
		0		Site draina		-		
ire (ground stratum,	mia, canopy burnt?)	0			nearest w	· · · · · · · · · · · · · · · · · · ·		
storm damage		2	R			ck outcrop /		
Weediness everity code: 0=no evid	lence 1=slight 2=mod	erate. 3= severe	10	Distance to	J Hearest 10	on outcrop /		
ming code: R = recent	(<3v) NR = not recent	O = old/historic						2
lotes 4 FUE	S.F. Wren	Will Treerego	er 59. (100	kcep).				Workson
YT BC	Sticuted Thou	whill Arst Ra St. Rarda	ven					
Caren Ford	ail of Loven	St. Parda	ble					
0013								

BAM Plot - Field Survey Sheet

Page 2 of (

Date 75/9/0 Recorders	Survey Name Mchillamy	Plot ID # 44	AC250904	Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Chuchus
74	4		Abuitu (count)	IN, E, HIE	Stratun
	Acceed melanoxylon	25			
79 59	E. pauci flora	80			-
	Renia dealbata	5			-
EG	Braileen Periding esculentum	25			
T4 44	Euc SP2 (Apple ben?) E. clives	10.			-
94	Comandra Congifolia	5			-
	Pou Casilluclieri	10	1.51		-
FG	Epairie grandianes (MX 240901)	0.5	50		-
FC	Dichondra regoens		500		
54	Blackberry	20		ME	
64	weeping cours Microlaever stypiles	5			
FG	Planteigo Sp.	0.1	100	Ē	
FG	Thistle from Macrogot	0.1	2	E	
64	Comendra filifornis	0.1	50		
FG	CHAP-like derion	0.1	50		
FG	Geranium solicliera	0.1	200		
FG	Ruspwort (M4C250902)	0 /	50		
	Vine 1 (M7c250903)	0.1	10		
GL	Meelaini Sp	0.1	50		
94	Austrostipa sp	0.5	50		
FG	Forb 1 (MAC 250902)	0.1	300		
F	Hypochains	0.1	50	15	
FG	Addens Langue Ophinglossum historia	com 0.1	200	N	
EG	Senecis so (MAC 2 40901)	0.1	10		
FG	Daisy i Cymbonstus lawsonianus	9.1	100		
F9	Feet	67	100		
FG	Forb 3 Garanium solander	0.I	1000		
66	Marvella sp? Congreplia	0.1	10		
FG	Vista (MAC240961)	0.6	10		
	Mistletoe Sp (in Euc.) Amyema mignelin	· DP.5			
FG	Sluces some Acetosella Kulganis	0.1	10	HTE	
	Misteroe Spl (Acaria)	1			
	, 102				
	TG 3 85				
	36 1 5				
	GG 4 20.6				
	FG 10 28				
	EG 2 25.1				
	09 3 1.0				

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Date 25/9/18	Survey Name McMill	anys	
Recorders JC		Plot ID # MAC250906 Zone ID	
Photo #		Plot dimensions 0 × 100	
Datum	Zone	Plot bearing along midline 3/8	
Easting 773549	Northing 6701893	Record magnetic bearing along midline from 0 m point	

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type

Condition state \/

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

Floristics plot is centred on the midline, at 0 m point, 10 m either side BAM Composition / Structure plot (400m²) Dimensions (circle applicable size) 10 x 40 m Sum values* 20 x 20 m Trees Shrubs 6 Native Grasses etc **Richness** (count of **Forbs** native species) Ferns 0 Other Trees 10 Shrubs 11.9 Cover Grasses etc 50-7 (sum of cover of natives 03 Forbs species) **Ferns** 0 Other 0-1

High threat weed cover 51

BAM Func	tion plot (10	000m ²)	
Dimension	S (circle applicabl	e size)	
20 x 50 m	10 x 100 m	n	
Tree stem	DBH (cm)	Notes on function attributes:	
>80	(#)	Stem size class records # large tree	es (cf. benchmark)
50 - 79	(#)	Record stems for living trees only,	and for all species
30 - 49	(+/-)	For multistemmed trees, record or	nly the largest stem
20 - 29	(+/-)	Presence of <5cm stems records re	egeneration
10 - 19	(+/-)	Record # trees with hollows, not no	umber of hollows
5 - 9	(+/-)	Count as one stem where tree is m	nultistemmed
< 5	(+/-)	Hollow bearing stem may be a dea	d stem (incl. stag)
# Trees wi	th hollows	<20cm	Total #
		>20cm**	0
Length of I	ogs		Total (m)
Measure length of	of logs >10cm, fully	or partly in contact with the ground,	and within the plot.

*These values summarise the floristic data for input into BAM calculator

**Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Gr	oundcover (1 x 1	m plots)	Litter cover is use	d for BAM, other attrib	outes are useful fo	r recording site co	ondition in general
		1	2	3	4	5	Average
	Litter	40	40	270	50	90	58
Sub-plot score	Bare ground	10	10	0	20	0	8
(% cover)	Cryptogam	0	0	0	0	0	0
	Rock	5	0	10	0	6	3

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	3	R	Microrelief
Cultivation	3	R	Slope Mill Crest
Grazing (native / stock)	0		Aspect
Soil erosion	0		Soil surface texture Clay low
Firewood removal	0		Soil colour ved
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage / what
Storm damage	0		Distance to nearest water Iku.
Weediness	7	2	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe Timing code: R = recent (<3y), NR = not recent, O = old/historic

Notes 47 B. Wedgeten (34 montalets)

Date	Survey Name				
Recorders		Plot ID#		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratum
A TG	Pinus raeliata	50		ME	U
54	Hardenbergin violencen	0.8	20	N	M
59	Cussinia spolaris longifolis	10		N	M
SG	Acacca dealbate	1	2	N	M
94		45		N	L
64	Comandra longifolia	0.1	5	N	L
* FG	Colomon marginale St John Wint	0.1	500	E	1
¥ F4	Hypochaerius	6.1	300	E	L
94		0.5	500	N	L
¥ G4	Grass 1 (plots) (servated hessoch?)	5		E	L
FG	Enairie gondores		10	N	-
W FG	CHAP-citer Raisy Holichmyum Kan	volemno 1	50	E	L
* EG	CHAP-citer Raisy Holichnyum langes	0.5	20	t	L
64	Pou sieberiana	5		N	L
FG	Cols 1 Pultenaea microphylla.	6.1	3	N	L
59	Should Dilhwymia servica?	0.5	2	N	L
SG	Shows 2 Cassinia arcuata	0.1	1	N	L
& FG	Oxalis sp	0.1	50	E	
5 54	Blackberry	/	15	MIE	L
14	Acacia spl melanoxylon	10		N	M
FG	Senecis from MACZ40901	0.1	5		
94	Mistletor Sp (photo)	0.1	10		
09	MisHeror Sp (photo)	0.1	1		
	for in plato	0.1	20		
St	Shrub 3 Amperen xiphoclada	0.1	1	N	L
	1				
	TG 1 10				
	59 6 11.9				
	99 5 50-7				
	FG 3 0.3				
	09 1 01				
	the oil				
			*		

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot - Field Survey Sheet

Date 25 4 18	Survey Name McPhillanry 3	
Recorders \	1	Plot ID #MAC250909 Zone ID 732 4000
Photo #		Plot dimensions 20 x 50
Datum	Zone	Plot bearing along midline /3°
Easting 775801	Northing 6303916	Record magnetic bearing along midline from 0 m point

Record easting, northing at plot marker (0 m point), Photos taken vertically and horizontally at 0m point and 50 m point, looking into plot

IBRA region

Subregion

Likely Vegetation Class

Plant Community Type 732

Function plot is an extention of floristics plot out to 50 m along midline (or equiv. area)

BAM Function plot (1000m²)

Floristics plot is centred on the midline, at 0 m point, 10 m either side BAM Composition / Structure plot (400m²) Dimensions (circle applicable size) 20(x 20 m 10 x 40 m Sum values* Trees Shrubs Native **Grasses** etc Richness (count of **Forbs** native species) Ferns Other **Trees** Shrubs Cover Grasses etc (sum of cover of natives Forbs species) **Ferns** Other High threat weed cover

DAIVI FUNCE	ion bior (Tor	om j		
Dimensions	6 (circle applicable	size)		
20 x 50 m	10 x 100 m			
Tree stem l	OBH (cm)	Notes on function att	tributes:	
>80	(#)	Stem size class records ‡	# large trees (cf.	benchmark)
50 - 79	(#)2_	Record stems for living t	trees only, and f	or all species
30 - 49	(+/-)	For multistemmed trees	, record only th	e largest stem
20 - 29	(+/-) 🗸	Presence of <5cm stems	s records regene	eration
10 - 19	(+/-) /	Record # trees with holl	ows, not numbe	er of hollows
5 - 9	(+/-)	Count as one stem when	re tree is multist	emmed
< 5	(+/-) ✓	Hollow bearing stem ma	ay be a dead ste	m (incl. stag)
# Trees wit	h hollows	<20cm+##-		Total #
11/1	F	>20cm**//		/ 8
Length of le	ogs			Total (m)
				97

Measure length of logs >10cm, fully or partly in contact with the ground, and within the plot.

**Hollows of >20cm are recorded for habitat for some threatened species

*These values summarise	the floristic data for inp	ut into BAM calcul	ator	**Hollows of >2	Ocm are recorded for	habitat for some tl	reatened species
BAM Litter/ Gro	oundcover (1 x	1 m plots)	Litter cover is use	d for BAM, other a	ttributes are useful f	or recording site co	ndition in general
•		1	2	3	4	5	Average
	Litter	90	80	90	70	85	33
Sub-plot score	Bare ground	0	5	0	10	5	4
	Cryptogam	0	0	0	0	0	0
•	D. ali	0		0		0	0

Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	0		Slope mid slope
Grazing (native / stock)	82	L	Aspect NW
Soil erosion	0		Soil surface texture Gay - Isam
Firewood removal	0		Soil colour Grey
Fire (ground stratum, mid, canopy burnt?)	1	0	Site drainage run off
Storm damage	0		Distance to nearest water 1.5km.
Weediness	1	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe

Timing code: R = recent (<3v), NR = not recent, O = old/historic

riming co	de: K = recent (<3y), NK = not rece	ent, o = old/materie
Notes	WI Trecreeper	4F Honey eater
	Genjame	Art. Mayore

Grey Fansail KH - Version 1.1 - Date 1/12/2017

BAM Plot - Field Survey Sheet

Page 2 of ()

Socordore	Survey Name McPhillamy	DI	1.0.2	-	
Recorders	JC		146250909	Zone ID	
F code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
TG.	BL Reppenint (photos) Eucalyphis de	15			
SG	Acacia dealbata	5			
SG	Sweet brian	0.1	B 5	HTE	
FG	Viole (from MAC 240901) Intenicifolia	0.7	50		
74	Euc 1 (photo + sample) Entry	50		E. Manni	Geral
FG	but leaf demedelin	01	50		
FG	Raspwort 1	0.1	500		
FG	Raspwort 2	0.1	500		
Fa	Trifolium repens	0.1	10		
FG	Plantergo sp	0.1	300		
all	Lonemara Gilifornis	0.1	300		
FG	Dichonelra repress	0.1	300		
FG	Geranium solumberi	0-1	300		
44	(was)	10	3		
96	Pou 50. siebeni	5			
69	Linux make St John's Wort	0.1	500	MTE	
Fa	Forh! Acuena Sp.ov. ha	0:1	1	To to	
56	Huldrem	0.5	10	HTE	
64	forh 2 P Hypericum wamines			1110	
Fh	Epairia 1 Acrotriche serrulata	0.5	10		
FG	Hypochever's glasora	0.1	100		
	The state of the s		700		
	-				
	10				V
	TG 2 .65				
	4 1 6				
	GG 3 15·1				
	FG 8 1.2				
	NAL .				
	-MW 0-7				

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

011001	CONTROL CONTRO
Survey Name McPhillamys	
	Plot ID #M4c250907 Zone ID
0.555-557	Plot dimensions ZOX 50
Zone	Plot bearing along midline 53°
Northing ७५०५६९५	Record magnetic bearing along midline from 0 m point
nt), Photos taken vertically and horizontally at 0m point and 5	0 m point, looking into plot
	Survey Name Mahillamys Zone Northing 6404894

IBRA region

Subregion

Likely Vegetation Class

species)

High threat weed cover

Plant Community Type

Condition state \mathcal{N}_{o}

Floristics plot is centred of	on the midline, at 0 m p	oint, 10 m either side
BAM Compositi	ion / Structure	plot (400m²)
Dimensions (circl	e applicable size)	
20 x 20 m	10 x 40 m	Sum values*
	Trees	
Native	Shrubs	0
Richness	Grasses etc	Ĵ
(count of	Forbs	0
native species)	Ferns	0
	Other	0
	Trees	కర
Cover	Shrubs	0
(sum of cover	Grasses etc	25
of natives	Forbs	0
I		

		ics plot out to 50 m a	ilong midline (or equ	uiv. area) (//
BAM Functi	on plot (100	00m²)		
Dimensions	(circle applicable	size)		
20 x 50 m	10 x 100 m			
Tree stem [OBH (cm)	Notes on function	n attributes:	
>80	(#)译 乙	Stem size class reco	rds # large trees (cf	. benchmark)
50 - 79	(#)	Record stems for liv	ing trees only, and t	for all species
30 - 49	(+/-)	For multistemmed t	rees, record only th	e largest stem
20 - 29	(+/-)	Presence of <5cm s	tems records regen	eration
10 - 19	(+/-) 🗸	Record # trees with	hollows, not numbe	er of hollows
5 - 9	(+/-)	Count as one stem	where tree is multis	temmed
< 5	(+/-)	Hollow bearing ster	n may be a dead ste	m (incl. stag)
# Trees wit	h hollows	<20cm	3	Total #
	/	>20cm**		5
Length of lo	ogs			Total (m)
				5.5
Measure length of	logs >10cm, fully o	r partly in contact wi	th the ground, and	within the plot.

Ferns

Other

^{**}Hollows of >20cm are recorded for habitat for some threatened species

BAM Litter/ Groundcover (1 x 1 m plots) Litter cover is used for BAM, other attributes are useful for recording					or recording site co	ndition in general	
		1	2	3	4	5	Average
	Litter	80	90	70	50	30	
Sub-plot score	Bare ground	0	0	10	40	50	
(% cover)	Cryptogam	0	O	0	0	0	
	Rock	0	0	0	0	0	

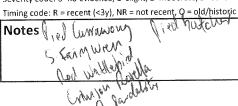
Litter / groundcover plots are located at 5, 15, 25, 35, 45 m (alternating sides) along the midline of Function plot

0 0

Other plot information (not essential for BAM)

Disturbance	Severity	Timing	Landform
Clearing (incl. logging)	2	0	Microrelief
Cultivation	3	R	Slope /over slope
Grazing (native / stock)	3	4	Aspect
Soil erosion	0		Soil surface texture
Firewood removal	0		Soil colour
Fire (ground stratum, mid, canopy burnt?)	0		Site drainage
Storm damage	0		Distance to nearest water
Weediness	7	R	Distance to nearest rock outcrop /cave

Severity code: 0=no evidence, 1=slight, 2=moderate, 3= severe



^{*}These values summarise the floristic data for input into BAM calculator

Date 25 9 Recorders	Plot ID # M	AC170907	Zone ID		
F code	Genus species (tick if photographed or sample taken)	Plot ID #MACZ50907 Cover % Abund (count)			
Sa		20	Table at the (count)	ME	Stratur
-74	Blackbary ?	80		VIII	
IG	Trilolium repens	0.5	200		
FG	Trifolium repens heranium solanderi	0.5	500		
FG	Plantago so Mistle from MAC250907	0.1	200		
FG	Phistle from MAC250901	0.1	10		
FG	Torb I Vicia soliva	0-5	500		
FG	Rumer sp	01	50		
66	Phalans sp	250			
E.6	Cut leaf dandelion	0.1	2000		
FG	Roself (seef (photo) a lakens	0-1	50		
Fla	Litura war ginate of Johns	BO5	200		
34	Rosa sp.	0.5	10	HTE	,
FG	Wedleys plymorphe	005	500		
94	Pousp will. Hypocharaes sp.	25			
FG	Hypocharciers Sp.				
	1				
	TG 1 80				
	FG 1 25				
	FG				

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

BAM Plot - Field Survey Sheet

Pate 75/9 Recorders	Survey Name McPhillorys	Plot ID # MAC250910		Zone ID	
GF code	Genus species (tick if photographed or sample taken)	Cover %	Abund (count)	N, E, HTE	Stratun
TG	Enc 1 (Brown level Represent)	25			
14	Fuc 2 (siribbles) E. Marine	i manni	Jeru 5		
54	Acacia deallata	5	1		
FG	Dillandra reviews	0.1	1000		
EG	Geranium S.	0.5	1000		
F6	Large ranginost (ust Haloragis)	0.1	300		
T4	Fix 3 (Smooth, white grey, Rough & bare)	10		Encalypt	us mi
64	Lamondra hilomis	25			
FG	Forbi Galian mirale	0.1	300	E	
64	Poasp.	15 15			
FG	Fols 2 (plasts)	0.1	50		
FG	thum margin to St Johns was	1.0.1	150	MIE	
99	trugristis sp	0.5	30		
FG	Muntago SP.	0.1	100		
94	Phalaris sp.	1000	30		
FG	Hydrochaeris sp	0.1			
95	Event Themede trianstra	0.15	5		
59	Sudy Proous Cytisus Surparius	0.11	(ME	
66	Dianella 501 revoluta (or longifolia)	0-1	10		
96	Poa gielsericena	5	-		
FG	Scolymus hispanicus	0.1	7	10	
74	Maris radiala	0.1	1	HITE	
Sh	Acacia decerrai	0.5	3		
	74 3 55	-			-
	SG 2 5.5				
	99 5 45.7				
	FG 3 0.7				-
					+
					-
					-
					-
				-	+
					+
					-

Growth Form (see BAM Appendix 4) - Tree (TG), Shrub (SG), Grass & grasslike (GG), Forb (FG), Fern (EG), Other (OG)

Cover: 0.1, 0.2, 0.3, ... 1, 2, 3, ...10, 15, 20, 25, ...100% (incl. leaf, branch, stem cover per species).

Abundance for each species with ≤5% cover: 1, 2, 3, 4, ... 10, 20, 30, ... 100, 500, 1000, 1500, 2000 stems

N=native, E=exotic, HTE=high threat exotic

All species in a plot must be recorded. If you can only ID to genus, separate different species by unique identifiyer e.g. Genus sp1, Genus sp2 etc

Identify top 3 dominants in each stratum (use own stratum definitions)

Cover area examples: 0.1% = 63x63cm, 0.5% = 1.4x1.4m, 1% =2x2 m, 5%=4x5m, 25%=10x10

MA	Plot	- Field	Survey	Sheet
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AIVI PIOT -	Field Surve	y Sneet						Page 1 of (
te 25/9/	18	Survey Nam	ne McPhu	Vanues			,	
corders	JC				Plot ID #	MC250910	Zone ID	
oto#						nsions / 0	x100	
tum		Zone				ng along mid		2
sting 7767	240	Northing	6303718	3		bearing along midling		
rd easting, northing	g at plot marker (0 m p		The second secon		■ 50 m point, lookin	g into plot		
RA region							7	
oregion							1	
ely Vegetati	on Class						lus	Leute Greze
nt Commun	ity Type /	093				Condition s		160
stics plot is centred	on the midline, at 0 m		9	Function plot is a	n extention of floris	tics plot out to 50 m		quiv. area)
M Composit	ion / Structur	e plot (400m ²)	BAM Funct	tion plot (10	00m²)		
nensions (circ	le applicable size)				S (circle applicable			
x 20 m	10 x 40 m	Sum values*	*	20 x 50 m	10 x 100 m			
	Trees	3		Tree stem		Notes on function	an attributes:	
Native	Shrubs	2	1	>80	(#)	7	ords # large trees (of henchmarks
Richness	Grasses etc	-	1	50 - 79	(#)# Z		iving trees only, and	
(count of	Forbs	3	1	30 - 49	(+/-)		trees, record only t	
tive species)	291 1912	0		20 - 29	(+/-)			
,	Other	0		10 - 19	(+/-)		stems records rege	
	Trees	55	-	5 - 9	(+/-)		h hollows, not numl	
Cover	Shrubs		-	< 5	(+/-)		where tree is multi	
ım of cover	Grasses etc	45-7	-	# Trees wit			m may be a dead st	
of natives	Forbs	07	-	# Trees wit	II Hollows	<20cm /		Total #
species)	Ferns			I awath of l		>20cm**		
species _j	477	0		Length of lo	ogs			Total (m)
h threat we	Other		-					/0
	the floristic data for i	nnut into BAM calcula	tor			r partly in contact w habitat for some the		within the plot.
	oundcover (1					or recording site con-		
		1	2	3	4	5	Average	385
	Litter	80		90	50		76	
p-plot score	Bare ground	0	-10	0	0	90	/ 6	
% cover)	Cryptogam	0	0		0	0		
	Rock	0	0	5	6	0		
/ groundcover plots	are located at 5, 15, 2			idline of Function of	lot .	Ö		
	mation (not e			name or ranction p				
urbance		Severity	Timing	Landform				
aring (incl. lo	ogging)	2	h	Microrelief				
tivation		0	U	Slope	Crest			
zing (native	/ stock)	2	R	Aspect	Crow			
erosion		0		Soil surface	texture	lay lacer		
wood remov	val	0		Soil colour	-	1		
(ground stratum, n				Site drainag	Grey	2.		
m damage	na, canopy bullit!)	0						
ediness			0	Distance to		1 -		
7.3000000000000000000000000000000000000	nce, 1=slight, 2=mode	rate, 3= severe	1	Distance to	nearest roc	k outcrop /ca	ave	
code: R = recent (<	3y), NR = not recent, C	D = old/historic						
es of pelin	to Colon E	East side of	rad or C	cerpelis.				
aringt d	ry condits	is mede	ID grass	difficul	t .			
il possum			KH - Version	1.1 - Date 1/12/2017				

Appendix B

Vegetation integrity plot data

B.1 Mine development

J180395 | 13 | v1 B.2

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	1	ı	2:	3	2	b	;	3	4		5	;	6	
			Native,	BCs	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree														
Acacia dealbata subsp. dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree														
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	Ε	-	-	HTW															
Agrostis stolonifera	Creeping Bent	Poaceae	E	-	-																
Amyema pendula subsp. pendula		Loranthaceae	N	-	-		Other														
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike														
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb														
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike														
Austrostipa scabra subsp. falcata	Rough Speargrass	Poaceae	N	-	-		Grass & grasslike														
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike			0.1	7	0.1	7								
Brassica spp.	Brassica	Brassicaceae	Е	-	-																
Bromus catharticus	Praire Grass	Poaceae	E	-	-											0.3	50			0.1	400
Bromus hordeaceus	Soft Brome	Poaceae	E	-	-																
Bromus spp.	A Brome	Poaceae	N	-	-		Grass & grasslike			0.1	50	0.1	50								
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike											70	2000		
Carex bichenoviana		Cyperaceae	N	-	-		Grass & grasslike														
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike	0.1	10	0.5	100	0.5	100							0.1	30
Carthamus lanatus	Saffron Thistle	Asteraceae	E	-	-	HTW															
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub														
Chenopodium album	Fat Hen	Chenopodiaceae	E	-	-																
Chloris gayana	Rhodes Grass	Poaceae	E	-	-	HTW															
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike														
Chondrilla juncea	Skeleton Weed	Asteraceae	Ε	-	-					0.1	7	0.1	7							0.1	4
Cirsium vulgare	Spear Thistle	Asteraceae	E	-	-					0.1	19	0.1	19			0.2	10	10	29		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other			0.1	2	0.1	2								
Convolvulus erubescens	Pink Bindweed	Convolvulaceae	N	-	-		Other														
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Ε	-	-																
Cotula australis	Common Cotula	Asteraceae	N	-	-		Forb														
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	Ν	-	-		Forb														
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike														
Cynosurus echinatus	Rough Dog's Tail	Poaceae	_	-						0.1	9	0.1	9								
Dactylis glomerata	Cocksfoot	Poaceae	Ε	-	-			0.1	80	0.1	2	0.1	2			0.2	20				
Desmodium varians	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Other	0.1	1	0.3	800	0.3	800								
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb														
Dichondra spp.		Convolvulaceae		-	-		Forb			0.1	5	0.1	5								
Echium plantagineum	Patterson's Curse	Boraginaceae	E	-	-																
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	-		Forb	0.1	1	0.3	200	0.3	200			0.1	2				
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae	N	-	-		Forb														
Eleusine tristachya	Goose Grass	Poaceae		-												0.1	5				
Elymus scaber	Wheatgrass, Common Wheatg	gra Poaceae	N	-	-		Grass & grasslike	2	5000	5	10000	5	10000							0.1	1000
Elymus scaber var. scaber	Wheatgrass, Common Wheatg	gra Poaceae	N	-	-		Grass & grasslike														
Eragrostis brownii	Brown's Lovegrass	Poaceae	N	-	-		Grass & grasslike														

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	1		2	a	2	b	\$	3	4		5	;	6	
			Native /	BCs	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N		-		Grass & grasslike														
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N		-		Tree									5	1			1	1
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N		-		Tree	35	10					30	20						
Eucalyptus goniocalyx E	Bundy	Myrtaceae	N		-		Tree							25	10						
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N		-		Tree							0.3	1						
Eucalyptus melliodora	Yellow Box	Myrtaceae	N		-		Tree			40	2	40	2			70	7			25	2
Eucalyptus viminalis F	Ribbon Gum	Myrtaceae	N		-		Tree														
Euchiton sphaericus	Star Cudweed	Asteraceae	N		-		Forb														
·	Tall Fescue	Poaceae	Е															70	2000		
Galium spp.		Rubiaceae	N		-		Forb														
	Native Geranium	Geraniaceae	N		-		Forb														
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		-		Other														
·	Poverty Raspwort	Haloragaceae	N				Forb														
	Ivy Goodenia	Goodeniaceae	N		-		Forb														
	Hoary Guinea Flower	Dilleniaceae	N				Shrub							0.2	5						
-	Yorkshire Fog	Poaceae	Е																		
	Mediterranean Barley Grass	Poaceae	_													0.3	50				
·	Stinking Pennywort	Apiaceae	N		-		Forb														
	Catsear	Asteraceae	_							0.1	9	0.1	9					0.2	12		
• •	Club-rush	Cyperaceae	N		- 1		Grass & grasslike														
	A Rush	Juncaceae	N				Grass & grasslike													0.1	1
	Finger Rush	Juncaceae	N		-		Grass & grasslike														
Juncus usitatus	Ğ	Juncaceae					Grass & grasslike			0.1	1	0.1	1					0.1	2		
	Prickly Lettuce	Asteraceae	Е							0.1	1	0.1	1					0.1	2		
	Argentine Peppercress	Brassicaceae																			
	Perennial Ryegrass	Poaceae	Е		-											0.1	10				
	Wattle Matt-rush	Lomandraceae			-		Grass & grasslike	0.1	30											0.1	2
	Many-flowered Mat-rush	Lomandraceae					Grass & grasslike														
	Mat-rush	Lomandraceae	N				Grass & grasslike														
	Small-flowered Mallow	Malvaceae	Е	-	-											0.1	2				
Medicago spp.	A Medic	Fabaceae (Faboideae)																			
	Slender Mint	Lamiaceae	N		-		Forb														
Microlaena stipoides	Weeping Grass	Poaceae					Grass & grasslike	5	5000	0.1	40	0.1	40							0.8	1600
	Red-flowered Mallow	Malvaceae	Е	-	-					0.1	2	0.1	2								
Nassella trichotoma	Serrated Tussock	Poaceae																			
	Illyrian Thistle	Asteraceae	_		-																
	Creeping Oxalis	Oxalidaceae	Е		-																
Oxalis perennans		Oxalidaceae	N		-		Forb			0.1	3	0.1	3	0.1	1						
	White Dogwood	Asteraceae					Shrub														
-	Hairy Panic	Poaceae	N				Grass & grasslike														
	Paspalum	Poaceae			- F																
•	Phalaris	Poaceae								40	40000	40	40000					2	200	0.1	3

Scientific name	Common Name	Family	Native / Exotic	C status	EPBC status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form		1	2	la	2	b	3		4		!	5	6	
Scientific flame	Common Name	i anniy	Native	BC St	EPBC	High Thre	(<u>below</u>)	Cover	Abundance												
Poa labillardierei var. labillardierei	Tussock	Poaceae	N		-		Grass & grasslike														
Poa sieberiana	Snowgrass	Poaceae	N		-		Grass & grasslike	5	5000					5	50						
Poa sieberiana var. sieberiana	Snowgrass	Poaceae	N		-		Grass & grasslike			5	5000	5	5000								
Poa spp.		Poaceae	N		-		Grass & grasslike														
Polygonum aviculare	Wireweed	Polygonaceae	E		-																
Polygonum plebeium	Small Knotweed	Polygonaceae	N		-		Forb									0.1	2			0.1	2
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N		-		Forb														
Rosa rubiginosa	Sweet Briar	Rosaceae	Е		- 1	HTW				0.1	1	0.1	1								
Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae	E		- 1	HTW															
Rumex brownii	Swamp Dock	Polygonaceae	N		-		Forb											0.1	5		
Rumex spp.	Dock	Polygonaceae	N		-		Forb			0.1	1	0.1	1								
Rytidosperma carphoides	Short Wallaby Grass	Poaceae	N		-		Grass & grasslike														
Rytidosperma erianthum	Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma pallidum	Redanther Wallaby Grass; Silver	Poaceae	N		-		Grass & grasslike							20	150						
Rytidosperma spp.		Poaceae	N		-		Grass & grasslike														
Rytidosperma tenuius	A Wallaby Grass	Poaceae	N		-		Grass & grasslike	15	10000	30	30000	30	30000	0.3	50	0.1	10			0.1	200
Senecio spp.	Groundsel, Fireweed	Asteraceae	N		-		Forb														
Solanum nigrum	Black-berry Nightshade	Solanaceae	Е		-											0.1	1				
Solenogyne dominii		Asteraceae	N		-		Forb														
Stellaria media	Common Chickweed	Caryophyllaceae	Е		-																
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-													0.1	2		
Themeda australis		Poaceae	N		-		Grass & grasslike														
Themeda triandra		Poaceae	N		-		Grass & grasslike	1	. 20	0.1	5	0.1	5								
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е		-													70	40000		
Vulpia bromoides	Squirrel Tail Fesque	Poaceae	_					2	10000					0.1	10						
Vulpia spp.	Rat's-tail Fescue	Poaceae	Е		-															0.2	1600

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	7	,	8	3	Ğ		1	0	1	1	1	2	164	12
		,,	Native,	BCs	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree														
Acacia dealbata subsp. dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			0.1	1										
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	Ε	-	-	HTW														0.2	20
Agrostis stolonifera	Creeping Bent	Poaceae	Е	-	-					10	10000										
Amyema pendula subsp. pendula		Loranthaceae	N	-	-		Other														
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike														
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb														
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike							0.1	3						
Austrostipa scabra subsp. falcata	Rough Speargrass	Poaceae	N	-	-		Grass & grasslike														
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike														
Brassica spp.	Brassica	Brassicaceae	Е	-	-																
Bromus catharticus	Praire Grass	Poaceae	Е	-	-																
Bromus hordeaceus	Soft Brome	Poaceae	Е	-	-																
Bromus spp.	A Brome	Poaceae	N	-	-		Grass & grasslike														
Carex appressa	Tall Sedge	Cyperaceae	N	-	- 1		Grass & grasslike											70	2000		
Carex bichenoviana		Cyperaceae	N	-	-		Grass & grasslike			0.3	50										
Carex spp.		Cyperaceae	N	-	- 1		Grass & grasslike									0.1	5				
Carthamus Ianatus	Saffron Thistle	Asteraceae	Е	-	-	HTW															
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	- 1		Shrub														
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-																
Chloris gayana	Rhodes Grass	Poaceae	Е	- 1	- 1	HTW								15	6000						
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike														
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	- 1					0.1	1					0.1	1				
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-													10	29	0.1	10
Convolvulus angustissimus		Convolvulaceae	N	- 1	- 1		Other														
Convolvulus erubescens	Pink Bindweed	Convolvulaceae	N	-	-		Other														
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	- 1																
Cotula australis	Common Cotula	Asteraceae		-			Forb														
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	-		Forb														
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike														
Cynosurus echinatus	Rough Dog's Tail	Poaceae	Е	-	-							0.1	1								
Dactylis glomerata	Cocksfoot	Poaceae		-	-															20	2000
Desmodium varians	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Other			0.1	9										
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb														
Dichondra spp.		Convolvulaceae	N	-	- 1		Forb														
Echium plantagineum	Patterson's Curse	Boraginaceae	Е	-	-															0.2	50
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	-		Forb			0.6	19			0.1	1	0.1	3				
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae	N		-		Forb														
Eleusine tristachya	Goose Grass	Poaceae		-	-			0.1	1					0.1	20						
Elymus scaber	Wheatgrass, Common Wheatg			-			Grass & grasslike			0.1	8	0.1	7	0.1	1	1	4000				
Elymus scaber var. scaber	Wheatgrass, Common Wheatg			-			Grass & grasslike													5	400
Eragrostis brownii	Brown's Lovegrass	Poaceae		-			Grass & grasslike														

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right)</u> BAM growth form	7	,	8		9		10)	1	1	1	2	164	42
		,	Native /	BCs	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Eragrostis leptostachya Padd	dock Lovegrass	Poaceae	N				Grass & grasslike														
Eucalyptus bridgesiana Apple	le Box	Myrtaceae	N				Tree							10	2						
Eucalyptus dives Broa	ad-leaved Peppermint	Myrtaceae	N				Tree					18	6			12	3				
Eucalyptus goniocalyx Bund	dy	Myrtaceae	N				Tree					39	13			10	1				
Eucalyptus mannifera Brittl	tle Gum	Myrtaceae	N				Tree														
Eucalyptus melliodora Yello	ow Box	Myrtaceae	N				Tree	22	1	45	7										
Eucalyptus viminalis Ribbo	oon Gum	Myrtaceae	N				Tree														
Euchiton sphaericus Star	· Cudweed	Asteraceae	N				Forb	0.1	10												
·	Fescue	Poaceae	Е															70	2000		
Galium spp.		Rubiaceae	N				Forb														
	ive Geranium	Geraniaceae	N				Forb														
Glycine clandestina Twin	ning glycine	Fabaceae (Faboideae)	N				Other														
•	erty Raspwort	Haloragaceae					Forb														
	• •	Goodeniaceae	N				Forb														
	ry Guinea Flower	Dilleniaceae					Shrub														
-		Poaceae	Ε																		
		Poaceae																			
·		Apiaceae	N				Forb														
Hypochaeris radicata Catse	,	Asteraceae						8	3000					0.1	2			0.2	12		
	o-rush	Cyperaceae	N				Grass & grasslike														
Juncus spp. A Rus		Juncaceae					Grass & grasslike									0.1	1				
	ger Rush	Juncaceae	N				Grass & grasslike										_				
Juncus usitatus	,	Juncaceae	-11				Grass & grasslike							0.1	3			0.1	2		
	kly Lettuce	Asteraceae	E				Grass a grassime							0.2	J			0.1	2		
	entine Peppercress	Brassicaceae																0.1	_		
	ennial Ryegrass	Poaceae	E									0.1	2	0.2	200					20	5000
	ttle Matt-rush	Lomandraceae					Grass & grasslike			0.1	13	0.4	127	0.2		0.1	4				
		Lomandraceae					Grass & grasslike			0.2		0.1	12,			0.2					
	t-rush	Lomandraceae					Grass & grasslike														
		Malvaceae	E				or doe of gracemic														
Medicago spp. A Me		Fabaceae (Faboideae)																		5	2000
5 , .	nder Mint	Lamiaceae					Forb														2000
	eping Grass	Poaceae					Grass & grasslike	4	2000	0.1	15					1.5	800			5	2000
	• •	Malvaceae					orass a grassime		2000	0.2						1.5	000				2000
	rated Tussock	Poaceae																			
	ian Thistle	Asteraceae																		0.2	10
	eping Oxalis	Oxalidaceae																		0.1	10
Oxalis perennans	Chill Overit	Oxalidaceae	N				Forb			0.1	1					0.1	1			0.1	10
	ite Dogwood	Asteraceae					Shrub			0.1	_					0.1	1				
-	ry Panic	Poaceae	N				Grass & grasslike														
	palum	Poaceae	E		H		Grass & grasslike														
Phalaris aquatica Phala		Poaceae	E			. ••		1	60	2.5	48			0.1	20			2	200	5	50

Scientific name	Common Name	Family	/ Exotic	BC status	EPBC status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form		7	8	3	g)	1	.0	1	1	1	.2	16	642
Scientific flame	Common Name	ranny	Native /	BC St	EPBC	High Thre	(<u>below</u>)	Cover	Abundance												
Poa labillardierei var. labillardierei	Tussock	Poaceae	N	-	-		Grass & grasslike														
Poa sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike														
Poa sieberiana var. sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike														
Poa spp.		Poaceae	N	-	-		Grass & grasslike			0.1	35	0.1	13								
Polygonum aviculare	Wireweed	Polygonaceae	Е	-	-																
Polygonum plebeium	Small Knotweed	Polygonaceae	N	-	-		Forb							0.1	4	0.1	1				
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb														
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	HTW														0.2	1
Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae	E	-	-	HTW		0.1	1	0.1	4					0.1	1				
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb											0.1	5		
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb														
Rytidosperma carphoides	Short Wallaby Grass	Poaceae	N	-	-		Grass & grasslike							5	2000						
Rytidosperma erianthum	Wallaby Grass	Poaceae	N	-	-		Grass & grasslike			0.1	3										
Rytidosperma pallidum	Redanther Wallaby Grass; Silver	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma spp.		Poaceae	N	-	-		Grass & grasslike													15	3000
Rytidosperma tenuius	A Wallaby Grass	Poaceae	N	-	-		Grass & grasslike	8	2000	0.1	10	6.3	1000	5	1900	7	4000				
Senecio spp.	Groundsel, Fireweed	Asteraceae		-			Forb														
Solanum nigrum	Black-berry Nightshade	Solanaceae	Е	-	-											0.1	1				
Solenogyne dominii		Asteraceae	N	-	-		Forb													0.1	2
Stellaria media	Common Chickweed	Caryophyllaceae	Е	-	-																
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-													0.1	2		
Themeda australis		Poaceae	N	-	-		Grass & grasslike														
Themeda triandra		Poaceae	N	-	-		Grass & grasslike														
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-													70	40000	10	4000
Vulpia bromoides	Squirrel Tail Fesque	Poaceae	Е	-	-																
Vulpia spp.	Rat's-tail Fescue	Poaceae	E	-	-							1	200			0.1	100				

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	103	31	16	41	12	44	10	32	164	13	124	1 1	124	43
Scientific flame	Common Name	ranniy	Native	BC st	EPBC	High Thre	(<u>below</u>)	Cover	Abundance	Cover	Abundance										
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			1	1										
Acacia dealbata subsp. dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree														
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	Ε	-	-	HTW		0.2	10	0.1	20	1	400	0.2	10	0.2	20	0.2	10		
Agrostis stolonifera	Creeping Bent	Poaceae	E	-	-																
Amyema pendula subsp. pendula		Loranthaceae	N	-	-		Other					0.2	2								
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike														
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb														
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike														
Austrostipa scabra subsp. falcata	Rough Speargrass	Poaceae	N	-	-		Grass & grasslike														
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike														
Brassica spp.	Brassica	Brassicaceae	Ε	-	-					0.1	2										
Bromus catharticus	Praire Grass	Poaceae	E	-	-					15	800										
Bromus hordeaceus	Soft Brome	Poaceae	Ε	-	-													2	200	2	200
Bromus spp.	A Brome	Poaceae	N	-	-		Grass & grasslike														
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike														
Carex bichenoviana		Cyperaceae	N	-	-		Grass & grasslike														
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike														
Carthamus lanatus	Saffron Thistle	Asteraceae	E	-	-	HTW															
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub														
Chenopodium album	Fat Hen	Chenopodiaceae	E	-	-																
Chloris gayana	Rhodes Grass	Poaceae	Ε	-	-	HTW															
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike			5	400										
Chondrilla juncea	Skeleton Weed	Asteraceae	Ε	-	-																
Cirsium vulgare	Spear Thistle	Asteraceae	E	-	-			0.3	50					0.1	20	0.1	10	0.1	10	0.1	10
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other														
Convolvulus erubescens	Pink Bindweed	Convolvulaceae	N	-	-		Other														
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Ε	-	-					0.2	20										
Cotula australis	Common Cotula	Asteraceae	N	-	-		Forb														
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	-		Forb														
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike					5	2000								
Cynosurus echinatus	Rough Dog's Tail	Poaceae	Ε	-	-																
Dactylis glomerata	Cocksfoot	Poaceae	Ε	-	-			20	3000			10	1000	20	3000	20	2000	2	400	2	400
Desmodium varians	Slender Tick-trefoil	Fabaceae (Faboideae)	N				Other														
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb														
Dichondra spp.		Convolvulaceae	N		-		Forb														
Echium plantagineum	Patterson's Curse	Boraginaceae	Ε	-	-											0.2	50				
Einadia nutans	Climbing Saltbush	Chenopodiaceae	N				Forb														
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae	N	-	-		Forb														
Eleusine tristachya	Goose Grass	Poaceae		-				5	400					5	400						
Elymus scaber	Wheatgrass, Common Wheatgr	ra Poaceae	N	-	-		Grass & grasslike														
Elymus scaber var. scaber	Wheatgrass, Common Wheatgr	ra Poaceae	N	-	-		Grass & grasslike	5	800					5	800	5	400	5	500	اللي	
Eragrostis brownii	Brown's Lovegrass	Poaceae	N	-	-		Grass & grasslike														

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	103	31	16	41	12	44	10	32	16	43	12	41	12	43
		,,	Native /	BCs	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	-		Grass & grasslike	3	400												
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-		Tree														
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-		Tree					35	5								
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	-	-		Tree														
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree														
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		Tree														
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		Tree			50	20										
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		Forb														
Festuca arundinacea	Tall Fescue	Poaceae	Е	-	-																
Galium spp.		Rubiaceae	N	-	-		Forb														
Geranium solanderi	Native Geranium	Geraniaceae	N	-	-		Forb														
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N	-	-		Other														
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N	-	-		Forb														
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N	-	-		Forb														
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N	-	-		Shrub														
Holcus lanatus	Yorkshire Fog	Poaceae	Е	-	-													1	50		
Hordeum hystrix	Mediterranean Barley Grass	Poaceae	Е	-	-																
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N	-	-		Forb														
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-			1	100	0.2	50			1	100			1	200	1	200
Isolepis spp.	Club-rush	Cyperaceae	N	-	-		Grass & grasslike														
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike														
Juncus subsecundus	Finger Rush	Juncaceae	N	-	-		Grass & grasslike	0.2	5												
Juncus usitatus		Juncaceae	N	-	-		Grass & grasslike											0.2	5		
Lactuca serriola	Prickly Lettuce	Asteraceae	Е	-	-																
Lepidium bonariense	Argentine Peppercress	Brassicaceae		-	-																
Lolium perenne	Perennial Ryegrass	Poaceae	Е		-											20	5000				
Lomandra filiformis	Wattle Matt-rush	Lomandraceae		-	-		Grass & grasslike														
Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike														
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike														
Malva parviflora	Small-flowered Mallow	Malvaceae	Е	-	-					0.1	2										
Medicago spp.	A Medic	Fabaceae (Faboideae)	_	-				10	4000					10	4000	5	2000	5	2000	5	2000
Mentha diemenica	Slender Mint	Lamiaceae	N	-	-		Forb														
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike			3	1000	2	2000			5	2000				
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-			5	200												
Onopordum illyricum	Illyrian Thistle	Asteraceae			-									0.2	20	0.2	10	0.2	20		
Oxalis corniculata	Creeping Oxalis	Oxalidaceae	Е	-	-											0.1	10				
Oxalis perennans		Oxalidaceae	N	-	-		Forb														
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N	-	-		Shrub			2	2										
Panicum effusum	Hairy Panic	Poaceae	N	_	-		Grass & grasslike														
Paspalum dilatatum	Paspalum	Poaceae	Е		- H																
Phalaris aquatica	Phalaris	Poaceae	Е							15	400			10	100	5	50				

Scientific name	Common Name	Family	/ Exotic	BC status	EPBC status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	10	31	16	41	12	44	10	32	16	43	12	41	12	43
Scientific Harrie	Common Name	Tanny	Native /	BC S	EPBC	High Thre	(<u>below</u>)	Cover	Abundance												
Poa labillardierei var. labillardierei	Tussock	Poaceae	N	-	-		Grass & grasslike														
Poa sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike			2	50										
Poa sieberiana var. sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike														
Poa spp.		Poaceae	N	-	-		Grass & grasslike														
Polygonum aviculare	Wireweed	Polygonaceae	Е	-	-																
Polygonum plebeium	Small Knotweed	Polygonaceae	N	-	-		Forb														
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb														
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	HTW										0.2	1				
Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae	E	-	-	HTW				2	3										
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb														
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb														
Rytidosperma carphoides	Short Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma erianthum	Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma pallidum	Redanther Wallaby Grass; Silver	Poaceae	N	-	-		Grass & grasslike					1	20								
Rytidosperma spp.		Poaceae	N	-	-		Grass & grasslike	45	5000	20	2000	5	1000	40	4000	20	4000	20	2000	15	2000
Rytidosperma tenuius	A Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Senecio spp.	Groundsel, Fireweed	Asteraceae	N	-	-		Forb														
Solanum nigrum	Black-berry Nightshade	Solanaceae	E	-	-																
Solenogyne dominii		Asteraceae	N	-	-		Forb							0.1	2	0.1	2	0.1	2		
Stellaria media	Common Chickweed	Caryophyllaceae	E	-	-																
Taraxacum officinale	Dandelion	Asteraceae	E	-	-																
Themeda australis		Poaceae	N	-	-		Grass & grasslike														
Themeda triandra		Poaceae	N	-	-		Grass & grasslike														
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-											10	4000				
Vulpia bromoides	Squirrel Tail Fesque	Poaceae	E																		
Vulpia spp.	Rat's-tail Fescue	Poaceae	Е	-	-																

Scientific name	Common Name	Family	/ Exotic	1 20	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	12	42	12	46	10	35	12	45	10	33	124	18	164	45
		,,	Native,	BC s	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			2	1							1	1		
Acacia dealbata subsp. dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree														
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	Ε	-	-	HTW						0.1	20	0.5	200			0.2	50		
Agrostis stolonifera	Creeping Bent	Poaceae	Е	-	-																
Amyema pendula subsp. pendula		Loranthaceae	N	-	-		Other														
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike			0.5	100										
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb					0.1	5								
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike														
Austrostipa scabra subsp. falcata	Rough Speargrass	Poaceae	N	-	-		Grass & grasslike					2	200								
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike					15	2000			5	400				
Brassica spp.	Brassica	Brassicaceae	Е	-	-																
Bromus catharticus	Praire Grass	Poaceae	Е	-	-											10	2000				
Bromus hordeaceus	Soft Brome	Poaceae	Е	-	-							10	2000								
Bromus spp.	A Brome	Poaceae	N	-	-		Grass & grasslike														
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike					0.2	5							10	200
Carex bichenoviana		Cyperaceae	N	-	-		Grass & grasslike														
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike														
Carthamus Ianatus	Saffron Thistle	Asteraceae	Е	-	-	HTW															
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub	0.3	1												
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-											0.1	2				
Chloris gayana	Rhodes Grass	Poaceae	Е	-	-	HTW															
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike			2	400			1	200						
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-							0.1	5							0.2	20
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other														
Convolvulus erubescens	Pink Bindweed	Convolvulaceae	N	-	-		Other					0.1	10								
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																
Cotula australis	Common Cotula	Asteraceae	N	-	-		Forb					0.2	50								
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	-		Forb					0.1	2								
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike			2	400			2	400					2	2000
Cynosurus echinatus	Rough Dog's Tail	Poaceae		-																	
Dactylis glomerata	Cocksfoot	Poaceae	Е	-	-									5	400			2	200		
Desmodium varians	Slender Tick-trefoil	Fabaceae (Faboideae)		-			Other														
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb					0.2	200								
Dichondra spp.		Convolvulaceae		-	-		Forb														
Echium plantagineum	Patterson's Curse	Boraginaceae	Ε	-	-									2	200	0.2	50				
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	-		Forb														
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae	N		-		Forb			0.1	5	0.2	5			0.1	2				
Eleusine tristachya	Goose Grass	Poaceae		-								5	800								
Elymus scaber	Wheatgrass, Common Wheatg	gra Poaceae	N	-	-		Grass & grasslike														
Elymus scaber var. scaber	Wheatgrass, Common Wheatg	gra Poaceae	N	-	-		Grass & grasslike					2	400								
Eragrostis brownii	Brown's Lovegrass	Poaceae	N	-	-		Grass & grasslike					1	200								

Scientific name	Common Name	Family	/ Exotic	BC status	status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	124	42	124	46	10	35	12	45	10	33	12	48	164	45
	Common runic	, annay	Native / I	BC S	EPBC	High Thr	(<u>below</u>)	Cover	Abundance												
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	-		Grass & grasslike														
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-		Tree			10	1	10	1	5	1						
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-		Tree	10	2	15	2			20	2			50	20		
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	-	-		Tree	15	3									10	2		
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree														
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		Tree					5	1			30	3				
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	_	-		Tree													25	1
Euchiton sphaericus	Star Cudweed	Asteraceae		_	_		Forb														
Festuca arundinacea	Tall Fescue	Poaceae		-																15	4000
Galium spp.		Rubiaceae	N	_	_		Forb														
Geranium solanderi	Native Geranium	Geraniaceae	N		_		Forb					0.1	20							0.1	20
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		_		Other					0.1	10							0.2	
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae		-			Forb	0.1	5			0.1	10								
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		_		Forb	0.1	20									0.1	20		
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae		-			Shrub	0.1	20									0.1	20		
Holcus lanatus	Yorkshire Fog	Poaceae	E		_		Siliub														
Hordeum hystrix	Mediterranean Barley Grass	Poaceae	_		_																
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N		_		Forb														
	,	•	_				FUID	0.1										0.2	50	0.2	100
Hypochaeris radicata	Club much	Asteraceae			-		C 0	0.1	5									0.2		0.2	100
Isolepis spp.	Club-rush	Cyperaceae	N		-		Grass & grasslike											0.1	20		
Juncus spp.	A Rush	Juncaceae		-			Grass & grasslike														
Juncus subsecundus	Finger Rush	Juncaceae	N		-		Grass & grasslike			0.4	_	0.4	_					0.4	_	0.0	10
Juncus usitatus	211111111	Juncaceae		-	-		Grass & grasslike			0.1	5	0.1	5					0.1	5	0.2	40
Lactuca serriola	Prickly Lettuce	Asteraceae	E	_	-											0.1	1.0				
Lepidium bonariense	Argentine Peppercress	Brassicaceae		-										_		0.1	10				
Lolium perenne	Perennial Ryegrass	Poaceae	E		-									2	200					20	5000
Lomandra filiformis	Wattle Matt-rush	Lomandraceae		-			Grass & grasslike														
Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush	Lomandraceae		-			Grass & grasslike											0.1	2		
Lomandra spp.	Mat-rush	Lomandraceae		-			Grass & grasslike					0.1	2								
Malva parviflora	Small-flowered Mallow	Malvaceae	Е	-	-															0.1	10
Medicago spp.	A Medic	Fabaceae (Faboideae)		-												20	5000				
Mentha diemenica	Slender Mint	Lamiaceae	N	-	-		Forb					0.1	10								
Microlaena stipoides	Weeping Grass	Poaceae		-			Grass & grasslike					2	800					10	4000		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-															0.1	10
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-																
Onopordum illyricum	Illyrian Thistle	Asteraceae	Е	-	-																
Oxalis corniculata	Creeping Oxalis	Oxalidaceae	Е	-	-																
Oxalis perennans		Oxalidaceae	N	-	-		Forb					0.1	5								
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N	-	-		Shrub														
Panicum effusum	Hairy Panic	Poaceae	N	-	-		Grass & grasslike							2	500						
Paspalum dilatatum	Paspalum	Poaceae	Е		- I	HTW										2	20				
Phalaris aquatica	Phalaris	Poaceae	E											1	10					40	800

Scientific name	Common Name	Family	/ Exotic	BC status	EPBC status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	12	42	12	46	10	35	12	45	10	33	1	248	164	45
Scientific Harrie	Common Name	Tanny	Native /	BC S	EPBC	High Thre	(<u>below</u>)	Cover	Abundance												
Poa labillardierei var. labillardierei	Tussock	Poaceae	N	-	-		Grass & grasslike					0.5	20								
Poa sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike														
Poa sieberiana var. sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike														
Poa spp.		Poaceae	N	-	-		Grass & grasslike														
Polygonum aviculare	Wireweed	Polygonaceae	Е	-	-															0.2	20
Polygonum plebeium	Small Knotweed	Polygonaceae	N	-	-		Forb														
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb					0.1	10								
Rosa rubiginosa	Sweet Briar	Rosaceae	E	-	-	HTW															
Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae	E	-	-	HTW						0.1	1								
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb													0.1	10
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb														
Rytidosperma carphoides	Short Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma erianthum	Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Rytidosperma pallidum	Redanther Wallaby Grass; Silver	Poaceae	N	-	-		Grass & grasslike	50	200	10	20							10	100		
Rytidosperma spp.		Poaceae	N	-	-		Grass & grasslike			5	1000	15	3000	2	800	10	1000				
Rytidosperma tenuius	A Wallaby Grass	Poaceae	N	-	-		Grass & grasslike														
Senecio spp.	Groundsel, Fireweed	Asteraceae	N	-	-		Forb	0.1	2												
Solanum nigrum	Black-berry Nightshade	Solanaceae	Е	-	-											0.1	2				
Solenogyne dominii		Asteraceae	N	-	-		Forb					0.1	2								
Stellaria media	Common Chickweed	Caryophyllaceae	Е	-	-			0.1	50												
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-															0.1	50
Themeda australis		Poaceae	N	-	-		Grass & grasslike					5	1000								
Themeda triandra		Poaceae	N	-	-		Grass & grasslike														
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-							5	1000							2	800
Vulpia bromoides	Squirrel Tail Fesque	Poaceae	E	-	-																
Vulpia spp.	Rat's-tail Fescue	Poaceae	Е	-	-																

Scientific name	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	Plot Number (<u>right</u>) BAM growth form	10	36
Scientific flame	Common Name	railily	Native	BC St	EPBC	High Thre	(<u>below</u>)	Cover	Abundance
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree		
Acacia dealbata subsp. dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree		
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	-	HTW		0.5	50
Agrostis stolonifera	Creeping Bent	Poaceae	Е	-	-				
Amyema pendula subsp. pendula		Loranthaceae	N	-	-		Other		
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike		
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb		
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike		
Austrostipa scabra subsp. falcata	Rough Speargrass	Poaceae	N	-			Grass & grasslike		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike		
Brassica spp.	Brassica	Brassicaceae	Е	-	-				
Bromus catharticus	Praire Grass	Poaceae	Е	-	-				
Bromus hordeaceus	Soft Brome	Poaceae	Е	-	-			5	800
Bromus spp.	A Brome	Poaceae	N	-	-		Grass & grasslike		
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike		
Carex bichenoviana	ŭ	Cyperaceae	N	-	-		Grass & grasslike		
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike		
Carthamus Ianatus	Saffron Thistle	Asteraceae	Е	-	-	HTW	Ü	0.5	20
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub		
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-				
Chloris gayana	Rhodes Grass	Poaceae	Е	-	-	HTW			
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike	5	100
Chondrilla juncea	Skeleton Weed	Asteraceae		-			5. 2.2 c. g. 2.2		
Cirsium vulgare	Spear Thistle	Asteraceae	_	-	_				
Convolvulus angustissimus	opeaoue	Convolvulaceae	N		-		Other		
Convolvulus erubescens	Pink Bindweed	Convolvulaceae	N	_	_		Other		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae			-		Circi		
Cotula australis	Common Cotula	Asteraceae	N	-	-		Forb		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N		-		Forb		
Cynodon dactylon	Common Couch	Poaceae	N		-		Grass & grasslike		
Cynosurus echinatus	Rough Dog's Tail	Poaceae	E	_	-		5. 2.2 c. g. 2.2		
Dactylis glomerata	Cocksfoot	Poaceae		-	-			20	1000
Desmodium varians	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Other		
Dichondra repens	Kidney Weed	Convolvulaceae		-			Forb		
Dichondra spp.		Convolvulaceae	N	_	-		Forb		
Echium plantagineum	Patterson's Curse	Boraginaceae	_	-	-				
Einadia nutans	Climbing Saltbush	Chenopodiaceae	N		-		Forb		
Einadia nutans subsp. nutans	Climbing Saltbush	Chenopodiaceae	N		-		Forb	0.5	10
Eleusine tristachya	Goose Grass	Poaceae			-			2	800
Elymus scaber	Wheatgrass, Common Wheatgra		N	_	-		Grass & grasslike		000
Elymus scaber var. scaber	Wheatgrass, Common Wheatgra			-			Grass & grasslike		
Eragrostis brownii	Brown's Lovegrass	Poaceae		-			Grass & grasslike		

Scientific name	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	Plot Number (<u>right)</u> BAM growth form (<u>below</u>)	Cover	Abundance 88
								ŭ	Abui
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	-		Grass & grasslike		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-		Tree	15	2
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-		Tree		
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	-	-		Tree		
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree		
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		Tree	15	2
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		Tree		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		Forb		
Festuca arundinacea	Tall Fescue	Poaceae	Е	-	-				
Galium spp.		Rubiaceae	N	-	-		Forb	0.1	2
Geranium solanderi	Native Geranium	Geraniaceae	N	-	-		Forb		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N	-	_		Other		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N	-	-		Forb		
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N	_	_		Forb		
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N	-	_		Shrub		
Holcus lanatus	Yorkshire Fog	Poaceae	E				Siliub		
Hordeum hystrix	Mediterranean Barley Grass	Poaceae	E						
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N				Forb	1	100
Hypochaeris radicata	Catsear	Asteraceae	E				1010	3	100
Isolepis spp.	Club-rush		N	-			Grass & grasslike	3	100
	A Rush	Cyperaceae Juncaceae	N		-		Grass & grasslike		
Juncus subsequentus							-		
Juncus subsecundus	Finger Rush	Juncaceae	N	-	-		Grass & grasslike		
Juncus usitatus	2.11 1.01	Juncaceae	N		-		Grass & grasslike		
Lactuca serriola	Prickly Lettuce	Asteraceae		-	-				
Lepidium bonariense	Argentine Peppercress	Brassicaceae	E	-	-				
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	-		0 0 111		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae		-	-		Grass & grasslike		
Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush	Lomandraceae	N		-		Grass & grasslike		
Lomandra spp.	Mat-rush	Lomandraceae	N		-		Grass & grasslike		
Malva parviflora	Small-flowered Mallow	Malvaceae		-	-			0.1	2
Medicago spp.	A Medic	Fabaceae (Faboideae)	Е	-	-			15	4000
Mentha diemenica	Slender Mint	Lamiaceae	N		-		Forb		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike		
Modiola caroliniana	Red-flowered Mallow	Malvaceae		-	-				
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-				
Onopordum illyricum	Illyrian Thistle	Asteraceae	Е	-	-				
Oxalis corniculata	Creeping Oxalis	Oxalidaceae	E	-	-				
Oxalis perennans		Oxalidaceae	N	-	-		Forb	0.5	10
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N	-	-		Shrub		
Panicum effusum	Hairy Panic	Poaceae	N	-	-		Grass & grasslike		
Paspalum dilatatum	Paspalum	Poaceae	Е	-	-	HTW			
Phalaris aquatica	Phalaris	Poaceae	Е	-	-				

Scientific name	Common Name	Family	/ Exotic		FDRC ctatus		High Threat Weed	Plot Number (<u>right</u>) BAM growth form	10	36
Scientific flame	Common Name	raillily	Native /	BC et	FDRC		High Thre	(<u>below</u>)	Cover	Abundance
Poa labillardierei var. labillardierei	Tussock	Poaceae	N	-	-			Grass & grasslike		
Poa sieberiana	Snowgrass	Poaceae	N	-	-			Grass & grasslike		
Poa sieberiana var. sieberiana	Snowgrass	Poaceae	N	-	-			Grass & grasslike		
Poa spp.		Poaceae	N	-	-			Grass & grasslike		
Polygonum aviculare	Wireweed	Polygonaceae	Е	-	-					
Polygonum plebeium	Small Knotweed	Polygonaceae	N	-	-			Forb		
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-			Forb		
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	H	ITW		2	2
Rubus fruticosus sp. agg.	Blackberry complex	Rosaceae	Е	-	-	H	ITW		2	2
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-			Forb		
Rumex spp.	Dock	Polygonaceae	N	-	-			Forb		
Rytidosperma carphoides	Short Wallaby Grass	Poaceae	N	-	-			Grass & grasslike		
Rytidosperma erianthum	Wallaby Grass	Poaceae	N	-	-			Grass & grasslike		
Rytidosperma pallidum	Redanther Wallaby Grass; Silver	Poaceae	N	-	-			Grass & grasslike		
Rytidosperma spp.		Poaceae	N	-	-			Grass & grasslike	15	2000
Rytidosperma tenuius	A Wallaby Grass	Poaceae	N	-	-			Grass & grasslike		
Senecio spp.	Groundsel, Fireweed	Asteraceae	N	-	-			Forb		
Solanum nigrum	Black-berry Nightshade	Solanaceae	Е	-	-					
Solenogyne dominii		Asteraceae	N	-	-			Forb		
Stellaria media	Common Chickweed	Caryophyllaceae	Е	-	-					
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-					
Themeda australis		Poaceae	N	-	-			Grass & grasslike		
Themeda triandra		Poaceae	N	-	-			Grass & grasslike		
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-					
Vulpia bromoides	Squirrel Tail Fesque	Poaceae	Е	-	-					
Vulpia spp.	Rat's-tail Fescue	Poaceae	Е	-	-				5	1000

B.2 Pipeline development

J180395 | 13 | v1 B.3

			Exotic	tus	atus	it Weed	Plot Number (right) BAM	29011	.901	29011	1902	29011	1903	30011	901	30011	1902	30011	1903	30011	.904	30011	905	300119	906
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance														
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub									0.1	0								
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			1	2	10	0	0.1	1	0.1	10	0.1	10	0.1	10	0.5	1	1	2
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)	N	-	-		Tree																		
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub							20	C										
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)		-	-		Shrub																		
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub									5	0					0.5	1		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb									0.1	200			0.5	100				
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	-	-		Forb													0.1				1	0
Acaena ovina	Acaena	Rosaceae	N	-	-		Forb																		
Acaena spp.	Sheep's Burr	Rosaceae	N	-	_		Forb															0.1	50		
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	-	HTE																0.2			
Acrotriche serrulata	Honeypots	Ericaceae	N	_	-		Shrub																		
Acrotriche spp.	Honeypots	Ericaceae	N		_		Shrub													0.1	5			1	0
Aira cupaniana	Silvery Hairgrass	Poaceae		-	-		Siliub													0.1	J			ائمه	
Alternanthera angustifolia	Silvery Hailgrass	Amaranthaceae	N		_		Forb																		
Amperea xiphoclada		Euphorbiaceae	N	-	-		Shrub																		
Amyema miquelii	Box Mistletoe	Loranthaceae	N	-	_		Other																		
Amyema pendula	DOX WIISTICTOC	Loranthaceae		_	-		Other																	أحما	
Amyema spp.	Mistletoe	Loranthaceae	N	-	_		Other																		
Anagallis arvensis	Scarlet Pimpernel	Primulaceae	E	-	-		Other											0.1	100			0.1	200		
Anthosachne scabra	Common Wheatgrass	Poaceae		-			Grass & grasslike											0.1	100			0.1	200		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	_		Orass & grassiike																		
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-																					
Arctotheca calendula	Capeweed	Asteraceae	E	-																					
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike					0.5	20	0.1	5										
Aristida ramosa Aristida spp.	A Wiregrass	Poaceae		-			Grass & grasslike			0.5	20		20	0.1	J										
Aristida vagans	Threeawn Speargrass	Poaceae		-	_		Grass & grasslike			0.5	20														
	Common Woodruff	Rubiaceae		-			Forb																		
Asperula conferta	Prickly Woodruff	Rubiaceae	N	-			Forb																		
Asperula scoparia	-																								
Asperula spp.	Woodruff Onion Wood	Rubiaceae	N E		-		Forb																		
Astroloma hymifusym	Onion Weed	Asphodelaceae		-	H		Chruh																		
Australanthania ann	Native Cranberry	Ericaceae	N	-	-		Shrub																		
Austrodanthonia spp.	A Smanner	Poaceae	N	-			Grass & grasslike																		
Austrostina nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike			_		4.0	_					0.4	400			25			
Austrostipa scabra	Speargrass	Poaceae	N	-			Grass & grasslike			5	0	10	0					0.1	100	5	Ü	25	Ü	1	U
Austrostipa spp.	A Speargrass	Poaceae	N		-		Grass & grasslike																		
Avena barbata	Bearded Oats	Poaceae	Ł	-	-																				

			.;+C.	tus	atus	at Weed	Plot Number (<u>right</u>) BAM	29011	.901	2901:	1902	2901:	1903	30011	.901	30011	1902	30011	1903	30011	904	30011	905	30011	906
ScientificName	Common Name	Family	Notice / Cotion	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.	, i i	Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)		-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N		-		Forb									0.1	200								
Bothriochloa macra	Red Grass	Poaceae	N		-		Grass & grasslike									J. L									
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	_	-		Shrub																		
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N		-		Forb							0.5	5										
Brachyscome spp.	rian y carical bally	Asteraceae	N		-		Forb							0.5		0.1	5								
Brassica oleracea	Collards	Brassicaceae	E		-		1010									0.1									
Brassica spp.	Brassica	Brassicaceae	E	-	-																				
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E			НТЕ	:	0.1	10																
Bromus catharticus	Praire Grass	Poaceae	E	-	-	1111	-	0.1	10																
Bromus diandrus	Great Brome	Poaceae	E			НТЕ	:																		
Bromus hordeaceus	Soft Brome	Poaceae	E	_		1111	•																		
Bulbine bulbosa	Bulbine Lily	Asphodelaceae	N				Forb			0.1	5														
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N				Shrub			0.1	. ,	'													
Caesia spp.	Native Diacktiloiti	Anthericaceae	N				Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N				Shrub																		
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N		-		Forb																		
	A Burr-daisy	Asteraceae		-	-		Forb																		
Carou appross	Tall Sedge			-																					
Carex appressa	raii Seuge	Cyperaceae					Grass & grasslike																		
Carex bichenoviana	Tassal Cadas	Cyperaceae			-		Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae		-			Grass & grasslike																		
Carex gaudichaudiana		Cyperaceae	N		-		Grass & grasslike																		
Carex spp.	D. H. D. de	Cyperaceae			-		Grass & grasslike																		
Cassinia aculeata	Dolly Bush	Asteraceae	N		-		Shrub																		
Cassinia arcuata	Sifton Bush	Asteraceae		-			Shrub	0.4	_	20		25		0.5	40	40	0	25	0	0.4	4	20	0		
Cassinia laevis	Cough Bush	Asteraceae	N		-		Shrub	0.1	5	20	0	25	C	0.5	10	10	0	25	0	0.1	1	20	0		
Cassinia longifolia		Asteraceae		-	-		Shrub																		
Cassinia quinquefaria		Asteraceae		-	-		Shrub																		
Cassinia spp.		Asteraceae	N		-		Shrub																		
Casuarina cunninghamiana	River Oak	Casuarinaceae		-	-		Tree																		
Centaurium spp.		Gentianaceae		-																					
Centella asiatica	Indian Pennywort	Apiaceae	N		-		Forb															0.1	100		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae			-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N		-		Fern											0.1	100	0.1	50	0.1	100	0.1	0
Chenopodium album	Fat Hen	Chenopodiaceae		-	-																				
Chloris spp.		Poaceae	N		-		Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

				EXOLIC	104116	ot Weed	Plot Number (right) BAM	29011	1901	2901	1902	29011	1903	30011	.901	30011	.902	30011	1903	30011	.904	30011	905	30011	906
ScientificName	Common Name	Family		Native / EXC		High Threat We	growth form (<u>below</u>)	Cover	Abundance																
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Ε	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb																		
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	E		-																				
Conyza spp.	A Fleabane	Asteraceae	E	-	-			0.1	10																
Coronidium elatum	711 TOURSHIP	Asteraceae	N	_			Shrub	0.1	10																
Coronidium rutidolepis		Asteraceae	N				Siliub					0.1	20			0.1	50	0.1	50						
Coronidium scorpioides	Button Everlasting	Asteraceae		-			Forb					0.1	20			0.1	30	0.1	30						
Coronidium spp.	Dutton Everiasting	Asteraceae	N				Forb																		
					_																				
Cotoneaster spp.	A stadio Classes	Malaceae	E		-	НТ																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae		-	-		Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E		-	НТ	Ł																		
Crepis capillaris	Smooth Hawksbeard	Asteraceae	Е		-																				
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N		-		Forb					0.1	5	i											
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N		-		Forb																		
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae	N	-	-		Forb																		
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike																		
Cynodon spp.		Poaceae	N	-	-		Grass & grasslike																		
Cynodon transvaalensis	South African Couch	Poaceae	Е	-	-																				
Cyperus brevifolius		Cyperaceae	Е	-	-																				
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	Ε	-	-	НТ	E																		
Cyperus Ihotskyanus		Cyperaceae	N	-	-		Grass & grasslike																		
Cyperus spp.		Cyperaceae	N	-	-		Grass & grasslike																		
Cytisus scoparius	English Broom	Fabaceae (Faboideae)	Е	-	-	НТ																			
Dactylis glomerata	Cocksfoot	Poaceae		-	-																				
Daucus glochidiatus	Native Carrot	Apiaceae		-	-		Forb																		
Daviesia corymbosa		Fabaceae (Faboideae)		-	-		Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-			Shrub																		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N		-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-			Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N		-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae		-			Forb			0.5	5 20					0.1	50			1	100			1	0
	bluebelly Lily		N							0.5	, 20					0.1	50			1	100			I	U
Dianella spp.		Phormiaceae			-		Forb																		
Dichanthium spp.	Kida ay Marad	Poaceae	N		-		Grass & grasslike			0 -	400									_					
Dichondra repens	Kidney Weed	Convolvulaceae		-	-		Forb			0.5	100									5	0			5	0
Dichopogon spp.	Chocolate Lily	Anthericaceae	N		-		Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae	N	-	-		Grass & grasslike																		

			:	EXOLIC	arus .	tatus	at Weed	Plot Number (right) BAM	29011	901	29011	902	29011	.903	30011	901	30011	902	30011	903	300119	904	300119	905	30011	906
ScientificName	Common Name	Family	:	native / Exotic	בר אושותא	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance										
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-			Shrub					5	0												
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-			Shrub																		
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-			Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-			Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-			Forb									0.1	1								
Dipsacus spp.	i i i i i i i i i i i i i i i i i i i	Dipsacaceae	Е	-	-																					
Drosera spp.		Droseraceae	N	_	-			Forb																		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N		-			Forb																		
Dysphania spp.		Chenopodiaceae	N		-			Forb															0.1	10		
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N		-			Grass & grasslike													5	0			5	0
Echium plantagineum	Patterson's Curse	Boraginaceae	E		_			Grass & Brassine					0.1	10											3	
Echium spp.	ratterson's curse	Boraginaceae	E										0.1	10							0.1	20	5	0		
Echium vulgare	Viper's Bugloss	Boraginaceae	E																		0.1	20	<i>J</i>	U		
Einadia hastata	Berry Saltbush	Chenopodiaceae	N					Forb																		
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	-			Forb																		
	Knotweed Goosefoot	Chenopodiaceae	N					Forb																		
Einadia polygonoides Eleocharis acuta	Kilotweed Goosefoot			-																						
	Canaa Craas	Cyperaceae						Grass & grasslike																		
Eleusine tristachya	Goose Grass	Poaceae	E		-			C 0lil											0.1	20						
Elymus scaber	Common Wheatgrass	Poaceae	N		-			Grass & grasslike											0.1	20						
Enneapogon nigricans	Niggerheads	Poaceae	N		-		_	Grass & grasslike																		
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N		-			Grass & grasslike													_	4.0				10
Epacris spp.		Ericaceae	N		-			Shrub									5	0	0.5	20	1	10			1	10
Epilobium spp.		Onagraceae	N	-	-			Forb																		
Eragrostis cilianensis	Stinkgrass	Poaceae	E	-	-																					
Eragrostis curvula	African Lovegrass	Poaceae	E		-	Н	TE						5	0					1	300						
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N		-			Grass & grasslike																		
Eragrostis parviflora	Weeping Lovegrass	Poaceae	N	-	-			Grass & grasslike							0.1	10										
Eragrostis spp.	A Lovegrass	Poaceae	N		-			Grass & grasslike																		
Erodium botrys	Long Storksbill	Geraniaceae		-	-																					
Erodium cicutarium	Common Crowfoot	Geraniaceae	E		-																					
Erodium crinitum	Blue Crowfoot	Geraniaceae	N	-	-			Forb																		
Erodium malacoides		Geraniaceae	Е	-	-																					
Erodium spp.	Crowfoot	Geraniaceae	N	-	-			Forb																		
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N	-	-			Tree																		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-			Tree							10	0										
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N	٧	-			Tree									5	1								
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N	-	-			Tree			10	0	25	0												
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-			Tree													5	0			10	0
Eucalyptus fastigata	Brown Barrel	Myrtaceae		-	-			Tree																		
Eucalyptus goniocalyx	Bundy	Myrtaceae	N		-			Tree																		
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae		-	_			Tree			10	0					5	0								
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N		-			Tree							25	0		0	0.5	5			0.1	5	45	0
Eucalyptus melliodora	Yellow Box	Myrtaceae		-				Tree									33		7.5							

					atus	t Weed	Plot I	Number <u>t</u>) BAM	29011	901	29011	902	29011	1903	30011	901	30011	1902	3001:	1903	30011	.904	30011	905	30011	906
ScientificName	Common Name	Family	City City	/ 2012	EPBC status	High Threat Weed	grow (be	th form elow)	Cover	Abundance																
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-		Tree				25	0														
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-		Tree																			
Eucalyptus spp.		Myrtaceae	N	-	-		Tree										5	0			60	0			5	1
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-		Tree																			
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		Tree																			
Euchiton japonicus		Asteraceae	N	-	-		Forb																			
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		Forb																			
Euchiton spp.	A Cudweed	Asteraceae	N	-	-		Forb																			
Euphorbia dallachyana		Euphorbiaceae	N		-		Forb																			
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N		-		Forb																			
Euphorbia spp.		Euphorbiaceae	N	-	-		Forb																			
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	-		Shrub														1	0				
Exocarpos strictus	Dwarf Cherry	Santalaceae	N		-		Shrub																			
Foeniculum vulgare	Fennel	Apiaceae	E		_																					
Galium murale	Small Bedstraw	Rubiaceae	E	-	-																					
Gamochaeta calviceps	Cudweed	Asteraceae	E	-	-						0.1	10														
Geranium graniticola	caancea	Geraniaceae	N	-	-		Forb				0.1															
Geranium molle	Cranesbill Geranium	Geraniaceae	E		-		1015																			
Geranium solanderi	Native Geranium	Geraniaceae	N		_		Forb		0.1	5																
Geranium spp.	Native deraman	Geraniaceae		-	_		Forb		0.1	J																
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		_		Other														0.1	50				
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-			Other														0.1	10				
Gonocarpus humilis	Sman-lear diyeme	Haloragaceae	N		_		Forb														0.1	10				
Gonocarpus spp.	Raspwort	Haloragaceae	N	-			Forb																			
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		_		Forb				0.1	20	0.1	20							0.1	100			0.1	5
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N		-		Forb				0.1	20	0.1	20							0.1	100			0.1	
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-		Forb																			
	ivy Goodeilla		N				Forb										0.1	1000								
Goodenia spp.	Variable Despusert	Goodeniaceae			-		Forb										0.1	. 1000								
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N		-												1	1000	0.1	100						
Haloragis spp.	A Raspwort	Haloragaceae	N		-		Forb											1000	0.1	100						
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N				Other										0.1	. 1								
Helichrysum leucopsideum	Satin Everlasting	Asteraceae			-		Forb																			
Helichrysum spp.	DI	Asteraceae	N		-		Forb																			
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae		-	-	HTI																			0.4	
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N		-		Shrub																		0.1	5
Holcus lanatus	Yorkshire Fog	Poaceae		-																						
Hordeum leporinum	Barley Grass	Poaceae	E	-	-																					
Hovea heterophylla		Fabaceae (Faboideae)	N		-		Forb																			
Hovea spp.		Fabaceae (Faboideae)	N				Forb										0.1	. 20								
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N		-		Forb														0.1	200				
Hydrocotyle sibthorpioides		Apiaceae	N		-		Forb																			
Hydrocotyle spp.		Apiaceae	N		-		Forb																			
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-		Forb						5	0	0.1	25	0.1	. 50	0.1	300						

			2,400	TIS TIS	tatus	at Weed	Plot Number (right) BAM	29011	901	2901 1	1902	29011	1903	30011	.901	30011	1902	30011	1903	30011	904	30011	905	30011	906
ScientificName	Common Name	Family	Notice / Exatin	RC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	нті		0.5	50			0.1	50	0.1	10	1		0.1	200			0.1	100		
Hypericum spp.		Clusiaceae	N	-	-		Forb											0.1	200	0.1	100				
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	50	0.1	50	0.1	200	0.1	10	0.1	20	0.1	500	0.1	50	0.5	100		
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																				
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus		Juncaceae	Е	-	-																				
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N		-		Grass & grasslike																		
Lactuca serriola	Prickly Lettuce	Asteraceae	Е	-	-		ŭ	0.1	20																
Lagenifera spp.	, 2000.00	Asteraceae	N	-	-		Forb																		
Lamarckia aurea	Goldentop	Poaceae	E	-	-																				
Lepidium africanum	Common Peppercress	Brassicaceae	Е	-	-																				
Lepidium spp.	A Peppercress	Brassicaceae	N		-		Forb																		
Leptospermum myrtifolium	7 1 CPP 0: 0: 0:0	Myrtaceae	N		_		Shrub			10	0	0.5	5												
Leptospermum spp.	Tea-tree	Myrtaceae	N	_	-		Shrub					0.0						25	0						
Leucopogon appressus		Ericaceae	N		_		Shrub																		
Leucopogon fletcheri		Ericaceae	N		-		Shrub																		
Leucopogon virgatus		Ericaceae	N	_	-		Shrub																		
Linum marginale	Native Flax	Linaceae	N	-	-		Forb																		
Lissanthe spp.	Tracive Trax	Ericaceae	N		-		Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	-		J. 11 4 5																		
Lomandra cylindrica	r cremiur Nyegruss	Lomandraceae		-			Grass & grasslike																		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	_	-		Grass & grasslike			0.1	20	0.5	0			15	0	10	0	5	0	1	0	5	0
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-			Grass & grasslike			0.1	20	0.5				13	0	10	3		J	_			
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N		-		Grass & grasslike					0.5	J												
Lomandra spp.	Mat-rush	Lomandraceae	N		-		Grass & grasslike													0.1	10				
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	_	-		Shrub													0.1	10				
Lomatia myricoides	River Lomatia	Proteaceae	N		-		Shrub																		
Luzula spp.	MVCI Lomatia	Juncaceae	N		_		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E			HTI																			
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E				-					0.1	50	0.1	50										
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N		_		Forb					0.1	30	0.1	50										
Malus pumila	Apple	Malaceae	E				. 015																		
Malva neglecta	Dwarf Mallow	Malvaceae			-																				
Marrubium spp.	DWGIT WIGHOW	Lamiaceae	E																						
Marrubium vulgare	White Horehound	Lamiaceae		-																					
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E																						
Medicago spp.	A Medic	Fabaceae (Faboideae)		-																					

				EXOTIC	atus	tatus	at Weed	Plot Number (right) BAM	29011	.901	2901	1902	29011	.903	30011	1901	30011	1902	3001:	1903	3001:	L904	30011	905	30011	906
ScientificName	Common Name	Family		Native / Exotic	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance																
Melichrus urceolatus	Urn Heath	Ericaceae	Ν	-	-			Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	Ν	-	-			Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	Ν	-	-			Grass & grasslike																		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-			_																		
Modiola spp.		Malvaceae	Е	-	-																					
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																					
Monoculus monstrosus		Asteraceae	E	-	-																					
Monotoca scoparia		Ericaceae		-	-			Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	E		-																					
Notothixos spp.		Viscaceae		-	_			Other																	أجرية	
Olearia spp.		Asteraceae	N		-			Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae		-					0.5	50			0.5	10												
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N		_			Fern	5.5	33			5.5	-3												
Orobanche spp.	Addel 3 Tollgue	Scrophulariaceae		-	_			Forb																		
Oxalis perennans		Oxalidaceae		-	-			Forb			0.1	20	0.5	0	0.1	10	0.1	50			0.1	50	0.1	100		
Oxalis spp.		Oxalidaceae		-	-			Forb			0.1	20	0.5	U	0.1	10	0.1	30			0.1	30	0.1	100		
Ozothamnus diosmifolius	White Dogwood	Asteraceae		-				Shrub																		
Panicum effusum	Hairy Panic	Poaceae		-				Grass & grasslike			0.1	5	0.1	100					1	300			0.5	50		
Paspalum dilatatum	Paspalum	Poaceae	E				HTE	Orass & grasslike			0.1		0.1	100						300	1		0.5	30		
Paspalum spp.	raspaidili	Poaceae		-				Grass & grasslike																		
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E					Class & glasslike																		
Pentaschistis airoides	False Hairgrass	Poaceae	E																							
Persicaria prostrata								Forh																		
<u>'</u>	Creeping Knotweed	Polygonaceae	N E		-			Forb																		
Petrorhagia spp.	Dhalaria	Caryophyllaceae	E																							
Phalaris aquatica	Phalaris	Poaceae																								
Phalaris minor	Lesser Canary Grass	Poaceae	E																							
Phalaris spp.	C D I	Poaceae		-				C 0																		
Phragmites australis	Common Reed	Poaceae		-				Grass & grasslike																		
Phragmites spp.	D. II. 4. D.	Poaceae		-				Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae	E		-			F - uh																		
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae		-				Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae		-							0.1	50	5	0												
Plantago spp.	Plantain	Plantaginaceae	N					Forb																		
Platylobium formosum		Fabaceae (Faboideae)		-				Shrub																		
Poa annua	Winter Grass	Poaceae	E																							
Poa induta		Poaceae		-				Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	Ν					Grass & grasslike	95	0							5	100			0.1	5			5	0
Poa meionectes		Poaceae		-				Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae		-				Grass & grasslike			20	0							0.1			0				
Poa spp.		Poaceae		-				Grass & grasslike											0.1	10						
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae		-																						
Polyscias sambucifolia	Elderberry Panax	Araliaceae		-				Shrub																		
Populus spp.		Salicaceae	N	-	-			Tree																		

			Exotic	atus	tatus	at Weed	Plot Number (<u>right</u>) BAM	29011	.901	29011	902	29011	.903	30011	.901	3001:	1902	30011	903	30011	904	30011	905	30011	906
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance																
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb																		
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern																		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub			0.5	10	1	25							0.1	10				
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	HTE				0.5	5			0.1	1					0.1	1				
Rosa spp.		Rosaceae	Е	-	-																				
Rubus fruticosus	Blackberry complex	Rosaceae	E	-	-					1	5	5	0					1	0	0.1	1	0.1	5		
Rubus parvifolius	Native Raspberry	Rosaceae	N	_	-		Shrub																		
Rumex acetosella	Sheep Sorrel	Polygonaceae	E	-	-																				
Rumex brownii	Swamp Dock	Polygonaceae		-	-		Forb																		
Rumex crispus	Curled Dock	Polygonaceae	E	-	-																				
Rumex spp.	Dock	Polygonaceae		-	-		Forb																		
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae		-	-		Grass & grasslike																		
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N	_	-		Grass & grasslike			0.5	50	15	0	5	0					5	0	10	0	5	0
Rytidosperma spp.	neddiffier Wallaby Grass	Poaceae	N	-	_		Grass & grasslike			0.5	30	10			Ū	1	100	10	0			10	J	3	
Salix fragilis	Crack Willow	Salicaceae	E	_	-		Grass & grassime									_	200								
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-	_		Grass & grasslike																		
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N	_	_		Forb																		
Scolymus hispanicus	Golden Thistle	Asteraceae	E	-	-		1010																		
Senecio diaschides	Golden Thistic	Asteraceae		_	-		Forb																		
Senecio gunnii		Asteraceae	N		_		Forb																		
Senecio prenanthoides		Asteraceae		-	_		Forb																		
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N	_	-		Forb																		
Senecio spp.	Fireweed	Asteraceae		-			Forb					0.1	10									0.5	100		
Setaria gracilis	cwccu	Poaceae	E		-		. 010					0.1	10									0.5	100		
Setaria pumila	Pale Pigeon Grass	Poaceae	E	-																					
Solanum nigrum	Black-berry Nightshade	Solanaceae	E	-	_																				
Solenogyne spp.	Stack Serry Highestiade	Asteraceae	N				Forb																		
Sonchus asper	Prickly Sowthistle	Asteraceae	E	-	_		1010																		
Sonchus spp.	Sowthistle	Asteraceae	N				Forb																		
Spergularia rubra	Sandspurry	Caryophyllaceae			-		. 010																		
Sporobolus caroli	Fairy Grass	Poaceae		-			Grass & grasslike																		
Sporobolus creber	Slender Rat's Tail Grass	Poaceae		-	-		Grass & grasslike																		
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae		-			Forb																		
Stellaria media	Common Chickweed	Caryophyllaceae	E				. 010																		
Stellaria pungens	Prickly Starwort	Caryophyllaceae		-	-		Forb																		
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae	N		-		Forb																		
Stynaiani granningonani	Grass Trigger plant	Ericaceae		-			Shrub																		

			Exotic	atus	tatus	at Weed	Plot Number (<u>right</u>) BAM	29011	901	2901 1	1902	29011	1903	30011	.901	30011	1902	30011	.903	30011	.904	30011	.905	30011	906
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike			5	0	5	C)											
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-																				
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb													0.1	20				
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Ε	-	-																				
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-																				
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb																		
Verbascum spp.		Scrophulariaceae	Е	-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica spp.		Plantaginaceae	N	-	-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е	-	-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)	Е	-	-																				
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb									0	200	0.1	5	0.1	200			0.1	0
Viola spp.		Violaceae	N	-	-		Forb																		
Vittadinia dissecta		Asteraceae	N	-	-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae		-	-		Forb									0.1	5								
Vulpia myuros	Rat's Tail Fescue	Poaceae	Е	-	-																				
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-	-		Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae			-		Forb					0.1	10)											
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae	N	-	-		Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb											0.1	5	0.1	5			0.1	5
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-	-		Forb																		
Wurmbea dioica	Early Nancy	Colchicaceae		-			Forb																		
Xerochrysum spp.		Asteraceae		-			Forb									0.1	200								
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-			Shrub																		

			Exotic	tus	atus	it Weed	Plot Number (right) BAM	30011	.907	3101	1901	31011	.903	31011	904	3101	1905	MAC)1	MAC0	2	MAC0	3	MAC04	4
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree	5	0					0.5	10	0.1	. 5	5							
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																	10	0
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)		-	-		Tree																		
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)		-	-		Shrub																		
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb					5	0	5	0										
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	_	-		Forb	0.1	1000			5	0												
Acaena ovina	Acaena	Rosaceae	N	-	-		Forb	0.1	1000				J												
Acaena spp.	Sheep's Burr	Rosaceae	N	_	-		Forb			5															
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	-	HTE																0.1	50		
Acrotriche serrulata	Honeypots	Ericaceae	N	_			Shrub															0.1	50		
Acrotriche spp.	Попсурова	Ericaceae	N		_		Shrub																		
Aira cupaniana	Silvery Hairgrass	Poaceae		_	-		Siliub																		
Alternanthera angustifolia	Silvery Hairgrass	Amaranthaceae	N	-	-		Forb																		
Amperea xiphoclada		Euphorbiaceae	N	_	_		Shrub																		
Amyema miquelii	Box Mistletoe	Loranthaceae	N				Other																		
Amyema pendula	BOX WISCIECOE	Loranthaceae		-	_		Other																		
Amyema spp.	Mistletoe	Loranthaceae	N	-	_		Other											0.5							
	Scarlet Pimpernel	Primulaceae					Other			0	300							0.5	3						
Anagallis arvensis Anthosachne scabra				-	-		Grass & grasslike			U	300														
	Common Wheatgrass	Poaceae		-			Grass & grasslike																		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	-																				
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-																					
Arctotheca calendula	Capeweed	Asteraceae	E	-	-		Cross 9 crosslike					0.1	10			20								1	10
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike					0.1	10			20	U							1	10
Aristida spp.	A Wiregrass	Poaceae		-	_		Grass & grasslike					_	_												
Aristida vagans	Threeawn Speargrass	Poaceae		-			Grass & grasslike					5	0												
Asperula conferta	Common Woodruff	Rubiaceae		-			Forb																		
Asperula scoparia	Prickly Woodruff	Rubiaceae	N	-	-		Forb					0.5	500												
Asperula spp.	Woodruff	Rubiaceae		-			Forb																		
Asphodelus fistulosus	Onion Weed	Asphodelaceae	E	-	-											0.1									
Astroloma humifusum	Native Cranberry	Ericaceae	N	-	-		Shrub									1	. 0								
Austrodanthonia spp.		Poaceae	N	-			Grass & grasslike																		
Austrostipa nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike																		
Austrostipa scabra	Speargrass	Poaceae		-			Grass & grasslike	1	50					0.1	20										
Austrostipa spp.	A Speargrass	Poaceae	N		-		Grass & grasslike																		
Avena barbata	Bearded Oats	Poaceae	E	-	-															5	0			0.1	100

			Exotic	tus	atus	t Weed	Plot Number (right) BAM	30011	1907	3101:	1901	31011	1903	3101:	1904	3101	1905	MAC	01	MAC)2	MAC	3	MAC0	4
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.		Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike											9	5 0	5	0			10	0
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub										5 0)							
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	_		Forb									_	, ,								
Brachyscome spp.	Truit y Cuticut Buisy	Asteraceae	N		-		Forb																		
Brassica oleracea	Collards	Brassicaceae	E		-		1015																		
Brassica spp.	Brassica	Brassicaceae	E	-																					
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E			НТЕ												9	5 0	10	0	0.5	50		
Bromus catharticus	Praire Grass	Poaceae	E			1111	-											_	, (10	U	0.5	30		
Bromus diandrus	Great Brome	Poaceae	E			НТЕ																			
Bromus hordeaceus	Soft Brome	Poaceae	E	-		1111																			
Bulbine bulbosa			N				Forb																		
	Bulbine Lily	Asphodelaceae	N	-			Shrub					0.1	1			0.1	1								
Bursaria spinosa	Native Blackthorn	Pittosporaceae		-	-							0.1	1			0.1		-							
Caesia spp.	Cuina a a a Dathlah mak	Anthericaceae	N	-	-		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	-	-		Shrub																		
Calotis Iappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb																		
Calotis spp.	A Burr-daisy	Asteraceae	N		-		Forb																		
Carex appressa	Tall Sedge	Cyperaceae	N		-		Grass & grasslike																		
Carex bichenoviana		Cyperaceae	N		-		Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae		-			Grass & grasslike																		
Carex gaudichaudiana		Cyperaceae	N	-			Grass & grasslike																		
Carex spp.		Cyperaceae		-	-		Grass & grasslike																		
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub									1	. 5	5							
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub																		
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub							0.1	. 2	2									
Cassinia longifolia		Asteraceae	N	-	-		Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub																		
Cassinia spp.		Asteraceae	N	-	-		Shrub																		
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree															5	1		
Centaurium spp.		Gentianaceae	Е	-	-																				
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern									0.1	50)						0.1	10
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-																				
Chloris spp.		Poaceae	N	-	-		Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

				EXOLIC	totile	at Weed	Plot Number (<u>right</u>) BAM	30011	L907	3101	1901	31011	L903	31011	L904	31011	.905	MAC0	1	MAC0	2	MAC0	3	MAC04	1
ScientificName	Common Name	Family		Native / EXC	FDRC etatio	High Threat We	growth form (<u>below</u>)	Cover	Abundance																
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb									0.1	30	0.1	20						
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb					0.1	5	i											
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																				
Conyza spp.	A Fleabane	Asteraceae	Е	-	-																				
Coronidium elatum		Asteraceae		-	_		Shrub																		
Coronidium rutidolepis		Asteraceae	N		-																				
Coronidium scorpioides	Button Everlasting	Asteraceae		-	-		Forb																		
Coronidium spp.	Dutton Everidating	Asteraceae	N		-		Forb																		
Cotoneaster spp.		Malaceae	E			НТ																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae		-		111	Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E			НТ																			
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E		_	111	-																		
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N				Forb																		
	Bear's Ear	Asteraceae	N				Forb																		
Cymbonotus lawsonianus	Austral Bear's Ear			-	-		Forb																		
Cymbonotus preissianus		Asteraceae																						1	200
Cynodon dactylon	Common Couch	Poaceae	N		-		Grass & grasslike																	1	300
Cynodon spp.	Co. the Africa of Co. of	Poaceae		-	-		Grass & grasslike																		
Cynodon transvaalensis	South African Couch	Poaceae	E		-																				
Cyperus brevifolius		Cyperaceae		-	-		_																		
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	E		-	HT																			
Cyperus Ihotskyanus		Cyperaceae	N		-		Grass & grasslike																		
Cyperus spp.		Cyperaceae		-	-		Grass & grasslike																		
Cytisus scoparius	English Broom	Fabaceae (Faboideae)		-	-	HT																			
Dactylis glomerata	Cocksfoot	Poaceae		-				1	100	5	5 0) 1	C												
Daucus glochidiatus	Native Carrot	Apiaceae	N		-		Forb																		
Daviesia corymbosa		Fabaceae (Faboideae)		-			Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-	-		Shrub																		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N		-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-	-		Other	0	0																
Dianella longifolia	Blueberry Lily	Phormiaceae	N		-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb									1	50								
Dianella spp.		Phormiaceae	N	-	-		Forb																		
Dichanthium spp.		Poaceae	N	-	-		Grass & grasslike																		
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb					5	C												
Dichopogon spp.	Chocolate Lily	Anthericaceae	N	-	-		Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae	N	-	-		Grass & grasslike																		

ScientificName			Exotic	tus	atus	at Weed	Plot Number (<u>right</u>) BAM	30011	1907	31011	1901	31011	1903	31011	.904	31011	1905	MAC0	1	MAC0	2	MACO:	3	MAC04	4
	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub									0.5	20								
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	Ν	-	-		Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dipsacus spp.		Dipsacaceae	Е	-	-																				
Drosera spp.		Droseraceae	N	-	-		Forb																		
	Small Crumbweed	Chenopodiaceae	N	-	-		Forb																		
Dysphania spp.		Chenopodiaceae	N	-	-		Forb																	الكيا	
	Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike																		
	Patterson's Curse	Boraginaceae	Е	-	-		Ü											0.5	20	0.3	50				
Echium spp.		Boraginaceae	Е	-	-							0.1	20	1	100										
	Viper's Bugloss	Boraginaceae	Е	-	-																				
_	Berry Saltbush	Chenopodiaceae	N	-	-		Forb																		
	Climbing Saltbush	Chenopodiaceae	N	_	_		Forb																		
	Knotweed Goosefoot	Chenopodiaceae	N	-	-		Forb																		
Eleocharis acuta	Imperioral decisions	Cyperaceae	N	-	_		Grass & grasslike																		
	Goose Grass	Poaceae	E	-	_		Grass & Brassine																		
	Common Wheatgrass	Poaceae	N	-	_		Grass & grasslike																		
•	Niggerheads	Poaceae	N	-	-		Grass & grasslike																		
	Curly Windmill Grass	Poaceae	N	-	_		Grass & grasslike																		
Epacris spp.	carry willamin Grass	Ericaceae	N	_	_		Shrub																		
Epilobium spp.		Onagraceae	N				Forb																		
	Stinkgrass	Poaceae	E	-	-		1010																		
	African Lovegrass	Poaceae		_		HTE																			
	Paddock Lovegrass	Poaceae	N	-	_		Grass & grasslike													0.5	50				
, ,	Weeping Lovegrass	Poaceae		-			Grass & grasslike													0.5	30				
	A Lovegrass	Poaceae	N	-	-		Grass & grasslike																		
	Long Storksbill	Geraniaceae		-			Olass & glasslike																	0.1	5
·	Common Crowfoot	Geraniaceae	E		-													10	0					0.1	J
	Blue Crowfoot	Geraniaceae	N	-	-		Forb											10	U						
Erodium malacoides	Bide crowioot	Geraniaceae	E	+	-		1010																		
	Crowfoot	Geraniaceae	N		_		Forb																		
	Blakely's Red Gum	Myrtaceae	N	-	-		Tree																		
	Apple Box	Myrtaceae	N		-		Tree											30	0						
	Capertee Stringybark	Myrtaceae	N	V	_		Tree											30	U						
	Mountain Gum	Myrtaceae	N	-	_		Tree																		
	Broad-leaved Peppermint	Myrtaceae	N				Tree																		
	Brown Barrel	Myrtaceae	N				Tree																		
					-																				
	Bundy Bod Stringshark	Myrtaceae	N	-			Tree																		
	Red Stringybark	Myrtaceae	N	-	-		Tree																		
	Brittle Gum Yellow Box	Myrtaceae Myrtaceae	N	-	-		Tree Tree																		

				EXOTIC	Snor	tatus	at Weed	Plot Number (right) BAM	30011	.907	3101	1901	310:	L1903	3101	1904	3101	1905	MAC	01	MACO)2	MAC0	3	MAC0	4
ScientificName	Common Name	Family		Native / Exotic	bc status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance																
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-			Tree	25	(0 .	_	0 2	5 () 20) ()									
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-			Tree							30) ()									
Eucalyptus spp.		Myrtaceae	N	-	-			Tree				1	4 2	5 ()		5	6 0)							
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-			Tree						5 ()											
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-			Tree																		
Euchiton japonicus		Asteraceae	N	-	-			Forb																		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-			Forb																		
Euchiton spp.	A Cudweed	Asteraceae	N	-	-			Forb																		
Euphorbia dallachyana		Euphorbiaceae	N		-		_	Forb																		
Euphorbia drummondii	Caustic Weed	Euphorbiaceae		-	-			Forb																		
Euphorbia spp.		Euphorbiaceae	N		-		_	Forb																		
Exocarpos cupressiformis	Cherry Ballart	Santalaceae		-	_			Shrub																		
Exocarpos strictus	Dwarf Cherry	Santalaceae	N		-			Shrub																		
Foeniculum vulgare	Fennel	Apiaceae	E		_																					
Galium murale	Small Bedstraw	Rubiaceae	E		-																					
Gamochaeta calviceps	Cudweed	Asteraceae	E		_																					
Geranium graniticola	caureca	Geraniaceae	N		_			Forb																		
Geranium molle	Cranesbill Geranium	Geraniaceae	E		-			1015																		
Geranium solanderi	Native Geranium	Geraniaceae	N					Forb			0.	1 5	0	5 ()											
Geranium spp.	Native Geramani	Geraniaceae		-				Forb			0.		· ·	J (
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)		-	_			Other																		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-				Other																		
Gonocarpus humilis	Sitiali-lear diyetile	Haloragaceae	N					Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae		-				Forb																		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		-			Forb																		
	· ·				_			Forb																		
Gonocarpus teucrioides Goodenia hederacea	Germander Raspwort Ivy Goodenia	Haloragaceae Goodeniaceae					_										0.1	20	`							
	ivy Goodenia			-				Forb									0.1	. 30	,							
Goodenia spp.	Variable Despusant	Goodeniaceae			-		_	Forb																		
Haloragis heterophylla	Variable Raspwort	Haloragaceae		-	-			Forb																		
Haloragis spp.	A Raspwort	Haloragaceae	N		-			Forb																		
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)		-				Other																		
Helichrysum leucopsideum	Satin Everlasting	Asteraceae		-	-		_	Forb																		
Helichrysum spp.		Asteraceae		-	-			Forb																		
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae		-	-	H	ITE	Cl I											-							
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N		-			Shrub									0.1	. 5)							
Holcus lanatus	Yorkshire Fog	Poaceae		-																						
Hordeum leporinum	Barley Grass	Poaceae	E		-																					
Hovea heterophylla		Fabaceae (Faboideae)		-				Forb																		
Hovea spp.		Fabaceae (Faboideae)		-				Forb																		
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae		-	-		_	Forb																		
Hydrocotyle sibthorpioides		Apiaceae		-	-			Forb																		
Hydrocotyle spp.		Apiaceae	N		-			Forb																		
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-			Forb																		

					tatus	at Weed	Plot Number (right) BAM	30011	1907	31011	1901	31011	.903	31011	.904	31011	905	MAC0)1	MAC0	2	MAC0	3	MAC04	4
ScientificName	Common Name	Family		BC ctatio	EPBC status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance														
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	НТ	E	0.1		0.1		0.1	50	0.1	100			0.1	-					0.5	100
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	500	5	0	0.5	500	0.1	20	0.1	10							5	0
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																				
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	_	_		Forb									0.1	100								
Isolepis hookeriana		Cyperaceae	N		-		Grass & grasslike									0.2									
Joycea pallida	Redanther Wallaby Grass	Poaceae	N		_		Grass & grasslike																		
Juncus effusus	Reduitifier Wallaby Grass	Juncaceae	E		_		Grass & Brassine																		
Juncus gregiflorus		Juncaceae	N		_		Grass & grasslike																		
Juncus gregijiorus Juncus homalocaulis		Juncaceae	N				Grass & grasslike																		
	A Rush	Juncaceae		-			Grass & grasslike															0.1	5		
Juncus spp. Lactuca serriola		Asteraceae	E				Grass & grasslike													70	0				
	Prickly Lettuce			-			Forb													70	U	0.5	100		
Lagenifera spp.	Caldantan	Asteraceae		-	-		FOID																		
Lamarckia aurea	Goldentop	Poaceae	E		-																				
Lepidium africanum	Common Peppercress	Brassicaceae	E		-		E. J.																		
Lepidium spp.	A Peppercress	Brassicaceae	N		-		Forb																		
Leptospermum myrtifolium		Myrtaceae	N		-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N		-		Shrub																		
Leucopogon appressus		Ericaceae	N		-		Shrub																		
Leucopogon fletcheri		Ericaceae	N		-		Shrub																		
Leucopogon virgatus		Ericaceae	N		-		Shrub									0.1	1								
Linum marginale	Native Flax	Linaceae	N		-		Forb																		
Lissanthe spp.		Ericaceae		-	-		Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E		-																				
Lomandra cylindrica		Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N		-		Grass & grasslike	0.1						0.1	5	0.5	50								
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae	N	-	-		Grass & grasslike	0.1	. 10																
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-	-		Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.		Juncaceae	N	-	-		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	Е	-	-	HT	E																		
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	Е	-	-																				
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N	-	-		Forb																		
Malus pumila	Apple	Malaceae	Е	-	-																			25	0
Malva neglecta	Dwarf Mallow	Malvaceae	Е		-																			الكيا	
Marrubium spp.		Lamiaceae	Е	-	-																				
Marrubium vulgare	White Horehound	Lamiaceae		-	-																	0.1	3	الكرية	
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-	-																				
Medicago spp.	A Medic	Fabaceae (Faboideae)		-																				الكرية	

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	30011	.907	31011	1901	31011	1903	31011	904	31011	1905	MAC	01	MACC	2	MAC0	В	MAC04	4
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		Shrub									1	. 20)							
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike																		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																				
Modiola spp.		Malvaceae	Е	-	-																				
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																				
Monoculus monstrosus		Asteraceae	Е	-	-																				
Monotoca scoparia		Ericaceae	N	-	-		Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	E	-	-																				
Notothixos spp.		Viscaceae	N	-	-		Other																		
Olearia spp.		Asteraceae	N	1_	-		Shrub									0.5	20)							
Onopordum acanthium	Scotch Thistle	Asteraceae	E	-	_		5111 0.5									0.5				1	50	0.1	5		
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N	-			Fern													_	50	0.1	J		
Orobanche spp.	Adder 3 rongue	Scrophulariaceae	N	-	_		Forb																		
Oxalis perennans		Oxalidaceae	N	-	-		Forb	0.1	100	0.5	300	0.5	1000	0.1	50	1									
Oxalis spp.		Oxalidaceae	N	-	-		Forb	0.1	100	0.5	300	0.5	1000	0.1	30	<u>'</u>									
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		-		Shrub																		
•	-		N		-									0.1	5									1	
Panicum effusum	Hairy Panic	Poaceae		-	-	LITE	Grass & grasslike							0.1	3)								1	5
Paspalum dilatatum	Paspalum	Poaceae	E N	-	-	HTE								1	100										
Paspalum spp.	V:1 C	Poaceae		-	-		Grass & grasslike							T	100	,									
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E	-	-																				
Pentaschistis airoides	False Hairgrass	Poaceae	E	-	-		_																		
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N	-	-		Forb																		
Petrorhagia spp.		Caryophyllaceae		-																	_				
Phalaris aquatica	Phalaris	Poaceae	Е	-	-															20	0	20	0		
Phalaris minor	Lesser Canary Grass	Poaceae		-	-																				
Phalaris spp.		Poaceae	Е	-	-									1	100)									
Phragmites australis	Common Reed	Poaceae		-	-		Grass & grasslike																		
Phragmites spp.		Poaceae	N	-	-		Grass & grasslike															5	0		
Pinus radiata	Radiata Pine	Pinaceae	E	-	-																				
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae		-	-		Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae	Ε	-	-													Ę	5 0						
Plantago spp.	Plantain	Plantaginaceae	N	-	-		Forb	0	0	60	0	5	0	5	500)								5	0
Platylobium formosum		Fabaceae (Faboideae)	N	-	-		Shrub																		
Poa annua	Winter Grass	Poaceae	E	-	-																				
Poa induta		Poaceae	N	-	-		Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	N	-	-		Grass & grasslike			5	0	5	0									40	0		
Poa meionectes		Poaceae	N	-	-		Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae	N		-		Grass & grasslike			25	4	5	0	5	C	10	0)							
Poa spp.		Poaceae		-	-		Grass & grasslike																		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae	E	-																					
Polyscias sambucifolia	Elderberry Panax	Araliaceae		-			Shrub																		
Populus spp.	2.20.20	Salicaceae		-			Tree			5	0														

			Exotic	tus	tatus	at Weed	Plot Number (<u>right</u>) BAM	30011	907	31011	901	31011	.903	31011	904	31011	.905	МАС0	1	MAC02	2	MAC03		MAC04	
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Poranthera microphylla Sm	mall Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea Pig	igweed	Portulacaceae	N	-	-		Forb																		
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum Jei	ersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum Bra	racken	Dennstaedtiaceae	N	-	-		Fern																		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
• •	Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
	weet Briar	Rosaceae	Е	-	-	HTE				0.1	5	0.5	5	0.1	1					0.1	2				
Rosa spp.		Rosaceae	Е	-	-																				
	lackberry complex	Rosaceae	E	-	-			10	0	5	0	5	0	0.5	1										
-	ative Raspberry	Rosaceae	N	-	-		Shrub					1	5		_								التي	التي	
	heep Sorrel	Polygonaceae	E	-	-							0.1	50												
	wamp Dock	Polygonaceae	N	-	-		Forb																		
	urled Dock	Polygonaceae	E	-	-																	0.1	10		
	ock	Polygonaceae	N	-	-		Forb															0.1			
	inged Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
	ong-leaved Wallaby Grass	Poaceae	N	-	_		Grass & grasslike																		
	Iountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
•	edanther Wallaby Grass	Poaceae	N	-	_		Grass & grasslike	10	0					5	0									1	100
Rytidosperma spp.	edurities wandby Grass	Poaceae	N	_	-		Grass & grasslike	10	U					J	J										100
	rack Willow	Salicaceae	E	-	-		Cruss & Brussinic																		
	luke Bogrush	Cyperaceae	N	_	-		Grass & grasslike																		
	wo-flowered Knawel	Caryophyllaceae	N	_	_		Forb																		
	olden Thistle	Asteraceae	E	-	-		1010			0.1	30											0.1	5		
Senecio diaschides	olden mistic	Asteraceae	N		_		Forb			0.1	30											0.1			
Senecio gunnii		Asteraceae	N		_		Forb																		
Senecio gamm Senecio prenanthoides		Asteraceae		-			Forb																		
	otton Fireweed	Asteraceae	N	_	-		Forb																		
	reweed	Asteraceae	N		_		Forb							0.1	5										
Setaria gracilis	reweed	Poaceae	E		-		1010							0.1	,										
_	ale Pigeon Grass	Poaceae		-	_																				
	lack-berry Nightshade	Solanaceae	E	-	-																				
Solenogyne spp.	iack-berry ivigittshade	Asteraceae	N				Forb																		
	rickly Sowthistle	Asteraceae	E	-			1015																		
	owthistle	Asteraceae	N				Forb																		
	andspurry	Caryophyllaceae			-		1015																		
	airy Grass	Poaceae		-			Grass & grasslike																		
-	lender Rat's Tail Grass	Poaceae	N		-		Grass & grasslike																		
	ender Stackhousia	Stackhousiaceae		-			Forb																		
	ommon Chickweed		E				1010																		
		Caryophyllaceae	N	-			Forh																		
	rickly Starwort	Caryophyllaceae			-		Forb																		
Stylidium graminifolium Gr Styphelia spp.	rass Triggerplant	Stylidiaceae Ericaceae	N	-	-		Forb Shrub																		

			r, to ti	atus	tatus	at Weed	Plot Number (right) BAM	30011	1907	31011	.901	31011	1903	31011	904	31011	1905	MAC	01	MAC	02	MACC	3	MAC04	4
ScientificName	Common Name	Family	Native / Evotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub									0.1	5								
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike							0.1	5	40	0								
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-																				
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-					5	0	1	500)											
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-																				
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb																		
Verbascum spp.	5 5	Scrophulariaceae	Е	-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-													0.1	. 1						
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica spp.	5 1	Plantaginaceae	N	-	-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е	-	-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)	E	-	-																				
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb																		
Viola spp.	1001010101	Violaceae	N	_	-		Forb																		
Vittadinia dissecta		Asteraceae	N	-	-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae		-	-		Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	Е	-	-																				
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-	-		Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae	N		-		Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae		-	-		Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb																	0.1	10
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-	-		Forb																	3.1	
Wurmbea dioica	Early Nancy	Colchicaceae	N		_		Forb																		
Xerochrysum spp.	23.17 113.137	Asteraceae	N		-		Forb																		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae			-		Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-	_		Shrub																		

			Exotic	tus	atus	it Weed	Plot Number (<u>right</u>) BAM	MAC0	5	MAC0	7	MAC0	8	MAC0	9	MAC1	10	MAC1	1	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree																		
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub	5	0	10	0														
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub					5	0	1	C)									
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub			0.1	1														
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)	N	-	-		Tree																		
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
	Sheep's Burr	Rosaceae	N	-	-		Forb																		
	Bidgee-widgee	Rosaceae	N	_	-		Forb					0.1	300	0.1	100)									
	Acaena	Rosaceae	N	-	_		Forb																		
	Sheep's Burr	Rosaceae	N	_	-		Forb																		
	Sheep Sorrel	Polygonaceae	E	_	_	HTE														0.5	0				
	Honeypots	Ericaceae	N	_	_		Shrub	0.5	50	3	2	0.1	10	1	70)				0.1	5				
Acrotriche spp.	none, poes	Ericaceae	N	_	-		Shrub	0.0	30		_	0.1	10	_	, 0					0.1	J				
	Silvery Hairgrass	Poaceae	E	_	_		3111 415																		
Alternanthera angustifolia	ontery mangrass	Amaranthaceae	N	_	-		Forb																		
Amperea xiphoclada		Euphorbiaceae		-	_		Shrub																		
	Box Mistletoe	Loranthaceae	N	_	_		Other	5	0	5	0											0.5	1		
Amyema pendula	BOX WISHCLOC	Loranthaceae		_	_		Other	3	U	3	U											0.5			
	Mistletoe	Loranthaceae	N	_	_		Other																	5	0
	Scarlet Pimpernel	Primulaceae		_	_		Other																	,	U
_	Common Wheatgrass	Poaceae		-	-		Grass & grasslike																		
	Sweet Vernal Grass	Poaceae			_		Class & glasslike																		
	Vernal Grass	Poaceae																							
• •	Capeweed	Asteraceae	E	-	_																			25	0
	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike																	23	U
	A Wiregrass	Poaceae	N				Grass & grasslike																		
	Threeawn Speargrass	Poaceae		-			Grass & grasslike																		
_	Common Woodruff	Rubiaceae	N		-		Forb																		
	Prickly Woodruff	Rubiaceae	N	_	_		Forb																		
	Woodruff	Rubiaceae			-		Forb																		
	Onion Weed	Asphodelaceae	E	-	_		1010																		
-			N				Shrub																		
-	Native Cranberry	Ericaceae			-																				
Austrodanthonia spp.	A Chaprarass	Poaceae		-			Grass & grasslike																		
	A Speargrass	Poaceae	N		-		Grass & grasslike															4.0	^		
	Speargrass	Poaceae		-			Grass & grasslike															10	U		
	A Speargrass Bearded Oats	Poaceae Poaceae	N E		-		Grass & grasslike																		

			Exotic	tus	atus	t Weed	Plot Number (right) BAM	MAC0)5	MACC)7	MAC	08	MACC)9	MAC1	10	MAC1	1	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Avena fatua	Wild Oats	Poaceae	Е	-	-																	1	30		
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.	i i i	Blechnaceae	N	-	-		Fern											0.1	5						
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike															2	50		
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub	0.5	5	5	()													
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	-		Forb	3.3		J															
Brachyscome spp.	Trail y Catical Bally	Asteraceae	N		_		Forb																		
Brassica oleracea	Collards	Brassicaceae	E	-	-		1015																		
Brassica spp.	Brassica	Brassicaceae	E	-	_																			5	0
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E			НТЕ	-															0.1	10	J	
Bromus catharticus	Praire Grass	Poaceae	E	-	_		-															0.1	10		
Bromus diandrus	Great Brome	Poaceae	E			НТЕ	-																		
Bromus hordeaceus	Soft Brome	Poaceae	E	-		1111	-																		
Bulbine bulbosa	Bulbine Lily	Asphodelaceae	N				Forb																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	-	_		Shrub																		
	Native Blackthorn	Anthericaceae	N		_		Forb															0.05	3		
Caesia spp. Callistemon citrinus	Crimson Bottlebrush			-	_																	0.05	3		
		Myrtaceae	N	-	-		Shrub																		
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb																		
Calotis spp.	A Burr-daisy	Asteraceae	N N		-													20	0						
Carex appressa	Tall Sedge	Cyperaceae					Grass & grasslike											30	0						
Carex bichenoviana	Tanal Cadaa	Cyperaceae	N		-		Grass & grasslike											0.1	20						
Carex fascicularis	Tassel Sedge	Cyperaceae			-		Grass & grasslike											0.1	20						
Carex gaudichaudiana		Cyperaceae	N	-			Grass & grasslike																		
Carex spp.	- " - "	Cyperaceae			-		Grass & grasslike													- 4					
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub	10				1	3							0.1	3				
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub	10	0	35	()													
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub																		
Cassinia longifolia		Asteraceae	N	-	-		Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub																		
Cassinia spp.		Asteraceae	N	-	-		Shrub							0.1	1	L									
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree																		
Centaurium spp.		Gentianaceae		-	-																				
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae		-	-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	E	-	-																				
Chloris spp.		Poaceae	N	-	-		Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

				4116	24110	at Weed	Plot Number (right) BAM	MAC0	5	MACC)7	MAC0	8	MAC0	9	MAC1	LO	MAC1	.1	MAC1	2	MAC1	3	MAC6!	5
ScientificName	Common Name	Family		RC ctatus	EDBC status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance										
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb					0.5	50	1	10					0.1	5				
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae		-	-																				
Conyza spp.	A Fleabane	Asteraceae	E	-	-															0.1	50				
Coronidium elatum		Asteraceae	N	-	-		Shrub													, <u> </u>	50				
Coronidium rutidolepis		Asteraceae	N		-		3																		
Coronidium scorpioides	Button Everlasting	Asteraceae		-	_		Forb																		
Coronidium spp.	Datton Evendoning	Asteraceae	N				Forb																		
Cotoneaster spp.		Malaceae	E			НТ																1	1		
Crassula sieberiana	Australian Stonecrop	Crassulaceae		-		111	Forb															-	-		
Crataegus monogyna	Hawthorn	Malaceae	E			НТ																			
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E			111	-																		
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N				Forb																		
	Bear's Ear	Asteraceae	N				Forb																		
Cymbonotus lawsonianus	Austral Bear's Ear			-	-		Forb																		
Cymbonotus preissianus		Asteraceae																				10	0		
Cynodon dactylon	Common Couch	Poaceae	N		-		Grass & grasslike															10	0		
Cynodon spp.	Co. the Africa of Co. of	Poaceae		-	-		Grass & grasslike																		
Cynodon transvaalensis	South African Couch	Poaceae	E	-	-																				
Cyperus brevifolius		Cyperaceae		-	-		-																		
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	E		-	HT																			
Cyperus Ihotskyanus		Cyperaceae		-	-		Grass & grasslike																		
Cyperus spp.		Cyperaceae		-	-		Grass & grasslike																		
Cytisus scoparius	English Broom	Fabaceae (Faboideae)		-	-	HT						5	0							5	0				
Dactylis glomerata	Cocksfoot	Poaceae		-																					
Daucus glochidiatus	Native Carrot	Apiaceae		-	-		Forb																		
Daviesia corymbosa		Fabaceae (Faboideae)		-			Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-	-		Shrub																		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N		-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-	-		Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N		-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb	0.5	50	0.5	50														
Dianella spp.		Phormiaceae	N	-	-		Forb																		
Dichanthium spp.		Poaceae	N	-	-		Grass & grasslike																		
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb					0.1	200	5	0										
Dichopogon spp.	Chocolate Lily	Anthericaceae	N	-	-		Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae		-	-		Grass & grasslike																		

			1	410	atus	at Weed	Plot Number (right) BAM	MAC0	5	MACC	7	MAC0)8	MAC)9	MAC:	10	MAG	C11	MAC	12	MAC1	3	MAC6!	5
ScientificName	Common Name	Family	Cito. P. Cito.	RC ctatus	FDRC status	High Threat We	growth form (below)	Cover	Abundance																
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub			0.1	2														
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dipsacus spp.	,	Dipsacaceae	Е	-	-																				
Drosera spp.		Droseraceae	N	-	-		Forb																		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N		-		Forb																		
Dysphania spp.		Chenopodiaceae	N				Forb																		
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N	-			Grass & grasslike																		
Echium plantagineum	Patterson's Curse	Boraginaceae	E				STUSS & BTUSSTIKE															0.1	5		
Echium spp.	ratterson's curse	Boraginaceae	E																			0.1	3		
Echium vulgare	Viper's Bugloss	Boraginaceae	E																						
_							Faula .															2	1.5		
Einadia hastata	Berry Saltbush	Chenopodiaceae	N		-		Forb															2	15		
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	-		Forb															5	50		
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N		-		Forb																		
Eleocharis acuta		Cyperaceae		-	-		Grass & grasslike											1	5	0					
Eleusine tristachya	Goose Grass	Poaceae	E	-	-																				
Elymus scaber	Common Wheatgrass	Poaceae	N		-		Grass & grasslike																		
Enneapogon nigricans	Niggerheads	Poaceae	N	-	-		Grass & grasslike																		
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		
Epacris spp.		Ericaceae	N	-	-		Shrub																		
Epilobium spp.		Onagraceae	N	-	-		Forb																		
Eragrostis cilianensis	Stinkgrass	Poaceae	Е	-	-																				
Eragrostis curvula	African Lovegrass	Poaceae	Е	-	-	HT	Ε																		
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	-		Grass & grasslike															0.1	1		
Eragrostis parviflora	Weeping Lovegrass	Poaceae	N	-	-		Grass & grasslike															0.5	10		
Eragrostis spp.	A Lovegrass	Poaceae	N		-		Grass & grasslike	10	0																
Erodium botrys	Long Storksbill	Geraniaceae		-	-																				
Erodium cicutarium	Common Crowfoot	Geraniaceae	E	-	-			5	0													10	0		
Erodium crinitum	Blue Crowfoot	Geraniaceae		-	-		Forb																		
Erodium malacoides		Geraniaceae	E	-	-																	0.5	25		
Erodium spp.	Crowfoot	Geraniaceae	N		_		Forb															0.5			
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N		-		Tree																		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N				Tree																	25	0
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N				Tree																	23	3
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae		- -			Tree																		
												25	0	\											
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N		-		Tree					25	U	,											
Eucalyptus fastigata	Brown Barrel	Myrtaceae	N		-		Tree	F.0																	
Eucalyptus goniocalyx	Bundy	Myrtaceae	N				Tree	50	0	55	0														
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae		-	-		Tree																		
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree	5	0	40	0	50	0) 5	C										
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		Tree															15	0	25	0

			:	Exotic	ıtus	tatus	at Weed	Plot Number (<u>right</u>) BAM	MAC0	5	MAC	07	MAC	08	MACO	9	MAC	10	MAC	11	MAC1	.2	MAC1	3	MAC6	5
ScientificName	Common Name	Family		Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-			Tree																		
Eucalyptus spp.		Myrtaceae	N	-	-			Tree	15	0																
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-			Tree																		
Euchiton japonicus		Asteraceae	N	-	-			Forb			0.1	. 30	0													
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-			Forb																		
Euchiton spp.	A Cudweed	Asteraceae	N	-	-			Forb																	1	
Euphorbia dallachyana		Euphorbiaceae	N	-	-			Forb																		
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N	-	_			Forb																	1	
Euphorbia spp.		Euphorbiaceae	N	-	_			Forb																		
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	_			Shrub																	,	
Exocarpos strictus	Dwarf Cherry	Santalaceae	N		_			Shrub																		
Foeniculum vulgare	Fennel	Apiaceae	Е		_																					
Galium murale	Small Bedstraw	Rubiaceae	E																							
Gamochaeta calviceps	Cudweed	Asteraceae	E		_																					
Geranium graniticola		Geraniaceae	N					Forb	0.1	10	0.1		1 0.5	5 50	0.1	100)									
Geranium molle	Cranesbill Geranium	Geraniaceae	E		_																				, ,	
Geranium solanderi	Native Geranium	Geraniaceae	N					Forb																		
Geranium spp.	rative deramani	Geraniaceae		-	_			Forb																		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N					Other																		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-				Other																		
Gonocarpus humilis	Silian real Ciyeme	Haloragaceae	N					Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae	N		_			Forb																	1	
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N					Forb																		
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N					Forb																	1	
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-			Forb																		
Goodenia spp.	ivy doddeilid	Goodeniaceae	N					Forb																	, I	
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N					Forb																		
Haloragis spp.	A Raspwort	Haloragaceae	N					Forb																		
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N					Other																		
Helichrysum leucopsideum	Satin Everlasting	Asteraceae	N		-			Forb																	,	
Helichrysum spp.	Satir Everiasting	Asteraceae	N					Forb																		
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae		-			HTE	1010																	,	
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N					Shrub							0.1	-										
Holcus lanatus	Yorkshire Fog	Poaceae		-				Siliub							0.1	-									,	
Hordeum leporinum	Barley Grass	Poaceae	E																							
Hovea heterophylla	Dariey Grass	Fabaceae (Faboideae)	N					Forb																		
Hovea spp.		Fabaceae (Faboideae)	N					Forb																		
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae (Faboldeae)	N					Forb																		
Hydrocotyle sibthorpioides	Stillking Fellilywort	Apiaceae	N					Forb											70							
			N					Forb											70	U						
Hydrocotyle spp. Hypericum gramineum	Small St John's Wort	Apiaceae Clusiaceae			-			Forb																		

			Evotic	tus	atus	t Weed	Plot Number (right) BAM	MAC0)5	MACO)7	MAC0	8	MAC0	9	MAC:	10	MAC1	11	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family	Native / Evotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	НТЕ														0.1	50				
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-							0.1	100	0.1	50)								0.1	100
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																				
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	_	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike					20	0												
Juncus effusus	nedament transp, crass	Juncaceae	E	_	-		Cruso et grusomie											5	0						
Juncus gregiflorus		Juncaceae	N	_	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N		_		Grass & grasslike																		
Lactuca serriola	Prickly Lettuce	Asteraceae	E		-		Grass & grassiike																		
Lagenifera spp.	THERTY LECTURE	Asteraceae	N		-		Forb																		
Lamarckia aurea	Goldentop	Poaceae	E	1.	-		1015																		
Lepidium africanum	Common Peppercress	Brassicaceae	E	-																					
Lepidium spp.	A Peppercress	Brassicaceae	N				Forb																		
Leptospermum myrtifolium	Arepperciess	Myrtaceae	N				Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N				Shrub																		
	Tea-tree	Ericaceae	N				Shrub																		
Leucopogon appressus		Ericaceae	N				Shrub			1	1	1													
Leucopogon fletcheri			N		-		Shrub			1		L		1	70										
Leucopogon virgatus Linum marginale	Native Flax	Ericaceae Linaceae	N	-			Forb	0.1	50			0.5	50	0 E	70 100										
	Native Flax	Ericaceae	N				Shrub	0.1	50			0.5	50	0.5	100										
Lissanthe spp.	Davagaial Divagas						Siliub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E	-			Crass 9 grasslike															0.05	4		
Lomandra cylindrica	Mattle Matt much	Lomandraceae		-			Grass & grasslike													0.1	20	0.05	4		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-			Grass & grasslike	10	0			-	0	10	_	0.1				0.1	30				
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-			Grass & grasslike	10	0			5	0				. 3	5							
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike							0.1	50			4	40						
Lomandra spp.	Mat-rush	Lomandraceae	N		-		Grass & grasslike											1	10		4				
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N		-		Shrub						_							0.1	1				
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub					1	2												
Luzula spp.		Juncaceae	N		-		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E	-	-	HTE																2	5		
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-																					
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N		-		Forb																		
Malus pumila	Apple	Malaceae	E	-																					
Malva neglecta	Dwarf Mallow	Malvaceae 			-																				
Marrubium spp.		Lamiaceae	E	-	-																				
Marrubium vulgare	White Horehound	Lamiaceae		-	-																	1	10		
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-	-																				
Medicago spp.	A Medic	Fabaceae (Faboideae)	E	-	-																			0.1	200

			Fxotic	tus	atus	at Weed	Plot Number (<u>right</u>) BAM	MAC0	5	MACO)7	MACC	08	MAC)9	MAC	10	MAC:	11	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike																		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																				
Modiola spp.		Malvaceae	Е	-	-																				
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																				
Monoculus monstrosus		Asteraceae	E	-	-																				
Monotoca scoparia		Ericaceae	N	_	-		Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	E	-																					
Notothixos spp.	Serrated 10330ck	Viscaceae	N				Other																		
Olearia spp.		Asteraceae	N	-	-		Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	E				Jili uu													0.1	3				
Ophioglossum lusitanicum			N				Fern													0.1	3				
· ·	Adder's Tongue	Ophioglossaceae		-	-																				
Orobanche spp.		Scrophulariaceae	N		-		Forb															_	_		
Oxalis perennans		Oxalidaceae	N		-		Forb															U	5		
Oxalis spp.		Oxalidaceae	N	-	-		Forb																		
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N	-	-		Shrub																_		
Panicum effusum	Hairy Panic	Poaceae	N	-	-		Grass & grasslike	0.1	2													0.1	5		
Paspalum dilatatum	Paspalum	Poaceae	Е	-	-	HTE																			
Paspalum spp.		Poaceae		-	-		Grass & grasslike																		
Pennisetum clandestinum	Kikuyu Grass	Poaceae	Е	-	-																				
Pentaschistis airoides	False Hairgrass	Poaceae	E	-	-																				
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N	-	-		Forb																		
Petrorhagia spp.		Caryophyllaceae	Е	-	-																				
Phalaris aquatica	Phalaris	Poaceae	Е	-	-																	0.1	10		
Phalaris minor	Lesser Canary Grass	Poaceae	Е	-	-																				
Phalaris spp.		Poaceae	Е	-	-			15	0											0.5	300				
Phragmites australis	Common Reed	Poaceae	N	-	-		Grass & grasslike																		
Phragmites spp.		Poaceae	N	-	-		Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae	Е	-	-					0.1	5	0.1	2			95	5 (5	0	0.1	1				
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae	N	-	-		Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae		-	-			0.5	250							0.1	1 3	3		0.1	150	2	100		
Plantago spp.	Plantain	Plantaginaceae	N		-		Forb																		
Platylobium formosum		Fabaceae (Faboideae)		-	-		Shrub																		
Poa annua	Winter Grass	Poaceae	E	-	-																				
Poa induta		Poaceae	N		-		Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	N		-		Grass & grasslike																		
Poa meionectes	TUSSOCK	Poaceae	N		-		Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae	N				Grass & grasslike	0.2	200	10	0	50	0	5	()				Ę	0				
	JIIOWEI ass		N		-		Grass & grasslike	0.2	200	10	U	, 30	U	3	,	,				3	U				
Poa spp.	Four leaved Alless d	Poaceae					Grass & Brasslike																		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae		-			Chamb																		
Polyscias sambucifolia	Elderberry Panax	Araliaceae	N	-	-		Shrub																		

				- YOUR	tus atus	t Weed	Plot Number (right) BAM	MAC0)5	MAC	07	MACO	8	MAC0	9	MAC1	0	MAC1	.1	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family		/acive/	FDRC ctatus	High Threat We	growth form (below)	Cover	Abundance																
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb															0.05	3		
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern					15	0	2	120	0.5	50								
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)		-	_		Shrub																		
Rosa rubiginosa	Sweet Briar	Rosaceae	E		-	НТ		0.5	10													1	2		
Rosa spp.		Rosaceae	E					3.3																	
Rubus fruticosus	Blackberry complex	Rosaceae	E					0.1	1			1	10	0.5	6	10	0	5	0	0.1	5	0.1	1		
Rubus parvifolius	Native Raspberry	Rosaceae	N				Shrub	0.1					10	0.5	U	10	U	J	U	0.1	3	0.1			
Rumex acetosella	Sheep Sorrel		E				Siliub																		
Rumex brownii	·	Polygonaceae		-	-		Forb																		
	Swamp Dock	Polygonaceae			-		FOID																		
Rumex crispus	Curled Dock	Polygonaceae	E		-																			0.4	- 00
Rumex spp.	Dock	Polygonaceae		-			Forb																	0.1	20
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N		-		Grass & grasslike																		
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae		-	-		Grass & grasslike																		
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N		-		Grass & grasslike																		
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike							80	0										
Rytidosperma spp.		Poaceae	N	-	-		Grass & grasslike																		
Salix fragilis	Crack Willow	Salicaceae	Е	-	-																				
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-	-		Grass & grasslike											5	0						
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N	-	-		Forb																		
Scolymus hispanicus	Golden Thistle	Asteraceae	Е	-	-																			0.1	5
Senecio diaschides		Asteraceae	N	-	-		Forb																		
Senecio gunnii		Asteraceae	N	-	-		Forb																		
Senecio prenanthoides		Asteraceae			-		Forb																		
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N		-		Forb							0.1	25										
Senecio spp.	Fireweed	Asteraceae		-	-		Forb			0.1	5														
Setaria gracilis		Poaceae	E		-																				
Setaria pumila	Pale Pigeon Grass	Poaceae	E		_																				
Solanum nigrum	Black-berry Nightshade	Solanaceae	E		_																				
Solenogyne spp.	Black Berry Wightshade	Asteraceae	N		_		Forb																		
Sonchus asper	Prickly Sowthistle	Asteraceae	E		-		1015																		
Sonchus spp.	Sowthistle	Asteraceae	N				Forb																		
Spergularia rubra	Sandspurry		E				1010																		
		Caryophyllaceae		-			Grace & gracelike																		
Sporobolus caroli	Fairy Grass	Poaceae					Grass & grasslike																		
Sporobolus creber	Slender Rat's Tail Grass	Poaceae		-			Grass & grasslike																		
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae			-		Forb																		
Stellaria media	Common Chickweed	Caryophyllaceae	E		-																				
Stellaria pungens	Prickly Starwort	Caryophyllaceae		-	-		Forb																		
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae	N		-		Forb																		
Styphelia spp.		Ericaceae	N	-	-		Shrub																		

			ritorio.	atire	tatus	at Weed	Plot Number (right) BAM	MAC0	5	MAC0)7	MAC0	8	MAC0	9	MAC1	10	MAC1	1	MAC1	2	MAC1	3	MAC6	5
ScientificName	Common Name	Family	Native / Evatic	RC ctatus	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub	0.1	2																
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike													1	25				
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-																	0.1	1		
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)		-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-																			40	0
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е		-																				
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb																	0.1	50
Verbascum spp.		Scrophulariaceae		-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae		-	-		Forb					0.1	50	1	200										
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N		-		Forb																		
Veronica spp.	, grant	Plantaginaceae			_		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	E		-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)		-	-																				
Viola betonicifolia	Native Violet	Violaceae	N		-		Forb			0.1	1	0.1	2	1	200										
Viola spp.		Violaceae	N		_		Forb																		
Vittadinia dissecta		Asteraceae	N		-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae		-			Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	E		-																				
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb							0.1	50										
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-			Forb							0.1	30					0.1	20				
Wurmbea dioica	Early Nancy	Colchicaceae		-			Forb													5.1	20				
Xerochrysum spp.	zarry rearrey	Asteraceae			-		Forb																		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-			Shrub																		

			Exotic	tus	atus	it Weed	Plot Number (right) BAM	MAC6	6	MAC	57	MAC	58	МАС7	0	MAC	71	MAC7	72	MAC7	/3	MAC7	4	MAC7!	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree					0.1	1	0.1	C) 1	. 5								
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)		-	-		Tree																		
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb									0.1	100					0.1	50		
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	_	-		Forb									0.1	100					0.1			
Acaena ovina	Acaena	Rosaceae	N		_		Forb																		
Acaena spp.	Sheep's Burr	Rosaceae	N	_	_		Forb																		
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	_	HTE				0.5	300	1	200			0.1	. 50	0.1	100					0.1	50
Acrotriche serrulata	Honeypots	Ericaceae	N	_		1111	Shrub			0.5	300	, .	200			0.5		0.1	100					0.1	30
Acrotriche spp.	Попеуросз	Ericaceae	N	-			Shrub									0.5	, ,								
Aira cupaniana	Silvery Hairgrass	Poaceae		_	_		Siliub																		
Alternanthera angustifolia	Slivery Hallgrass	Amaranthaceae	N	-	-		Forb																		
Amperea xiphoclada		Euphorbiaceae	N	-	-		Shrub																		
Amyema miquelii	Box Mistletoe	Loranthaceae	N				Other																		
Amyema pendula	BOX IVIISTIETOE	Loranthaceae		-	-		Other																		
	Mistletoe	Loranthaceae	N				Other																		
Amyema spp.			E	-	-		Other																		
Anagallis arvensis Anthosachne scabra	Scarlet Pimpernel	Primulaceae		-	-		Crace 9 gracelika																		
	Common Wheatgrass	Poaceae	N	-			Grass & grasslike																		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	-																				
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-						0															
Arctotheca calendula	Capeweed	Asteraceae	E	-	-		Constant Organization			U	C	J													
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike																		
Aristida spp.	A Wiregrass	Poaceae		-			Grass & grasslike																		
Aristida vagans	Threeawn Speargrass	Poaceae		-			Grass & grasslike																		
Asperula conferta	Common Woodruff	Rubiaceae	N		-		Forb			0.5	60	J													
Asperula scoparia	Prickly Woodruff	Rubiaceae	N	-	-		Forb																		
Asperula spp.	Woodruff	Rubiaceae		-	-		Forb																		
Asphodelus fistulosus	Onion Weed	Asphodelaceae	E	-	-																				
Astroloma humifusum	Native Cranberry	Ericaceae	N	-	-		Shrub																		
Austrodanthonia spp.		Poaceae	N	-			Grass & grasslike							5	C)									
Austrostipa nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike																		
Austrostipa scabra	Speargrass	Poaceae	N	-			Grass & grasslike																		
Austrostipa spp.	A Speargrass	Poaceae	N		-		Grass & grasslike																		
Avena barbata	Bearded Oats	Poaceae	E	-	-																				

			Exotic	tus	atus	it Weed	Plot Number (right) BAM	MAC6	66	MAC	57	MAC	58	MAC7	0	MAC	71	МАС7	' 2	МАС7	3	MAC7	4	MAC7	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance										
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.		Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike							10	()						1	100	أحيية	
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub																		
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	-		Forb																		
Brachyscome spp.	Trail y Catical Baisy	Asteraceae	N	-	_		Forb																		
Brassica oleracea	Collards	Brassicaceae	E	-	-		1010																		
Brassica spp.	Brassica	Brassicaceae	E	-						1	30	1													
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E	-		HTE					30	,													
Bromus catharticus	Praire Grass	Poaceae	E			1111																			
Bromus diandrus	Great Brome	Poaceae	E	-		HTE																			
Bromus hordeaceus	Soft Brome	Poaceae	E	-	-	піс																			
Bulbine bulbosa			N				Forb																		
	Bulbine Lily Native Blackthorn	Asphodelaceae	N	-			Shrub																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae		-	-																				
Caesia spp.	Cuina a au Dathlala much	Anthericaceae	N	-	-		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	-	-		Shrub																		
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb																		
Calotis spp.	A Burr-daisy	Asteraceae	N	-			Forb																		
Carex appressa	Tall Sedge	Cyperaceae	N				Grass & grasslike																		
Carex bichenoviana		Cyperaceae	N	-			Grass & grasslike					0.1	20												
Carex fascicularis	Tassel Sedge	Cyperaceae		-			Grass & grasslike																		
Carex gaudichaudiana		Cyperaceae	N	-			Grass & grasslike																		
Carex spp.		Cyperaceae		-	-		Grass & grasslike																		
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub							0.1	2	2						0.1	1		
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub																		
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub	0.1	2			0.1	0	0.1	1	. 1	. 5	,							
Cassinia longifolia		Asteraceae	N	-	-		Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub																		
Cassinia spp.		Asteraceae	N	-	-		Shrub											0.1	1						
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree																		
Centaurium spp.		Gentianaceae	Е	-	-																				
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-																				
Chloris spp.		Poaceae	N	-	-		Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

			Fxotic	tus	atus	at Weed	Plot Number (right) BAM	MAC6	6	MAC6	57	MAC	58	мас7	70	MAC	71	MAC	72	МАС7	3	MAC7	4	МАС7	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb															0.1	40		
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																				
Conyza spp.	A Fleabane	Asteraceae	Е	-	-																				
Coronidium elatum		Asteraceae	N	-	-		Shrub																		
Coronidium rutidolepis		Asteraceae	N	-	-																				
Coronidium scorpioides	Button Everlasting	Asteraceae	N	-	-		Forb																		
Coronidium spp.		Asteraceae	N	-	-		Forb																		
Cotoneaster spp.		Malaceae	E	_	_	HTE																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae	N	_	-		Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E	-	_	НТЕ																1	2		
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E	-	-																				
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N	-	_		Forb																		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N		-		Forb																		
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae	N	-			Forb							0.1	9	5						0.1	20		
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike	0.1	0					0.1								0.1			
Cynodon spp.		Poaceae	N	-	_		Grass & grasslike	0.1																	
Cynodon transvaalensis	South African Couch	Poaceae	E	-	-		Crass & grassime																		
Cyperus brevifolius	South Ameun Couch	Cyperaceae		-	_															0.1	40	0.5	0	0.1	0
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	E	-	-	НТЕ														0.1	.0	0.5		0.1	
Cyperus Ihotskyanus	ombrena seage	Cyperaceae	N	-	_		Grass & grasslike																		
Cyperus spp.		Cyperaceae	N				Grass & grasslike					0.1	50												
Cytisus scoparius	English Broom	Fabaceae (Faboideae)		-	_	НТЕ	_					0.2													
Dactylis glomerata	Cocksfoot	Poaceae		-																					
Daucus glochidiatus	Native Carrot	Apiaceae	N	-	_		Forb																		
Daviesia corymbosa		Fabaceae (Faboideae)	N				Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-			Shrub																		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-			Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N	-			Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N		-		Forb																		
Dianella spp.	Jidovon y Eny	Phormiaceae	N				Forb																		
Dichanthium spp.		Poaceae	N	-	_		Grass & grasslike																		
Dichondra repens	Kidney Weed	Convolvulaceae	N				Forb																		
Dichopogon spp.	Chocolate Lily	Anthericaceae	N				Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae		-	_		Grass & grasslike																		

			:	EXOLIC	5415	arus ************************************	at Weed	Plot Number (right) BAM	MAC6	6	MAC	5 7	MAC6	8	МАС7	0	MAC	1	MAC	72	МАС7	3	MAC7	4	MAC7	5
ScientificName	Common Name	Family	:	native / Exotic		EFBC Status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		9	Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		9	Shrub																		
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		5	Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		9	Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		F	Forb																		
Dipsacus spp.		Dipsacaceae	Е	-	-																					
Drosera spp.		Droseraceae	N	-	-		F	Forb															0.1	10		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N		-			Forb																		
Dysphania spp.		Chenopodiaceae	N		-			Forb																		
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N		-			Grass & grasslike							0.5	50										
Echium plantagineum	Patterson's Curse	Boraginaceae	E		_			orass & grassinic							0.5	30			0.1	30	0.1	5			0.5	200
Echium spp.	r detersorrs curse	Boraginaceae	E		-														0.1	30	0.1	J			0.5	200
Echium vulgare	Viper's Bugloss	Boraginaceae	E		_																					
Einadia hastata	Berry Saltbush	Chenopodiaceae	N					Forb																		
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-				Forb									0.1	50								
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N					Forb									0.1	30								
Eleocharis acuta	Kilotweed Gooseloot	Cyperaceae						Grass & grasslike																		
Eleusine tristachya	Goose Grass	Poaceae	E					Jidss & gidsslike					20	0											10	0
Elymus scaber	Common Wheatgrass	Poaceae	N				,	Grass & grasslike					20	U											10	U
•	Niggerheads		N					Grass & grasslike													0.1	50				
Enneapogon nigricans		Poaceae			-			Grass & grasslike													0.1	50				
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N		-																					
Epacris spp.		Ericaceae	N		-			Shrub																		
Epilobium spp.	GUAL AND A	Onagraceae	N		-		ŀ	Forb																		
Eragrostis cilianensis	Stinkgrass	Poaceae	E	-	-																					
Eragrostis curvula	African Lovegrass	Poaceae	E		-	H1																				
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N		-			Grass & grasslike																		
Eragrostis parviflora	Weeping Lovegrass	Poaceae		-				Grass & grasslike																		
Eragrostis spp.	A Lovegrass	Poaceae	N		-		(Grass & grasslike																		
Erodium botrys	Long Storksbill	Geraniaceae		-	-																					
Erodium cicutarium	Common Crowfoot	Geraniaceae	E		-																					
Erodium crinitum	Blue Crowfoot	Geraniaceae		-	-		F	Forb																		
Erodium malacoides		Geraniaceae	Е		-																					
Erodium spp.	Crowfoot	Geraniaceae	N		-		F	Forb			1	100													0.1	10
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N		-		1	Tree																		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-		1	Tree			50	0	0.1	1	. 10	1	60	0								
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N		-		1	Tree																		
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N	-	-		1	Ггее																		
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-		1	Tree									5	0								
Eucalyptus fastigata	Brown Barrel	Myrtaceae	N	-	-		1	Tree																		
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	-	-		1	Tree							25	1			0.1	2			50	0		
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae	N	-	-		1	Ггее							25	1	5	0					30	0		
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		1	Ггее																		
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		7	Ггее													5	0				

			:	EXOCIC	itus	arus	it Weed	Plot Number (right) BAM	MAC6	6	MAC	57	MAC	68	MAC7	70	MAC	71	MAC7	72	МАС7	3	MAC74	4	MAC7	5
ScientificName	Common Name	Family	:	Native / Exotic	BC status	Erbe status	High Threat Weed	growth form (below)	Cover	Abundance																
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-			Tree																		
Eucalyptus spp.		Myrtaceae	N	-	-			Tree																		
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-			Tree																		
Euchiton japonicus		Asteraceae	N	-	-			Forb																		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-			Forb																		
Euchiton spp.	A Cudweed	Asteraceae	N	-	-			Forb																		
Euphorbia dallachyana		Euphorbiaceae	N		-			Forb																		
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N		-			Forb																		
Euphorbia spp.		Euphorbiaceae	N		-			Forb																		
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N		-			Shrub																		
Exocarpos strictus	Dwarf Cherry	Santalaceae	N		-			Shrub																		
Foeniculum vulgare	Fennel	Apiaceae	Е		_																					
Galium murale	Small Bedstraw	Rubiaceae	E		-																					
Gamochaeta calviceps	Cudweed	Asteraceae	E		_																0.1	20				
Geranium graniticola		Geraniaceae	N		-			Forb													0.2					
Geranium molle	Cranesbill Geranium	Geraniaceae	E																							
Geranium solanderi	Native Geranium	Geraniaceae	N		_			Forb							0.1	10	0.5	200)		0.1	5				
Geranium spp.	Native Geranian	Geraniaceae		-	_			Forb							0.1	10	0.5	200			0.1	<i>J</i>	0.1	10		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N					Other															0.1	10		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-				Other																		
Gonocarpus humilis	Small lear Glyenic	Haloragaceae	N		_			Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae	N					Forb																		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		_			Forb															0.1	20		
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N					Forb															0.1	20		
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-			Forb																		
Goodenia spp.	ivy Goodeilla	Goodeniaceae	N					Forb																		
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N					Forb																		
	A Raspwort	Haloragaceae	N					Forb									0.1	100	\							
Haloragis spp. Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N					Other									0.1	100								
Helichrysum leucopsideum	Satin Everlasting	Asteraceae	N		-			Forb																		
	Satiii Everiastiiig		N					Forb																		
Helichrysum spp.	Pluo Heliatrone	Asteraceae		-		H.		FULD																		
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae			-	Н		Chruh															0.1	20		
Hibbertia obtusifolia Holcus lanatus	Hoary Guinea Flower	Dilleniaceae	N	-	_			Shrub															0.1	20		
	Yorkshire Fog	Poaceae																								
Hordeum leporinum	Barley Grass	Poaceae (Fahaidasa)	E		-			Forb.																		
Hovea heterophylla		Fabaceae (Faboideae)	N					Forb																		
Hovea spp.	Chindring Dansey	Fabaceae (Faboideae)	N					Forb																		
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N				_	Forb																		
Hydrocotyle sibthorpioides		Apiaceae	N					Forb																		
Hydrocotyle spp.		Apiaceae	N		-			Forb																		
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-			Forb																		

			Exotic	tus	atus	rt Weed	Plot Number (<u>right</u>) BAM	MAC6	6	MAC6	57	MAC6	8	MAC7	0	MAC7	1	MAC7	2	МАС7	3	MAC7	4	МАС7	5
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance																
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	нт						0.1	5												
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	0	0.1	100	5	0	0.1	150	0.1	100	0.1	50	1	200			0.1	50
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																				
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike													0.1	100	0.5	0	0.1	100
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus		Juncaceae	Е	-	-																				
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike													0.1	20	0.1	10		
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike					0.5	10												
Lactuca serriola	Prickly Lettuce	Asteraceae	E	-	-																				
Lagenifera spp.		Asteraceae	N	_	-		Forb																		
Lamarckia aurea	Goldentop	Poaceae	E	-	-		10.0					0.5	0												
Lepidium africanum	Common Peppercress	Brassicaceae	E	_	-							0.5													
Lepidium spp.	A Peppercress	Brassicaceae	N	-	-		Forb																		
Leptospermum myrtifolium	A reperciess	Myrtaceae	N	-	-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N	-	_		Shrub																		
Leucopogon appressus		Ericaceae	N	_	-		Shrub																		
Leucopogon fletcheri		Ericaceae	N	-	_		Shrub																		
Leucopogon virgatus		Ericaceae	N	_	_		Shrub																		
Linum marginale	Native Flax	Linaceae	N	-	-		Forb																		
Lissanthe spp.	Native Flax	Ericaceae	N				Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	-		Siliub																		
Lomandra cylindrica	r erennar Nyegrass	Lomandraceae		-			Grass & grasslike																		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-			Grass & grasslike							0.1	50	0.1	20					0.1	5		
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-			Grass & grasslike							0.1	30	0.1	20					0.1	,		
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N		-		Grass & grasslike																		
Lomandra spp.	Mat-rush	Lomandraceae	N		-		Grass & grasslike																		
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-			Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.	Niver Lorriatia	Juncaceae	N				Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E			НТ	_																		
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E				-																		
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N				Forb																		
Malus pumila	Apple	Malaceae	E				1015																		
Malva neglecta	Dwarf Mallow	Malvaceae			-																				
Marrubium spp.	Dwaii wallow	Lamiaceae	E																						
Marrubium vulgare	White Horehound	Lamiaceae		-																					
			E							0.1	100														
Medicago polymorpha Medicago spp.	Burr Medic A Medic	Fabaceae (Faboideae) Fabaceae (Faboideae)		-						0.1	100													10	0

				EXOLIC	icus	at Weed		Plot Number (right) BAM	MAC6	6	MAC6	57	MAC	58	МАС7	0	MAC7	71	MAC	72	МАС7	3	MAC7	4	MAC7	5
ScientificName	Common Name	Family		Native / Exotic	EPRC status	High Threat Weed	9	growth form (<u>below</u>)	Cover	Abundance																
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		9	Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		9	Shrub															0.1	1		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		(Grass & grasslike													5	0	1	50		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																					
Modiola spp.		Malvaceae	Е	-	-																					
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																		0.5	100		
Monoculus monstrosus		Asteraceae	Е	-	-																					
Monotoca scoparia		Ericaceae	N		-		9	Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	E		-																					
Notothixos spp.		Viscaceae	N		_		(Other																		
Olearia spp.		Asteraceae	N		_			Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	E		_			3111 415																		
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N		_			Fern																		
Orobanche spp.	Adder 3 Forigae	Scrophulariaceae	N		_			Forb																		
Oxalis perennans		Oxalidaceae	N		_			Forb	0.1	50	0.1	C	0.1	0	0.1	100	0.1	100	0.1	50	0.5	200	0.5	200	0.1	50
Oxalis spp.		Oxalidaceae	N					Forb	0.1	30	0.1	U	0.1	U	0.1	100	0.1	100	0.1	30	0.5	200	0.5	200	0.1	30
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		_			Shrub																		
Panicum effusum	Hairy Panic	Poaceae	N		_			Grass & grasslike																		
						НТ		Grass & grasslike																		
Paspalum dilatatum	Paspalum	Poaceae	E	-	-	пі		Crass O grasslika																		
Paspalum spp.	Kilon v. Crass	Poaceae			-		,	Grass & grasslike			10	0														
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E		-						10	U)								20	•				
Pentaschistis airoides	False Hairgrass	Poaceae	E		-																20	0				
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N		-		- 1	Forb																		
Petrorhagia spp.		Caryophyllaceae		-																						
Phalaris aquatica	Phalaris	Poaceae	Е		-																					
Phalaris minor	Lesser Canary Grass	Poaceae	Е		-																30	0	5	0		
Phalaris spp.		Poaceae	Е		-				1	100	10	C) 5	0	1		5	0	5	0						
Phragmites australis	Common Reed	Poaceae	N		-			Grass & grasslike																		
Phragmites spp.		Poaceae	N		-		(Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae	Е	-	-				80	0			5	0	1				80	0						
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae	N				F	Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae	Е	-	-																					
Plantago spp.	Plantain	Plantaginaceae	N	-	-		F	Forb	0.1	50	0.5	30)		0.5	50	0.1	50			0.1	40				
Platylobium formosum		Fabaceae (Faboideae)	N	-	-		9	Shrub																		
Poa annua	Winter Grass	Poaceae	Е	-	-																					
Poa induta		Poaceae	N	-	-		(Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	N	-	-		(Grass & grasslike																		
Poa meionectes		Poaceae	N	-	-			Grass & grasslike									10	0								
Poa sieberiana	Snowgrass	Poaceae	N		-			Grass & grasslike							1	10							10	0		
Poa spp.		Poaceae	N		-			Grass & grasslike																		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae			-																					
Polyscias sambucifolia	Elderberry Panax	Araliaceae	N		-		(Shrub																		
Populus spp.	, , , , , , , , , , , , , , , , , , , ,	Salicaceae			-			Tree																		

ScientificName			Exot	tus	atus	at Wee	Plot Number (<u>right</u>) BAM	MAC6	6	MAC6	7	МАС6	8	MAC7	0	МАС7	1	МАС7	2	MAC7	3	MAC7	4	MAC7	5
	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Poranthera microphylla Sm	mall Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea Pig	gweed	Portulacaceae	N	-	-		Forb																		
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum Jers	rsey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum Bra	racken	Dennstaedtiaceae	N	-	-		Fern																		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
Pultenaea microphylla A B	Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub															0.1	100		
Rosa rubiginosa Sw	veet Briar	Rosaceae	Е	-	-	HTE																			
Rosa spp.		Rosaceae	Е	-	-																				
	ackberry complex	Rosaceae	Е	-	-			5	0			25	0	5	0	5	0			0.1	2	1	5		
-	ative Raspberry	Rosaceae	N	-	-		Shrub																		
-	neep Sorrel	Polygonaceae	Е	-	-																				
	vamp Dock	Polygonaceae	N	-	-		Forb																		
	urled Dock	Polygonaceae	Е	-	-																				
Rumex spp. Do		Polygonaceae	N	-	-		Forb			0.1	0					0.1	10	0.1	1						
	nged Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
	ong-leaved Wallaby Grass	Poaceae	N	-	_		Grass & grasslike																		
	lountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
	edanther Wallaby Grass	Poaceae	N	-	_		Grass & grasslike																		
Rytidosperma spp.	cuantifici Transay Crass	Poaceae	N	-	-		Grass & grasslike																		
	rack Willow	Salicaceae	E	-	_		Cruco et grucomic																		
	uke Bogrush	Cyperaceae	N	-	-		Grass & grasslike																		
	vo-flowered Knawel	Caryophyllaceae	N	_	-		Forb																		
	olden Thistle	Asteraceae	E	-	_		1010					1	10			0.1	5			0.1	1			0.1	1
Senecio diaschides	olden mistic	Asteraceae	N		-		Forb					_	10			0.1	J			0.1				0.1	
Senecio gunnii		Asteraceae	N	-	-		Forb																		
Senecio gamm Senecio prenanthoides		Asteraceae		-			Forb							0.1	10										
	otton Fireweed	Asteraceae	N	-	-		Forb							0.1	10										
	reweed	Asteraceae	N		_		Forb									0	20								
Setaria gracilis	reweeu	Poaceae	E	-	-		1010									J	20								
	ale Pigeon Grass	Poaceae	_	-	_																				
	ack-berry Nightshade	Solanaceae	E	-	-																				
Solenogyne spp.	dek berry Mgneshade	Asteraceae	N	_	_		Forb																		
	rickly Sowthistle	Asteraceae		-			1015																		
	owthistle	Asteraceae	N		-		Forb																		
	andspurry	Caryophyllaceae		-			1010																		
	airy Grass	Poaceae		-			Grass & grasslike																		
	ender Rat's Tail Grass	Poaceae	N	-			Grass & grasslike																		
•		Stackhousiaceae		-			Forb																		
	ommon Chickweed	Caryophyllaceae	E	-	-		1010									1	200								
	rickly Starwort	Caryophyllaceae	N		-		Forb									1	200								
-			N				Forb																		
Stylidium graminifolium Gra Styphelia spp.	rass Triggerplant	Stylidiaceae Ericaceae		-	-		Shrub																		

		-	Fxotic	atus	tatus	at Weed	Plot Number (<u>right</u>) BAM	MAC6	6	MAC6	57	MACE	58	MAC7	0	MAC7	1	МАС7	2	MAC7	/3	MAC7	4	MAC75	
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike																		
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-		- U																		
Tribulus terrestris	Cat-head	Zygophyllaceae	Е		-																				
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)		-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)		-	-																				
Trifolium repens	White Clover	Fabaceae (Faboideae)		-	-							0.1	50)						1	300				
Trifolium spp.	A Clover	Fabaceae (Faboideae)	E		-					10	0			0	50)		0.1	50					25	0
Urtica incisa	Stinging Nettle	Urticaceae	N		-		Forb																		
Verbascum spp.		Scrophulariaceae		-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae		-	-		Forb																		
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	_	-		Forb																		
Veronica spp.	Training operation	Plantaginaceae			-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	E	_	-		10.0																		
Vicia spp.	Vetch	Fabaceae (Faboideae)		-	-																				
Viola betonicifolia	Native Violet	Violaceae	N		-		Forb									0.1	50					0.1	10		
Viola spp.	Tradition Trades	Violaceae	N		-		Forb									0.1	30					0.2			
Vittadinia dissecta		Asteraceae	N				Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae		-			Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	E		-															5	0			20	0
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb																		
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-			Forb																		
Wurmbea dioica	Early Nancy	Colchicaceae		-			Forb															0.1	3		
Xerochrysum spp.	Larry Harriey	Asteraceae		-			Forb															0.1	J		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-			Shrub																		

			Exotic	itus	atus	at Weed	Plot Number (right) BAM	МАС7	6	МАС7	7	MAC4	1201	MAC4	1202	MAC4	1203	MAC4	1204	MAC4	1205	MAC4:	1206	MAC41	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance														
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree																		
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)		-	-		Tree																	i de la composição de l	
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)		-	-		Shrub																	الكرية	
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	_	-		Shrub																		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	_		Forb																	السعا	
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb	0.1	100																
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	_	-		Forb	0.1	100															السعة	
Acaena ovina	Acaena	Rosaceae	N		_		Forb											0.1	10						
Acaena spp.	Sheep's Burr	Rosaceae	N	_	_		Forb											0.1	10						
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	_	HTE	1015					10	0	1	500	1								0.5	50
Acrotriche serrulata	Honeypots	Ericaceae	N	_		1111	Shrub					10	U		300									0.5	30
Acrotriche spp.	Honeypots	Ericaceae	N	-			Shrub																		
Aira cupaniana	Silvery Hairgrass	Poaceae			-		Siliub					1	100												
Alternanthera angustifolia	Slivery Haligrass	Amaranthaceae	N	-	-		Forb						100					0.1	10	0.1	50	0.1	50		
Amperea xiphoclada		Euphorbiaceae	N	-	-		Shrub											0.1	10	0.1	30	0.1	30		
	Box Mistletoe	Loranthaceae	N	-	-		Other																		
Amyema miquelii Amyema pendula	BOX IVIISTIETOE	Loranthaceae		_	-		Other																		
•	Mistletoe	Loranthaceae	N				Other																		
Amyema spp.		Primulaceae		-	-		other																		
Anagallis arvensis	Scarlet Pimpernel			-	-		Cross 9 areastites											0.5	Ε0	0.1	20				
Anthosachne scabra	Common Wheatgrass	Poaceae		-			Grass & grasslike											0.5	50	0.1	30				
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	-																				
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-																		0.4	40		
Arctotheca calendula	Capeweed	Asteraceae	E	-	-		0 0 1:1															0.1	10		
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike																		
Aristida spp.	A Wiregrass	Poaceae	N		_		Grass & grasslike																		
Aristida vagans	Threeawn Speargrass	Poaceae		-			Grass & grasslike																		
Asperula conferta	Common Woodruff	Rubiaceae	N	-			Forb	0.1	20																
Asperula scoparia	Prickly Woodruff	Rubiaceae	N	-	-		Forb																		
Asperula spp.	Woodruff	Rubiaceae	N		-		Forb																		
Asphodelus fistulosus	Onion Weed	Asphodelaceae	Е	-	-																				
Astroloma humifusum	Native Cranberry	Ericaceae	N	-	-		Shrub																		
Austrodanthonia spp.		Poaceae	N	-	-		Grass & grasslike																		
Austrostipa nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike											10	0	0.5	50	10	0	0.1	20
Austrostipa scabra	Speargrass	Poaceae		-			Grass & grasslike																		
Austrostipa spp.	A Speargrass	Poaceae	N	-			Grass & grasslike																		
Avena barbata	Bearded Oats	Poaceae	Е	-	-									0.5	100										

			Exotic	rtus	atus	at Weed	Plot Number (right) BAM	МАС7	6	МАС7	77	MAC	41201	MAC4	1202	MAC ⁴	1203	MAC4	1204	MAC4	1205	MAC4	1206	MAC4	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.	, i i i	Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike	5	0																
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub																		
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N		_		Forb																		
Brachyscome spp.	Trail y Catical Daisy	Asteraceae	N	-	-		Forb																		
Brassica oleracea	Collards	Brassicaceae	E	-	-		1010					1	. 50												
Brassica spp.	Brassica	Brassicaceae	E	-						0.1	10	-	. 50					0.1	20	0.1	20			0.1	5
Brassica spp. Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E		-	НТІ	-			0.1	10	1	100	0.5	0			0.1	20	0.1	20			0.1	3
Bromus catharticus	Praire Grass		E			пп	-					1	100	0.5	U										
Bromus diandrus	Great Brome	Poaceae	E		-	HTI												0.1	20						
		Poaceae		-	-	пп						_	0		0	10	0		20		0	0.1	20	20	0
Bromus hordeaceus	Soft Brome	Poaceae	E	-	-		Faul					5	0	5	0	10	0	5	U	5	0	0.1	20	30	0
Bulbine bulbosa	Bulbine Lily	Asphodelaceae	N	-	-		Forb																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	-	-		Shrub																		
Caesia spp.		Anthericaceae	N	-	-		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	-	-		Shrub																		
Calotis Iappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb																		
Calotis spp.	A Burr-daisy	Asteraceae	N		-		Forb																		
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike																		
Carex bichenoviana		Cyperaceae	N		-		Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae		-	-		Grass & grasslike																		
Carex gaudichaudiana		Cyperaceae	N	-			Grass & grasslike																		
Carex spp.		Cyperaceae		-	-		Grass & grasslike									0.5	10								
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub																		
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub																		
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub																		
Cassinia longifolia		Asteraceae	N	-	-		Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub																		
Cassinia spp.		Asteraceae	N	-	-		Shrub																		
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree																		
Centaurium spp.		Gentianaceae	Е	-	-																				
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	Е	-	-																				
Chloris spp.		Poaceae	N	-	-		Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae		-	-		Grass & grasslike													0.1	5				

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	МАС7	6	МАС7	7	MAC4	11201	MAC4	1202	MAC4	1203	MAC4	11204	MAC4	1205	MAC4	1206	MAC4	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb																		
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other	0.1	1																
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																				
Conyza spp.	A Fleabane	Asteraceae	Е	-	-																				
Coronidium elatum		Asteraceae	N	-	-		Shrub																		
Coronidium rutidolepis		Asteraceae	N	-	-																				
Coronidium scorpioides	Button Everlasting	Asteraceae	N	-	-		Forb																		
Coronidium spp.		Asteraceae	N	-	-		Forb																		
Cotoneaster spp.		Malaceae	E	-	_	HTE																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae	N	-	-		Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E	-	-	HTE																			
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E	-	-																				
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N	-	-		Forb																		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	_		Forb																	0.1	5
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae	N	-			Forb	0.1	50															0.1	
Cynodon dactylon	Common Couch	Poaceae	N	-	_		Grass & grasslike	0.1	50																
Cynodon spp.	Common coden	Poaceae	N	-	_		Grass & grasslike																		
Cynodon transvaalensis	South African Couch	Poaceae	E	-	_		Crass & grasslike																		
Cyperus brevifolius	South African Couch	Cyperaceae		-																					
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	E	-	_	HTE																			
Cyperus Ihotskyanus	Offibrella Seuge	Cyperaceae	N		-	піс	Grass & grasslike																		
			N	-			Grass & grasslike																		
Cyperus spp. Cytisus scoparius	English Proom	Cyperaceae		-		HTE	Grass & grasslike																		
	English Broom	Fabaceae (Faboideae)		-	-	піс																			
Dactylis glomerata	Cocksfoot	Poaceae					Foul																		
Daucus glochidiatus	Native Carrot	Apiaceae	N	-	-		Forb																		
Daviesia corymbosa	Dittor noo	Fabaceae (Faboideae)	N				Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-			Shrub																		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-	-		Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N	-	-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb																		
Dianella spp.		Phormiaceae	N	-			Forb																		
Dichanthium spp.		Poaceae	N	-	-		Grass & grasslike																		
Dichondra repens	Kidney Weed	Convolvulaceae	N				Forb	0.5	200																
Dichopogon spp.	Chocolate Lily	Anthericaceae	N		-		Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae	N	-	-		Grass & grasslike																		

			Fvotic	4116	atus	at Weed	Plot Number (right) BAM	MAC7	' 6	MAC7	77	MAC4	1201	MAC4	1202	MAC	41203	MAC4	1204	MAC4	1205	MAC41	1206	MAC4	1207
ScientificName	Common Name	Family	Native / Evotic	RC ctatus	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dipsacus spp.		Dipsacaceae	Е	-	-																				
Drosera spp.		Droseraceae	N	-	-		Forb																		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N	-	-		Forb																		
Dysphania spp.		Chenopodiaceae	N	-	-		Forb																		
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike																		
Echium plantagineum	Patterson's Curse	Boraginaceae	Е	_	-					0.1	50	10	0	0.5	100	0.1	. 10	0.5	10			0.1	10		
Echium spp.		Boraginaceae	Е	-	-																				
Echium vulgare	Viper's Bugloss	Boraginaceae	Е	-	-																				
Einadia hastata	Berry Saltbush	Chenopodiaceae	N		-		Forb																		
Einadia nutans	Climbing Saltbush	Chenopodiaceae		-	_		Forb															0.1	5		
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N	-	-		Forb															0.1			
Eleocharis acuta	Miletireed edescribet	Cyperaceae	N	-	-		Grass & grasslike																		
Eleusine tristachya	Goose Grass	Poaceae	E		_		Grass & Brassine	1	50			0.5	50											0.1	10
Elymus scaber	Common Wheatgrass	Poaceae	N		-		Grass & grasslike	_	30			0.5	30											0.1	10
Enneapogon nigricans	Niggerheads	Poaceae	N	-	_		Grass & grasslike																		
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N		-		Grass & grasslike																		
Epacris spp.	curry windring Grass	Ericaceae	N	-	_		Shrub																		
Epilobium spp.		Onagraceae	N	_	_		Forb																		
Eragrostis cilianensis	Stinkgrass	Poaceae	E	-	_		1015																		
Eragrostis curvula	African Lovegrass	Poaceae		-	_	HTE	:																		
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	_	1111	Grass & grasslike					0.1	20			1	100	0.5	50			0.1	10	1	0
Eragrostis parviflora	Weeping Lovegrass	Poaceae		-			Grass & grasslike					0.1	20			-	. 100	0.5	50			0.1	10		U
Eragrostis spp.	A Lovegrass	Poaceae	N	_	-		Grass & grasslike																		
Erodium botrys	Long Storksbill	Geraniaceae		-			Grass & grasslike																		
Erodium cicutarium	Common Crowfoot	Geraniaceae	E		_																				
Erodium crinitum	Blue Crowfoot	Geraniaceae	N		_		Forb																		
Erodium malacoides	Blac crowloot	Geraniaceae	E		-		1015																		
Erodium spp.	Crowfoot	Geraniaceae	N				Forb			0.1	20	,													
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N		-		Tree			0.1	20	,						25	1			50	0		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N		-		Tree											23				30	U		
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N		_		Tree																		
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N		_		Tree																		
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N				Tree																		
Eucalyptus aives Eucalyptus fastigata	Brown Barrel	Myrtaceae	N	-	-		Tree																		
					-			0	0																
Eucalyptus goniocalyx	Bundy Rod Stringshark	Myrtaceae	N	-			Tree	4	U																
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae	N		-		Tree																		
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree			25		,													
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	-	-		Tree			25	C	J													

			:	EXOCIC	itus	Sign	at Weed	Plot Number (right) BAM	МАС7	6	MAC7	77	MAC	41201	MAC ²	11202	MAC	41203	MAC4	1204	MAC4	1205	MAC4	1206	MAC4	1207
ScientificName	Common Name	Family		Native / Exotic	BC status	Erbe status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-			Tree																		
Eucalyptus spp.		Myrtaceae	N	-	-			Tree																		
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-			Tree																		
Euchiton japonicus		Asteraceae	N	-	-			Forb																		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-			Forb																	0.1	50
Euchiton spp.	A Cudweed	Asteraceae	N	-	-			Forb																		
Euphorbia dallachyana		Euphorbiaceae	N	-	-			Forb													0.1	100				
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N	-	-			Forb																		
Euphorbia spp.		Euphorbiaceae	N	-	-			Forb																		
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	-			Shrub																		
Exocarpos strictus	Dwarf Cherry	Santalaceae	N	-	-			Shrub																		
Foeniculum vulgare	Fennel	Apiaceae	Е		-																					
Galium murale	Small Bedstraw	Rubiaceae	Е		-																					
Gamochaeta calviceps	Cudweed	Asteraceae	E		-																					
Geranium graniticola		Geraniaceae	N		-			Forb																		
Geranium molle	Cranesbill Geranium	Geraniaceae	E														0.1	. 50								
Geranium solanderi	Native Geranium	Geraniaceae	N		_			Forb									0.1	. 30								
Geranium spp.	Native Geramani	Geraniaceae		-	_			Forb																		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N					Other																		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-				Other																		
Gonocarpus humilis	Sman rear Gryenie	Haloragaceae	N		_			Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae	N					Forb																		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		_			Forb																		
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N					Forb																		
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-			Forb	0.1	20																
Goodenia spp.	ivy dooderna	Goodeniaceae	N					Forb	0.1	20																
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N					Forb																		
Haloragis spp.	A Raspwort	Haloragaceae	N					Forb																		
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N					Other																		
Helichrysum leucopsideum	Satin Everlasting	Asteraceae	N		-			Forb																		
Helichrysum spp.	Satiii Everiastiiig	Asteraceae	N					Forb																		
Heliotropium amplexicaule	Blue Heliotrope			-		H ⁻		ruib											0.1	5					0.1	10
Hibbertia obtusifolia	Hoary Guinea Flower	Boraginaceae Dilleniaceae	N			п		Shrub											0.1	5					0.1	10
Holcus lanatus	Yorkshire Fog			-			-	Siliub									0.1	. 10								
		Poaceae	E		-								-	5 0	1	500		10					0.1	ΕO		
Hordeum leporinum	Barley Grass	Poaceae	N					Forh					5	, 0	T	500							0.1	50		
Hovea heterophylla		Fabaceae (Faboideae)						Forb																		
Hovea spp.	Ctinking Danguerat	Fabaceae (Faboideae)	N		-			Forb																		
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N					Forb																		
Hydrocotyle sibthorpioides		Apiaceae	N					Forb																		
Hydrocotyle spp.	Consult Control of the Land	Apiaceae	N		-			Forb																		
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-			Forb																		

			Exotic	atus	tatus	at Weed	Plot Number (<u>right</u>) BAM	MAC7	6	МАС7	7	MAC4	1201	MAC4	1202	MAC4	1203	MAC4	1204	MAC4	1205	MAC4	1206	MAC4	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	HTE												0.5	30						
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	50	0.1	50	0.5	200	0.1	50	0.5	200	0.1	50	5	0	0.1	50	1	500
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-			0.1	1																
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus	, in the second second	Juncaceae	Е	-	-		Ü																		
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike																		
Lactuca serriola	Prickly Lettuce	Asteraceae	E	-	-		2.222 2.8.22																		
Lagenifera spp.	,	Asteraceae	N	-	_		Forb																		
Lamarckia aurea	Goldentop	Poaceae	E	-	-																				
Lepidium africanum	Common Peppercress	Brassicaceae	E	-	-																				
Lepidium spp.	A Peppercress	Brassicaceae	N	-	-		Forb																		
Leptospermum myrtifolium	A reperciess	Myrtaceae	N	_	-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N	-	_		Shrub																		
Leucopogon appressus	red tree	Ericaceae	N	_	-		Shrub																		
Leucopogon fletcheri		Ericaceae	N		_		Shrub																		
Leucopogon virgatus		Ericaceae	N	_	_		Shrub																		
Linum marginale	Native Flax	Linaceae	N	_	-		Forb																		
Lissanthe spp.	TVG I I I I	Ericaceae	N	-			Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	_		Siliub							1	500									25	0
Lomandra cylindrica	T CTCTITIOT NYCET 433	Lomandraceae		-			Grass & grasslike								300									23	U
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-			Grass & grasslike	0.1	5																
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-			Grass & grasslike	0.1	<u> </u>									1	10						
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike												10						
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-			Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.	Niver Lomatia	Juncaceae	N	-	-		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E	-	-	HTE	_																		
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-														0.1	5						
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N				Forb											0.1							
Malus pumila	Apple	Malaceae	E	-			. 515																		
Malva neglecta	Dwarf Mallow	Malvaceae		-																					
Marrubium spp.	DWGIT WIGHOW	Lamiaceae	E	-						0.1	10														
Marrubium vulgare	White Horehound	Lamiaceae			-					0.1	10														
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-																					
Medicago spp.	A Medic	Fabaceae (Faboideae)		-				1	100	5	0														

				EXOLIC	rus atus	it Weed	Plot Number (right) BAM	МАС7	6	MAC7	77	MAC	11201	MAC4	1202	MAC4	1203	MAC ²	41204	MAC4	1205	MAC4	1206	MAC4:	1207
ScientificName	Common Name	Family		Native /	bC status EPBC status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance								
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		Shrub	5	0																
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike																		
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-															0.1	100				
Modiola spp.		Malvaceae	Е	-	-																	0.1	20	0.1	0
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Ε	-	-																				
Monoculus monstrosus		Asteraceae	Е	-	-							0.1	20												
Monotoca scoparia		Ericaceae	N	-	-		Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-																				
Notothixos spp.		Viscaceae	N	-	-		Other			1	2	2													
Olearia spp.		Asteraceae	N		-		Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	Е		-													0.1	10						
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N		-		Fern																		
Orobanche spp.		Scrophulariaceae	N		_		Forb																		
Oxalis perennans		Oxalidaceae	N		-		Forb	0.1	50							0.1	10	0.1	20					0.5	200
Oxalis spp.		Oxalidaceae	N		_		Forb	0.1	30							0.12	10	0.1						0.5	200
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		-		Shrub																		
Panicum effusum	Hairy Panic	Poaceae	N		_		Grass & grasslike			0.1		1													
Paspalum dilatatum	Paspalum	Poaceae	E		-	НТЕ				0.1															
Paspalum spp.	i aspaiaiii	Poaceae		-	_		Grass & grasslike																		
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E				Grass & grasslike																		
Pentaschistis airoides	False Hairgrass	Poaceae	E									10	0							0.1	50				
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N				Forb					10	U	0.1	5	0.1	5	0.1	. 5	0.1	30			0.5	10
Petrorhagia spp.	Creeping Knotweed	Caryophyllaceae		-	_		FOID							0.1	3	0.1	J	0.1	. 3					0.3	20
Phalaris aquatica	Phalaris	Poaceae	E		_							1	100	40	0	80	0	25	0	1	200			0.1	30
Phalaris aquatica Phalaris minor			E										100	40	U	00	0	25	U	1	200			0.1	30
	Lesser Canary Grass	Poaceae	E		-																				
Phalaris spp.	Carrage and Daniel	Poaceae			-		Constant O management																		
Phragmites australis	Common Reed	Poaceae	N		-		Grass & grasslike																		
Phragmites spp.	Dedicts Disc	Poaceae	N		-		Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae	E		-		F. J.																		
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae	N				Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae			-																				
Plantago spp.	Plantain	Plantaginaceae	N		-		Forb	0.1	0																
Platylobium formosum		Fabaceae (Faboideae)			-		Shrub																		
Poa annua	Winter Grass	Poaceae	E		-																			0.1	50
Poa induta		Poaceae	N				Grass & grasslike																	إكيد	
Poa labillardierei	Tussock	Poaceae	N		-		Grass & grasslike			0.1	-	1													
Poa meionectes		Poaceae	N				Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae	N		-		Grass & grasslike	1	50																
Poa spp.		Poaceae	N		-		Grass & grasslike																		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae		-	-															0.5	100				
Polyscias sambucifolia	Elderberry Panax	Araliaceae	N		-		Shrub																		
Populus spp.		Salicaceae	N	-	-		Tree																		

			Exotic	itus	atus	at Weed	Plot Number (right) BAM	MAC7	6	MAC7	7	MAC ²	1201	MAC4	1202	MAC4	1203	MAC4	1204	MAC4	1205	MAC4	1206	MAC4	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb																		
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb																	0.1	100
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern																		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Rosa rubiginosa	Sweet Briar	Rosaceae	E	-	-	HTE												0.5	5						
Rosa spp.		Rosaceae	Е	-	-																				
Rubus fruticosus	Blackberry complex	Rosaceae	Е	-	-			0.1	5	0.1	1	L						0.1	1						
Rubus parvifolius	Native Raspberry	Rosaceae	N	-	-		Shrub																		
Rumex acetosella	Sheep Sorrel	Polygonaceae	Е	-	-																				
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb																		
Rumex crispus	Curled Dock	Polygonaceae	Е	-	-																				
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb	0.1	1	10	C)		0.1	20	0.1	20								
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N	-	-		Grass & grasslike		_																
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae	N	-	_		Grass & grasslike																		
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike					0.5	100											0.5	0
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N	-	_		Grass & grasslike					0.0												0.0	
Rytidosperma spp.	neuantirer trainaby crass	Poaceae	N	-	-		Grass & grasslike																		
Salix fragilis	Crack Willow	Salicaceae	E	-	_		C. acc et g. accimic									1	0							5	0
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-			Grass & grasslike									_	J							J	
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N	-	_		Forb																		
Scolymus hispanicus	Golden Thistle	Asteraceae	E	-	_		1010													0.1	30			0.1	10
Senecio diaschides	Colucii Tilistic	Asteraceae	N	-	_		Forb													0.1	30			0.1	10
Senecio gunnii		Asteraceae	N		-		Forb																		
Senecio prenanthoides		Asteraceae		-			Forb	0.1	5																
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N		-		Forb	0.1																	
Senecio spp.	Fireweed	Asteraceae	N		_		Forb																		
Setaria gracilis	Theweed	Poaceae	E		_		1010																		
Setaria pumila	Pale Pigeon Grass	Poaceae	E	-	_																				
Solanum nigrum	Black-berry Nightshade	Solanaceae	E		-																				
Solenogyne spp.	Black Berry Mgmshade	Asteraceae	N	-	_		Forb																		
Sonchus asper	Prickly Sowthistle	Asteraceae	E	-			1016																		
Sonchus spp.	Sowthistle	Asteraceae	N				Forb																		
Spergularia rubra	Sandspurry	Caryophyllaceae	E	-			1010															0.1	10		
Sporobolus caroli	Fairy Grass	Poaceae	N	_			Grass & grasslike							5	0							0.1	10		
Sporobolus creber	Slender Rat's Tail Grass	Poaceae	N	-			Grass & grasslike							J	U										
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae		-			Forb																		
Stellaria media	Common Chickweed	Caryophyllaceae	E	-			1010																		
Stellaria pungens	Prickly Starwort	Caryophyllaceae	N		-		Forb																		
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae	N		-		Forb																		
Stylialani granningonani	Grass Triggerplant	Styliulaceae	IV				1010																		

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	МАС7	6	МАС7	7	MAC	11201	MAC4	1202	MAC	11203	MAC4	1204	MAC	11205	MAC4	1206	MAC4:	1207
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike																		
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																			0.1	100
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-																				
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Е		-													0.1	20						
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-							1	300)						0.1	50			0.5	100
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-					0.1	100)													
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb																		
Verbascum spp.		Scrophulariaceae	Е	-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica spp.	<u> </u>	Plantaginaceae	N	-	-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е	-	-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)	Е	-	-																				
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb																		
Viola spp.		Violaceae	N	-	-		Forb																		
Vittadinia dissecta		Asteraceae	N	-	-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae		-	-		Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	Е	-						10	0) 25	0			5	0	1	100					1	2000
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-	-		Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae		-			Forb																	0.1	50
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-			Forb																		
Wurmbea dioica	Early Nancy	Colchicaceae		-			Forb																		
Xerochrysum spp.		Asteraceae		-			Forb																		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-			Shrub																		

			Exotic	tus	atus	at Weed	Plot Number (right) BAM	MAC5	1201	MAC!	51202	MAC	51203	MAC	51201	MAC	51202	MAC	61203	МАС7	1201	MAC2 1	4090	MAC24	4090
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub											5	0						
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree													5	0				
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub															0.1	3		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)		-	-		Tree															1	4	10	0
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)		-	-		Shrub																		
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub											5	0	0.5	0				
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	-	_		Forb																		
Acaena ovina	Acaena	Rosaceae	N	-	-		Forb																	0.1	100
Acaena spp.	Sheep's Burr	Rosaceae	N	_	-		Forb																	0.1	100
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	-	-	HTE	1010	0.5	100	5)				0.1	20								
Acrotriche serrulata	Honeypots	Ericaceae	N	_	_		Shrub	0.5	100							0.1	20								
Acrotriche spp.	Попсурова	Ericaceae	N		-		Shrub															0.1	3		
Aira cupaniana	Silvery Hairgrass	Poaceae		-	_		Silido															0.1	J		
Alternanthera angustifolia	Silvery Hailgrass	Amaranthaceae	N		-		Forb																		
Amperea xiphoclada		Euphorbiaceae	N	-	_		Shrub																		
Amyema miquelii	Box Mistletoe	Loranthaceae	N	-	_		Other																		
Amyema pendula	DOX WIISTICTOC	Loranthaceae		_	-		Other					1	2												
Amyema spp.	Mistletoe	Loranthaceae	N	-	-		Other													5	0				
Anagallis arvensis	Scarlet Pimpernel	Primulaceae	E	-	-		Other													3	U				
Anthosachne scabra	Common Wheatgrass	Poaceae	N	-			Grass & grasslike																		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	_		Grass & grasslike																		
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-																					
Arctotheca calendula	Capeweed	Asteraceae	E	-						0.1	. 10	1													
Aristida ramosa	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike	10	0	0.1	. 10	,													
Aristida spp.	A Wiregrass	Poaceae		-			Grass & grasslike	10	U																
Aristida vagans	Threeawn Speargrass	Poaceae		-			Grass & grasslike																		
Asperula conferta	Common Woodruff	Rubiaceae		-			Forb																		
Asperula scoparia	Prickly Woodruff	Rubiaceae	N				Forb																		
Asperula spp.	Woodruff	Rubiaceae		-			Forb																		
Asphodelus fistulosus	Onion Weed	Asphodelaceae	E	-			1010																		
Astroloma humifusum	Native Cranberry	Ericaceae	N		-		Shrub																		
Astroioma numijusum Austrodanthonia spp.	Native Clamberry	Poaceae	N	-			Grass & grasslike																		
• •	A Spoargrass		N					Г	0			20													
Austrostina saahra	A Speargrass	Poaceae		-	-		Grass & grasslike	5	0			20	0												
Austrostina sna	Speargrass	Poaceae	N	-			Grass & grasslike																		
Austrostipa spp.	A Speargrass	Poaceae	N		-		Grass & grasslike					0.4	20												
Avena barbata	Bearded Oats	Poaceae	E	-	-							0.1	. 20												

			Exotic	tus	atus	ıt Weed	Plot Number (right) BAM	MAC5	1201	MAC	51202	MAC5	1203	MAC6	1201	MACE	1202	MAC6	51203	МАС7	1201	MAC24	4090	MAC2	4090
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance																
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-									50	0										
Avena spp.	Oats	Poaceae	Е	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																	0.1	1
Blechnum spp.		Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub													0.1	1				
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	_	_		Grass & grasslike					0.1	5												
Brachyloma daphnoides	Daphne Heath	Ericaceae	N		-		Shrub					0.1	J												
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	_	_		Forb																		
Brachyscome spp.	Trail y Cutiear Daisy	Asteraceae	N		-		Forb																		
Brassica oleracea	Collards	Brassicaceae	E	-			1015																		
	Brassica	Brassicaceae	E					1	100																
Brassica spp.			_		-	HTE		T	100	30	0	10	0	0.5	100	0.1	20	0.5	100						
Brassica tournefortii	Mediterranean Turnip Praire Grass	Brassicaceae	E	-	-	піс			0	30	0	0.5			100	0.1	20	0.5	100						
Bromus catharticus		Poaceae		-	-	UTC		25	0							25	^								
Bromus diandrus	Great Brome	Poaceae		-	-	HTE		25	0	0.4	F.0	0.1	20			25	U	_	0						
Bromus hordeaceus	Soft Brome	Poaceae	E	-	-		- 1	5	0	0.1	50			0.1	50			5	U						
Bulbine bulbosa	Bulbine Lily	Asphodelaceae	N	-	-		Forb																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	-	-		Shrub															0.5	2		
Caesia spp.		Anthericaceae	N	-	-		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	-	-		Shrub											1	1						
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb																		
Calotis spp.	A Burr-daisy	Asteraceae	N	-	-		Forb															0.1	200	0.1	100
Carex appressa	Tall Sedge	Cyperaceae		-	-		Grass & grasslike																		
Carex bichenoviana		Cyperaceae	N	-			Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae	N	-	-		Grass & grasslike																		
Carex gaudichaudiana		Cyperaceae	N	-	-		Grass & grasslike																		
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike																		
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub																		
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub																		
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub																		
Cassinia longifolia		Asteraceae	N	-	-		Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub													1	10				
Cassinia spp.		Asteraceae	N	-	-		Shrub																		
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree											1	1						
Centaurium spp.		Gentianaceae	Е	-	-																				
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N		-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	E													0.1	5								
Chloris spp.	T de ricii	Poaceae	N	-	-		Grass & grasslike									0.1	J								
Chloris truncata	Windmill Grass	Poaceae			-		Grass & grasslike																		

			Exotic	ıtus	tatus	at Weed	Plot Number (right) BAM	MAC5	1201	MAC5	1202	MAC5	1203	MAC6	1201	MAC	51202	MAC	51203	МАС7	1201	MAC2 1	4090	MAC2	4090
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb											1	50	0.1	5	0.1	10		
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																				
Conyza spp.	A Fleabane	Asteraceae	Е	-	-																				
Coronidium elatum		Asteraceae	N	-	-		Shrub																		
Coronidium rutidolepis		Asteraceae	N	-	-																				
Coronidium scorpioides	Button Everlasting	Asteraceae	N	-	-		Forb																		
Coronidium spp.	Ţ.	Asteraceae	N	-	-		Forb																		
Cotoneaster spp.		Malaceae	Е	-	-	HTE																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae	N	-	-		Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E	-	-	HTE																			
Crepis capillaris	Smooth Hawksbeard	Asteraceae	Е	-	-																				
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N	-	_		Forb																		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	-		Forb																		
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae		-	-		Forb																		
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike			1	0	0.5	0	25	0	5	0								
Cynodon spp.		Poaceae	N	-	-		Grass & grasslike			_		0.0	J												
Cynodon transvaalensis	South African Couch	Poaceae	E	-	-		Cruss & Brussinic																		
Cyperus brevifolius	South Ameun Couch	Cyperaceae	E	-	-																				
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	E	-	-	HTE																			
Cyperus Ihotskyanus	ombrena seage	Cyperaceae	N	-	-		Grass & grasslike											0.5	50						
Cyperus spp.		Cyperaceae	N	-			Grass & grasslike											0.5	30						
Cytisus scoparius	English Broom	Fabaceae (Faboideae)	E		_	HTE	Grass & Brassine																	0.1	3
Dactylis glomerata	Cocksfoot	Poaceae		-	_			0.5	50			0.1	20			0.1	20	80	0					0.1	J
Daucus glochidiatus	Native Carrot	Apiaceae	N		-		Forb	0.5	30			0.1	20			0.1	20	00	U						
Daviesia corymbosa	ivative carrot	Fabaceae (Faboideae)	N				Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla	Ditter peu	Fabaceae (Faboideae)		-			Shrub													1	20				
Daviesia spp.		Fabaceae (Faboideae)		-			Shrub														20				
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-	_		Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N	-	-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb																		
Dianella spp.	Dideberry Lily	Phormiaceae	N	-			Forb													1	50				
Dichanthium spp.		Poaceae	N	-	-		Grass & grasslike													1	50				
Dichondra repens	Kidney Weed	Convolvulaceae	N				Forb															0.1	200	1	1000
Dichopogon spp.	Chocolate Lily	Anthericaceae	N		-		Forb															0.1	200	1	1000
Dichopogon spp.	Chocolate Lily	Anthentaceae	IN				1010																		

			Evotic	of the	tatus	at Weed	Plot Number (right) BAM	MAC5	1201	MAC5	1202	MAC5	1203	MAC6	1201	MAC6	1202	MAC	61203	МАС7	1201	MAC2 1	4090	MAC24 2	090
ScientificName	Common Name	Family	Native / Evetic	RC ctatus	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub													1	20				
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dipsacus spp.		Dipsacaceae	Е	-	-																				
Drosera spp.		Droseraceae	N	-	-		Forb																		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N	-	-		Forb			0.1	100					0.1	10)							
Dysphania spp.		Chenopodiaceae	N	-	-		Forb																		
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike																	7	
Echium plantagineum	Patterson's Curse	Boraginaceae	Е	-	-			1	50	5	0	0.1	20	0.1	5	1	50								
Echium spp.		Boraginaceae	Е	-	-																				
Echium vulgare	Viper's Bugloss	Boraginaceae	Е	-	-																			السا	
Einadia hastata	Berry Saltbush	Chenopodiaceae	N	-	-		Forb																		
Einadia nutans	Climbing Saltbush	Chenopodiaceae	N	-	-		Forb	5	0			0.5	50			0.1	5							الكالة	
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N	-	-		Forb																		
Eleocharis acuta		Cyperaceae	N	-	-		Grass & grasslike																		
Eleusine tristachya	Goose Grass	Poaceae	E	-	-		and the grade mile																		
Elymus scaber	Common Wheatgrass	Poaceae	N	-	_		Grass & grasslike																	السعا	
Enneapogon nigricans	Niggerheads	Poaceae	N	-	-		Grass & grasslike																		
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N	-	_		Grass & grasslike																	السعا	
Epacris spp.	carry windring crass	Ericaceae	N	1-	-		Shrub																		
Epilobium spp.		Onagraceae	N	-	-		Forb																	السم	
Eragrostis cilianensis	Stinkgrass	Poaceae	E	-	_		1010																		
Eragrostis curvula	African Lovegrass	Poaceae	E		-	НТЕ																		السا	
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N		-		Grass & grasslike	0.1	10			0.1	5												
Eragrostis parviflora	Weeping Lovegrass	Poaceae	N		-		Grass & grasslike	0.1	10			0.1												السا	
Eragrostis spp.	A Lovegrass	Poaceae	N	_	_		Grass & grasslike																		
Erodium botrys	Long Storksbill	Geraniaceae	E	-	-		Grass & Brassine																	السا	
Erodium cicutarium	Common Crowfoot	Geraniaceae	E		_							0.1	50												
Erodium crinitum	Blue Crowfoot	Geraniaceae	N	_	_		Forb					0.1	30												
Erodium malacoides	Diac crowing c	Geraniaceae	E	-	_		1010																		
Erodium spp.	Crowfoot	Geraniaceae	N	_	_		Forb																		
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N	-	_		Tree	25	2									1	L O						
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N		_		Tree	1	1									-							
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N	V	_		Tree	_																	
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N	-	-		Tree																	60	0
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N		_		Tree													40	0			00	U
Eucalyptus dives Eucalyptus fastigata	Brown Barrel	Myrtaceae	N		-		Tree													40	U				
Eucalyptus goniocalyx	Bundy	Myrtaceae	N		_		Tree																		
Eucalyptus gorilocalyx Eucalyptus macrorhyncha	Red Stringybark		N		-		Tree																		
-	Brittle Gum	Myrtaceae	N																	Е	0				
Eucalyptus mannifera		Myrtaceae			-		Tree	20	2			25	0			25	0			5	U				
Eucalyptus melliodora	Yellow Box	Myrtaceae	IN		-		Tree	20	2			25	0			25	0								

					atus	Weed to	n vveed	Plot Number (right) BAM	MAC5	1201	MAC	51202	MAC!	51203	MAC6	1201	MAC	51202	MAC	51203	МАС7	1201	MAC2 1	4090	MAC24 2	4090
ScientificName	Common Name	Family		/241224	EDRC ctatus	High Threat Weed		growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-		-	Tree															50	0	35	0
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-		-	Tree													30	0	25	0		
Eucalyptus spp.		Myrtaceae	N	-	-		-	Tree																		
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-		-	Tree																		
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		-	Tree																		
Euchiton japonicus		Asteraceae	N	-	-		ı	Forb																		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		- 1	Forb					0.1	. 5												
Euchiton spp.	A Cudweed	Asteraceae	N	-	-		ı	Forb																		
Euphorbia dallachyana		Euphorbiaceae	N	-	-		ı	Forb																		
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N	-	-		ı	Forb																		
Euphorbia spp.		Euphorbiaceae	N	-	-			Forb					0.1	. 25												
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	-		9	Shrub																		
Exocarpos strictus	Dwarf Cherry	Santalaceae	N	-	-		9	Shrub																	0.1	1
Foeniculum vulgare	Fennel	Apiaceae	Е		-										1	10										
Galium murale	Small Bedstraw	Rubiaceae	Е	-	-																					
Gamochaeta calviceps	Cudweed	Asteraceae	E	-	-																					
Geranium graniticola		Geraniaceae	N	-	-			Forb																		
Geranium molle	Cranesbill Geranium	Geraniaceae	E		_										0.1	10	0.1	. 5								
Geranium solanderi	Native Geranium	Geraniaceae	N		_			Forb							0.1	10	0.1								0.1	200
Geranium spp.	Native Geramani	Geraniaceae		-	_			Forb																	0.1	200
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		_			Other																		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-	_			Other																		
Gonocarpus humilis	Sman rear dryenie	Haloragaceae	N	-	_			Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae	N	_				Forb																	0.1	50
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		_			Forb															0.1	300	0.1	50
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N		_			Forb															0.1	300	0.1	30
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-			Forb																		
Goodenia spp.	ivy dobuerna	Goodeniaceae	N		-			Forb															0.1	50		
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N		-			Forb															0.1	30		
Haloragis spp.	A Raspwort	Haloragaceae	N		-			Forb													0.1	20				
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N					Other													0.1	10	0.1	10	0.5	30
Helichrysum leucopsideum	Satin Everlasting	Asteraceae			-			Forb													0.5	10	0.1	10	0.5	30
Helichrysum spp.	Satiii Everiastiiig		N		_			Forb																		
	Blue Heliotrope	Asteraceae		-	-	НТ		FOID																		
Heliotropium amplexicaule	Hoary Guinea Flower	Boraginaceae Dilleniaceae	N		-	пі		Shrub															0.1	3	0.1	2
Hibbertia obtusifolia	•				-			Siliub															0.1	3	0.1	3
Holcus lanatus	Yorkshire Fog	Poaceae		-					4	200	0.5	100	,				25	_	0.4	20						
Hordeum leporinum	Barley Grass	Poaceae (Fahaidaaa)	E	-	-			Foul	1	200	0.5	100	,				25	0	0.1	20	0.4	4			0.1	
Hovea heterophylla		Fabaceae (Faboideae)	N	_	-			Forb													0.1	1			0.1	3
Hovea spp.	Chinding D	Fabaceae (Faboideae)	N					Forb																		
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N		-			Forb																		
Hydrocotyle sibthorpioides		Apiaceae	N		-			Forb -																		
Hydrocotyle spp.		Apiaceae	N		-			Forb																		
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-			Forb																		

			rito's	rtus	tatus	at Weed	Plot Number (right) BAM	MAC5	1201	MAC!	51202	MAC	51203	MACE	51201	MAC6	1202	MAC6	1203	MAC7	1201	MAC24	4090	MAC2 2	4090
ScientificName	Common Name	Family	Native / Evotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance														
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	НТЕ														0.1	50				
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	100			0.1	50			0.1	50	0.1	30	0.1	20			0.1	20
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																	0.1	50		
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus		Juncaceae	Е	-	-																				
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike																		
Lactuca serriola	Prickly Lettuce	Asteraceae	Е	-	-		ŭ											0.1	50						
Lagenifera spp.		Asteraceae	N	-	-		Forb																		
Lamarckia aurea	Goldentop	Poaceae	Е	-	-																				
Lepidium africanum	Common Peppercress	Brassicaceae	Е	_	-					10	0)													
Lepidium spp.	A Peppercress	Brassicaceae	N	-	-		Forb																		
Leptospermum myrtifolium	- PP	Myrtaceae	N	-	-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N	-	-		Shrub																		
Leucopogon appressus		Ericaceae	N	-	-		Shrub													0.5	20				
Leucopogon fletcheri		Ericaceae	N	-	-		Shrub																		
Leucopogon virgatus		Ericaceae	N	-	-		Shrub																		
Linum marginale	Native Flax	Linaceae	N	-	-		Forb																		
Lissanthe spp.		Ericaceae	N	-	-		Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E		-					25	50	0.5	200			1	200	0.1	100						
Lomandra cylindrica		Lomandraceae		-	-		Grass & grasslike					0.0				_		0.2							
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-			Grass & grasslike													5	0	0.1	20	0.1	50
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-	_		Grass & grasslike													0.1	10	5	0		0
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N		-		Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.		Juncaceae	N	-	-		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E	-	-	НТЕ																			
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-	-																				
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N		-		Forb																		
Malus pumila	Apple	Malaceae	E	-																					
Malva neglecta	Dwarf Mallow	Malvaceae			-					0.1	20)				1	100								
Marrubium spp.	- 11 31 31 31 31 31 31 31 31 31 31 31 31	Lamiaceae	E	-	-					J							_00								
Marrubium vulgare	White Horehound	Lamiaceae			-			5	0			0.5	10			0.1	5								
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-	-							5.5				7.1									
Medicago spp.	A Medic	Fabaceae (Faboideae)		-	_																				

			;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	2004	atus	at Weed		Plot Number (<u>right</u>) BAM	MAC5	1201	MAC	1202	MAC	51203	MAC6	1201	MAC	61202	MAC6	1203	МАС7	1201	MAC2	4090	MAC2 2	4090
ScientificName	Common Name	Family	Notice / Control		EPBC status	High Threat Weed	9	growth form (below)	Cover	Abundance	Cover	Abundance														
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		9	Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-			Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		(Grass & grasslike															0.1	5	0.1	5
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																					
Modiola spp.		Malvaceae	Е	-	-		Ť																			
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																					
Monoculus monstrosus		Asteraceae	Е	-	-		T																			
Monotoca scoparia		Ericaceae	N	-	-		9	Shrub																	0.1	1
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-										1	200										
Notothixos spp.		Viscaceae	N	_	_		(Other																		
Olearia spp.		Asteraceae	N	_	-			Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	E	-	_		Ť	3111 415			5	()		25	0)									
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N	_	_			Fern			J				23											
Orobanche spp.	Adder 3 rongue	Scrophulariaceae	N		_			Forb																		
Oxalis perennans		Oxalidaceae	N		_			Forb	0.5	100			0.1	. 5					0.1	100	0.1	10				
Oxalis spp.		Oxalidaceae	N					Forb	0.5	100			0.1	. ,					0.1	100	0.1	10				
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		-			Shrub																		
Panicum effusum	Hairy Panic	Poaceae	N		_			Grass & grasslike																		
						LIT		Grass & grasslike																		
Paspalum dilatatum	Paspalum	Poaceae	E		-	HT		Crass Q aresolika																		
Paspalum spp.	Wilmon Cooks	Poaceae		-	-		(Grass & grasslike																		
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E	-	-																					
Pentaschistis airoides	False Hairgrass	Poaceae	E	-	-											_										
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N	-	-		_!	Forb							0.1	5	•									
Petrorhagia spp.		Caryophyllaceae		-	-																					
Phalaris aquatica	Phalaris	Poaceae	Е	-	-										5	C)									
Phalaris minor	Lesser Canary Grass	Poaceae	Е		-																					
Phalaris spp.		Poaceae	Е		-																					
Phragmites australis	Common Reed	Poaceae	N		-			Grass & grasslike							1	200)									
Phragmites spp.		Poaceae	N		-		(Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae	Е		-																					
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae	N		-		ı	Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae	Е	-	-																					
Plantago spp.	Plantain	Plantaginaceae	N	-	-		ı	Forb											0.1	20	0.1	50				
Platylobium formosum		Fabaceae (Faboideae)	N	-	-		(Shrub																		
Poa annua	Winter Grass	Poaceae	Е	-	-																					
Poa induta		Poaceae	N	-	-		(Grass & grasslike													5	0				
Poa labillardierei	Tussock	Poaceae	N	-	-		(Grass & grasslike																	30	0
Poa meionectes		Poaceae	N	-	-		(Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae	N		-			Grass & grasslike	0.1	5											60	0	40	0	3	0
Poa spp.		Poaceae	N		-			Grass & grasslike																		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae	Е		-																					
Polyscias sambucifolia	Elderberry Panax	Araliaceae	N		-		9	Shrub																		
Populus spp.	,	Salicaceae		-				Tree																		

			Exotic	tus	atus	ıt Weed	Plot Number (<u>right</u>) BAM	MAC5	1201	MAC5	1202	MAC5	1203	МАС6	1201	МАС6	1202	MAC6	1203	MAC7:	1201	MAC24 1	1090	MAC24 2	1090
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Poranthera microphylla Sn	mall Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea Pi	rigweed	Portulacaceae	N	-	-		Forb			0.1	20														
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum Je	ersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum Br	Bracken	Dennstaedtiaceae	N	-	-		Fern															20	0		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
	weet Briar	Rosaceae	Е	-	-	HTE																			
Rosa spp.		Rosaceae	Е	-	-																				
	Blackberry complex	Rosaceae	Е	-	-											0.1	1			0.5	2			0.1	2
	lative Raspberry	Rosaceae	N	-	-		Shrub																		
	heep Sorrel	Polygonaceae	Е	-	-																				
	wamp Dock	Polygonaceae	N	-	-		Forb					0.1	5					0.1	10						
	Curled Dock	Polygonaceae	Е	-	-																				
·	Oock	Polygonaceae	N	-	_		Forb	0.1	20					0.1	100										
	Ringed Wallaby Grass	Poaceae	N	-	-		Grass & grasslike	0.1	10			0.1	200	0.2				0.1	20						
	ong-leaved Wallaby Grass	Poaceae	N	-	_		Grass & grasslike	0.2				0.2						0.2							
	Mountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike	0.1	20																
	Redanther Wallaby Grass	Poaceae	N	-	_		Grass & grasslike	0.1																	
Rytidosperma spp.	reduitiner Wandby Grass	Poaceae	N	-	-		Grass & grasslike																		
	Crack Willow	Salicaceae	E	-	-		Cruss & Brussinic											1	0						
	luke Bogrush	Cyperaceae	N	-	-		Grass & grasslike											_							
	wo-flowered Knawel	Caryophyllaceae	N		_		Forb																		
,	Solden Thistle	Asteraceae	E	-	-		1010											0.1	10						
Senecio diaschides	Joinett Thistic	Asteraceae	N		_		Forb											0.1	10			0.1	1		
Senecio gunnii		Asteraceae	N	-	-		Forb															0.1			
Senecio prenanthoides		Asteraceae		-	_		Forb																		
	Cotton Fireweed	Asteraceae	N	_	-		Forb																		
	ireweed	Asteraceae	N		_		Forb																أوي	أوالم	
Setaria gracilis	neweed	Poaceae	E		-		1010																		
	ale Pigeon Grass	Poaceae		-	_																			أحما	
	Black-berry Nightshade	Solanaceae	E	-	-																				
Solenogyne spp.	nack berry rughtshade	Asteraceae	N	_	_		Forb																	أحما	
	rickly Sowthistle	Asteraceae	E	-	_		1015																		
·	owthistle	Asteraceae	N				Forb																		
	andspurry	Caryophyllaceae		-	-		1015					0.1	1												
-	airy Grass	Poaceae		-			Grass & grasslike					0.1													
	lender Rat's Tail Grass	Poaceae	N		-		Grass & grasslike																		
	lender Stackhousia	Stackhousiaceae		-			Forb																		
	Common Chickweed	Caryophyllaceae	E	-			1010																		
	Prickly Starwort	Caryophyllaceae	N		-		Forb																		
	Grass Triggerplant	Stylidiaceae	N	-	-		Forb													0.1	5				
Styphelia spp.	nass miggerhiam	Ericaceae		-			Shrub													0.1	5				

				TACKIC	tatus	at Weed	Plot Number (right) BAM	MAC5	1201	MAC5	51202	MAC5	1203	MAC	51201	MAC6	1202	MAC	1203	МАС7	1201	MAC2 1	4090	MAC2 2	4090
ScientificName	Common Name	Family		BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Ε	-	-																				
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike													15	0				
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-					0.5	50	0.1	20												
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-							0.1	50			0.1	20	0.1	100						
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е		-							0.1	50												
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-																				
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb									5	50								
Verbascum spp.		Scrophulariaceae	Е	-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb																	0.1	0
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica spp.	<u> </u>	Plantaginaceae	N	-	-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е		-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)	Е		-																				
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb															0.1	1	0.1	200
Viola spp.		Violaceae	N	-	-		Forb																		
Vittadinia dissecta		Asteraceae	N		-		Forb					0.1	5												
Vittadinia spp.	Fuzzweed	Asteraceae		-	-		Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	Е	-	-							0.1	50												
Wahlenbergia communis	Tufted Bluebell	Campanulaceae		-	-		Forb					0.1						0.1	20						
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae	N		-		Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae		-	-		Forb					0.1	5							0.1	50				
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb	0.1	50																
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-	-		Forb																		
Wurmbea dioica	Early Nancy	Colchicaceae	N		-		Forb																		
Xerochrysum spp.	, ,	Asteraceae	N		-		Forb																		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae			-		Forb																		
Zieria cytisoides	Downy Zieria	Rutaceae		-	-		Shrub															0	0		

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	5090	MAC2 2	25090	MAC2	25090	MAC2	5090	MAC2	5090	MAC2 9	5090	MAC2 7	5090	MAC2 0	5091	R01DN	NG
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree	5	6					5	0	1	2	5	0			5	3		
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)	N	-	-		Tree	5	0	5	2			25	0	10	0								
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub					5	0)											
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb			0.1	200														
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	-	-		Forb																		
Acaena ovina	Acaena	Rosaceae	N	-	-		Forb											0.1	1						
Acaena spp.	Sheep's Burr	Rosaceae	N	-	-		Forb																		
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	Е	-	-	НТЕ		0.1	10					0.1	10										
Acrotriche serrulata	Honeypots	Ericaceae	N	-	-		Shrub											0.5	10						
Acrotriche spp.		Ericaceae	N	-	-		Shrub																		
Aira cupaniana	Silvery Hairgrass	Poaceae	Е	-	-																				
Alternanthera angustifolia	, , , ,	Amaranthaceae	N	-	-		Forb																		
Amperea xiphoclada		Euphorbiaceae	N	_	-		Shrub									0.1	1								
Amyema miquelii	Box Mistletoe	Loranthaceae	N	-	-		Other							0.5	0										
Amyema pendula		Loranthaceae		-	-		Other																		
Amyema spp.	Mistletoe	Loranthaceae	N		-		Other							1	0	0.1	1								
Anagallis arvensis	Scarlet Pimpernel	Primulaceae		-	-																				
Anthosachne scabra	Common Wheatgrass	Poaceae	N	-	-		Grass & grasslike																		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-	-		and an grademic																		
Anthoxanthum spp.	Vernal Grass	Poaceae	E		-																				
Arctotheca calendula	Capeweed	Asteraceae	_	-	_			0.1	20									0.1	50						
Aristida ramosa	Purple Wiregrass	Poaceae		-	-		Grass & grasslike																		
Aristida spp.	A Wiregrass	Poaceae	N		-		Grass & grasslike																		
Aristida vagans	Threeawn Speargrass	Poaceae			-		Grass & grasslike																		
Asperula conferta	Common Woodruff	Rubiaceae	N		_		Forb																		
Asperula scoparia	Prickly Woodruff	Rubiaceae		-			Forb																		
Asperula spp.	Woodruff	Rubiaceae		-			Forb																		
Asphodelus fistulosus	Onion Weed	Asphodelaceae	F	-	-																				
Astroloma humifusum	Native Cranberry	Ericaceae	N	-			Shrub																		
Austrodanthonia spp.	Tractic Cramberry	Poaceae	N		-		Grass & grasslike																		
Austrostipa nodosa	A Speargrass	Poaceae		-			Grass & grasslike																		
Austrostipa nodosa Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike																		
Austrostipa spp.	A Speargrass	Poaceae		-			Grass & grasslike							0.5	50										
Avena barbata	Bearded Oats	Poaceae		-			Grass & grassine							0.5	30										

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	5090	MAC2 2	25090	MAC2	25090	MAC2!	5090	MAC2	5090	MAC2	25090	MAC2 7	5090	MAC2 0	5091	R01DN	IG
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	E	-	-																				
Avena spp.	Oats	Poaceae	E	-	-																				
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	E	-	-																				
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.		Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike																	8	500
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub																		
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	-		Forb																		
Brachyscome spp.	, , , , , , , , , , , , , , , , , , , ,	Asteraceae	N	-	-		Forb																		
Brassica oleracea	Collards	Brassicaceae	Е	-	-																				
Brassica spp.	Brassica	Brassicaceae	E	_	-																				
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E	_	-	HTE																			
Bromus catharticus	Praire Grass	Poaceae	E	-	-																				
Bromus diandrus	Great Brome	Poaceae	E	_	-	HTE																			
Bromus hordeaceus	Soft Brome	Poaceae	E		_																				
Bulbine bulbosa	Bulbine Lily	Asphodelaceae		-	-		Forb																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	_	_		Shrub																		
Caesia spp.	Native Blackenorm	Anthericaceae	N	-	-		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	_	_		Shrub																		
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	_			Forb																		
Calotis spp.	A Burr-daisy	Asteraceae		_			Forb	0.1	1000			0.1	500	0.1	50										
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike	0.1	1000			0.1	300	0.1	30										
Carex bichenoviana	Tall Seuge	Cyperaceae		_			Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae		-			Grass & grasslike																		
Carex gaudichaudiana	Tasset Seuge	Cyperaceae		-			Grass & grasslike																		
Carex spp.		Cyperaceae		-			Grass & grasslike																		
Cassinia aculeata	Dolly Bush			-			Shrub																		
Cassinia arcuata	Sifton Bush	Asteraceae Asteraceae	N				Shrub									0.1	1								
Cassinia laevis	Cough Bush			-			Shrub			0.1	1					0.1	1								
	Cough Bush	Asteraceae	N				Shrub			0.1	T					10	0								
Cassinia longifolia		Asteraceae														10	0								
Cassinia quinquefaria		Asteraceae	N N	-	-		Shrub Shrub																		
Cassinia spp.	Division Only	Asteraceae																							
Castavirium cunninghamiana	River Oak	Castianaceae		-			Tree																		
Centaurium spp.	Ladia - Bassa - ad	Gentianaceae	E		-		F I.																		
Centella asiatica	Indian Pennywort	Apiaceae		-			Forb																		
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern																		
Cheilanthes spp.	Rock Fern	Pteridaceae		-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	E				0 0 :::																		
Chloris spp.		Poaceae	N				Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	25090	MAC2	25090	MAC2	25090	MAC2	5090	MAC2	25090	MAC2	25090	MAC2:	5090	MAC2! 0	5091	R01DN	IG
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance												
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike																		
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																				
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb																		
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-																				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other																		
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-																				
Conyza spp.	A Fleabane	Asteraceae	Е	-	-																				
Coronidium elatum		Asteraceae	N	-	-		Shrub																		
Coronidium rutidolepis		Asteraceae	N	-	-																				
Coronidium scorpioides	Button Everlasting	Asteraceae	N	-	-		Forb																		
Coronidium spp.		Asteraceae	N	-	-		Forb																		
Cotoneaster spp.		Malaceae		-	-	НТЕ																			
Crassula sieberiana	Australian Stonecrop	Crassulaceae	N	_	_		Forb																		
Crataegus monogyna	Hawthorn	Malaceae	E	_	-	HTE																			
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E	-	-	1111																			
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N	_			Forb																		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N		-		Forb							0.1	100										
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae	N				Forb							0.1	100										
Cynodon dactylon	Common Couch	Poaceae	N		-		Grass & grasslike																	0.1	50
Cynodon spp.	Common Couch	Poaceae	N				Grass & grasslike																	0.1	30
Cynodon transvaalensis	South African Couch		E		-		Glass & glasslike																		
Cyperus brevifolius	South African Couch	Poaceae Cyperaceae		-																					
	Umbrella Sedge		E			HTE																			
Cyperus eragrostis	Offibrella Seuge	Cyperaceae	N	-		піс	Grass & grasslike																		
Cyperus Ihotskyanus		Cyperaceae	N		-		_																		
Cyperus spp.	English Dansan	Cyperaceae			-	LITE	Grass & grasslike	25	0													0.1	1		
Cytisus scoparius	English Broom	Fabaceae (Faboideae)		-		HTE		25	0													0.1	1	0.4	F00
Dactylis glomerata	Cocksfoot	Poaceae		-			et.																	0.4	500
Daucus glochidiatus	Native Carrot	Apiaceae (5-lacidae)	N		-		Forb																		
Daviesia corymbosa	2	Fabaceae (Faboideae)		-			Shrub																		
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)		-			Shrub																		
Daviesia leptophylla		Fabaceae (Faboideae)		-			Shrub																		
Daviesia spp.		Fabaceae (Faboideae)		-	-		Shrub				_														
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)		-			Forb			0.1	5														
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)		-			Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae		-			Forb							0.1	10										
Dianella revoluta	Blueberry Lily	Phormiaceae		-			Forb																		
Dianella spp.		Phormiaceae	N	-	-		Forb															0.1	10		
Dichanthium spp.		Poaceae		-	-		Grass & grasslike																		
Dichondra repens	Kidney Weed	Convolvulaceae	N		-		Forb			0.1	1000	0.5	2000	1	500			0.1	300			0.1	1000		
Dichopogon spp.	Chocolate Lily	Anthericaceae		-			Forb																		
Digitaria brownii	Cotton Panic Grass	Poaceae	N	-	-		Grass & grasslike																	0.3	400

Common Name				Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	25090	MAC2	25090	MAC2	25090	MAC2 4	5090	MAC2	5090	MAC2	25090	MAC2 7	5090	MAC2: 0	5091	R01DN	IG
Dilitymin phyticolics	ScientificName	Common Name	Family	Native /	BC st	EPBCs	High Thre	growth form	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Diliveyrius serices Egg and Sacon Rea Fabaceae	Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Fabaceae Fabiolicaee N -	Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dipodum hamiltonionium Yellow Hyacinth-orchial Orchidacee N - Forb Organization	Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub									0.2	5								
Dipscaceaee F -	Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub																		
Droseracee N Forb Dysphants pumilio Small Crumbweed Chenopodiacee N Forb Dysphants spp. Echinopogon ovotus Forest Hedgehog Grass Poaceae N Grass & grasslike Echinopogon ovotus Forest Hedgehog Grass Poaceae N Grass & grasslike Echinopogon ovotus Forest Hedgehog Grass Poaceae N Grass & grasslike Echinom spp. Boraginaceae E Echinom vulgare Viper's Bugloss Boraginaceae E Endud hastata Berry Saltbush Chenopodiaceae N Forb Einadia natras Climbing Saltbush Chenopodiaceae N Forb Einadia natras Climbing Saltbush Chenopodiaceae N Forb Einadia notras Einadia polygonoides Exchora seuto Eocosefoot Chenopodiaceae N Forb Einadia notras Climbing Saltbush Chenopodiaceae N Forb Einadia notras Climbing Saltbush Chenopodiaceae N Forb Einadia notras Einadia polygonoides Einadia polygonoides Endud polygonoides Cyperaceae N Grass & grasslike Elevatiors acuto Eocosefoot Chenopodiaceae N Grass & grasslike Elevatiors acuto Enteropogon acutolaris Entero	Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dysphania pumilio Small Crumbweed Chenopodiaceae N	Dipsacus spp.		Dipsacaceae	Е	-	-																				
Dysphonia spp. Chenopodiaceae N	Drosera spp.		Droseraceae	N	-	-		Forb																		
Echium plantogineum Patterson's Curse Boraginaceae Echium sp. Echium plantogineum Patterson's Curse Boraginaceae Echium sp. Echium suigare Viper's Bugloss Boraginaceae Echium suigare Viper's Bugloss Viper's Bugloss Boraginaceae N - Forb Viper's Bugloss Viper's Bug	Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N	-	-		Forb																	0.2	300
Echium plantagineum Patterson's Curse Boraginaceae Echium supp. Boragi	Dysphania spp.		Chenopodiaceae	N	-	-		Forb																		
Echium sp. Boraginaceae E		Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike																		
Echium yulgare Viper's Bugloss Boraginaceae E -			Boraginaceae	Е	-	-		Ü																		
Echiadia hastata Berry Saltbush Chenopodiaceae N Forb Einadia hastata Berry Saltbush Chenopodiaceae N Forb Einadia polygonoides Knotweed Goosefoot Chenopodiaceae N Grass & grasslike Elevatis scutta Elevatis chistorya Poaceae N Grass & grasslike Enteropogon nigricans Niggerheads Poaceae N Grass & grasslike Enteropogon nigricans Niggerheads Poaceae N Grass & grasslike Enteropogon acicularis Curly Windmilli Grass Poaceae N Grass & grasslike Enteropogon acicularis Stinkgrass Poaceae E HTE Erogrostis (Idianensis Stinkgrass Poaceae E HTE Erogrostis populpion Weeping Lovegrass Poaceae N Grass & grasslike Erogrostis populpion Weeping Lovegrass Poaceae N Grass & grasslike Erogrostis populpion Weeping Lovegrass Poaceae N Grass & grasslike Erogrostis populpion Weeping Lovegrass Poaceae N Grass & grasslike Erodium cicutarium Common Crowfoot Geraniaceae E Forb Erodium cicutarium Bluc Crowfoot Geraniaceae E Forb Erodium polytus bridgesiana Blue Crowfoot Geraniaceae N Forb Erodium polytus bridgesiana Apple Box Myrtaceae N Tree Eucolyptus bridgesiana Apple Box Myrtaceae N Tree	Echium spp.			Е	-	-																				
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Eragrostis parviflora Weeping Lovegrass Poaceae N Grass & grasslike Eragrostis spp. A Lovegrass Poaceae N Grass & grasslike Erodium botrys Long Storksbill Geraniaceae E Erodium cicutarium Common Crowfoot Geraniaceae E Erodium crinitum Blue Crowfoot Geraniaceae N Forb Erodium malacoides Geraniaceae E Erodium spp. Crowfoot Geraniaceae N Forb Eucalyptus blakelyi Blakely's Red Gum Myrtaceae N Tree Eucalyptus bridgesiana Apple Box Myrtaceae N Tree Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree	_				1_																					
Eragrostis spp. A Lovegrass Poaceae N Grass & grasslike 0.5 30 10 5 5 6 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5 5 10 5 10 5 5 10 5						-																			0.1	100
Erodium botrys Long Storksbill Geraniaceae E Erodium cicutarium Common Crowfoot Geraniaceae E Forb Erodium malacoides Geraniaceae E Forb Forb Erodium spp. Crowfoot Geraniaceae N Forb Forb Eucalyptus blakelyi Blakely's Red Gum Myrtaceae N Tree Eucalyptus bridgesiana Apple Box Myrtaceae N Tree Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree																							0.5	30		500
Erodium cicutarium Common Crowfoot Geraniaceae N Forb Erodium malacoides Geraniaceae E Forb Crowfoot Geraniaceae E Forb Eucalyptus blakelyi Blakely's Red Gum Myrtaceae Myrtaceae N Tree Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree		_				_		Grass & grassime															0.0			300
Erodium crinitumBlue CrowfootGeraniaceaeNForbErodium malacoidesGeraniaceaeEErodium spp.CrowfootGeraniaceaeNForbEucalyptus blakelyiBlakely's Red GumMyrtaceaeNTreeEucalyptus bridgesianaApple BoxMyrtaceaeNTreeEucalyptus cannoniiCapertee StringybarkMyrtaceaeNV-Tree	•																								0.1	30
Erodium malacoidesGeraniaceaeEErodium spp.CrowfootGeraniaceaeNForbEucalyptus blakelyiBlakely's Red GumMyrtaceaeNTreeEucalyptus bridgesianaApple BoxMyrtaceaeNTreeEucalyptus cannoniiCapertee StringybarkMyrtaceaeNV-Tree					-	-		Forb																	0.2	
Erodium spp. Crowfoot Geraniaceae N Forb Eucalyptus blakelyi Blakely's Red Gum Myrtaceae N Tree Eucalyptus bridgesiana Apple Box Myrtaceae N Tree Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree		2.00 0.011.000						. 66																		
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Eucalyptus bridgesiana Apple Box Myrtaceae N Tree Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree					-																					
Eucalyptus cannonii Capertee Stringybark Myrtaceae N V - Tree																										
					V																					
Eucalyptus dalrympleana Mountain Gum Myrtaceae N Tree	• •																									
Eucalyptus dives Broad-leaved Peppermint Myrtaceae N Tree 10 0 15 0 25 0															10	0			15	0			25	0		
Eucalyptus fastigata Brown Barrel Myrtaceae N - Tree 5 0													5	0	10	U			13	J			23	J		
Eucalyptus goniocalyx Bundy Myrtaceae N Tree													3	U												
Eucalyptus macrorhyncha Red Stringybark Myrtaceae N Tree		· · · · · · · · · · · · · · · · · · ·																								
Eucalyptus mannifera Brittle Gum Myrtaceae N Tree 5 0																							Е	0		
Eucalyptus malliodora Yellow Box Myrtaceae N Tree																							3	U		

					rus	at Weed	Plot (righ	Number <u>nt</u>) BAM	MAC2	5090	MAC2	25090	MAC	25090	MAC2	5090	MAC2 6	5090	MAC2	5090	MAC2 7	5090	MAC2! 0	5091	R01DN	G
ScientificName	Common Name	Family		/ 2000	FPRC ctatus	High Threat Weed	grow (<u>b</u>	r th form <u>elow</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-		Tree		5	0					50	0										
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-		Tree																			
Eucalyptus spp.		Myrtaceae	N	-	-		Tree												50	0			10	0		
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-		Tree																			
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		Tree						C	0							80	0				
Euchiton japonicus		Asteraceae	N	-	-		Forb																			
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		Forb																			
Euchiton spp.	A Cudweed	Asteraceae	N	-	-		Forb																			
Euphorbia dallachyana		Euphorbiaceae	N	-	-		Forb																			
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N	-	-		Forb																			
Euphorbia spp.		Euphorbiaceae	N	-	-		Forb																			
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	-		Shrub																			
Exocarpos strictus	Dwarf Cherry	Santalaceae	N	-	-		Shrub																			
Foeniculum vulgare	Fennel	Apiaceae	Е		-																					
Galium murale	Small Bedstraw	Rubiaceae	E	-	-																		0.1	300		
Gamochaeta calviceps	Cudweed	Asteraceae	E	-	-																					
Geranium graniticola		Geraniaceae	N	-	-		Forb																			
Geranium molle	Cranesbill Geranium	Geraniaceae	E		_																					
Geranium solanderi	Native Geranium	Geraniaceae	N		_		Forb		0.1	20	0.1	200)		0.5	1000			0.1	300	0.5	500				
Geranium spp.	rative deramani	Geraniaceae	N		_		Forb		0.2	20	0.1	200			0.5	2000			0.1	300	0.5	300	0.5	1000		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		_		Other																0.5	1000		
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-	_		Other																			
Gonocarpus humilis	Sitiali fear Glyenic	Haloragaceae	N	-	_		Forb				0.1	200)													
Gonocarpus spp.	Raspwort	Haloragaceae	N	_	_		Forb				0.1	200	,						0.1	500			0.1	300		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		_		Forb												0.1	300			0.1	300		
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N		_		Forb								0.1	50										
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N		-		Forb								0.1	30										
Goodenia spp.	ivy dooderna	Goodeniaceae	N		_		Forb																			
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N		-		Forb																		0.1	50
Haloragis spp.	A Raspwort	Haloragaceae	N		_		Forb																		0.1	30
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N				Other										0.5	20								
Helichrysum leucopsideum	Satin Everlasting	Asteraceae			-		Forb										0.1	50								
Helichrysum spp.	Satiii Everiastiiig	Asteraceae	N		_		Forb				0.1	100	`				0.1	30								
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae		-	-	НТ					0.1	100	,													
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N			пі	Shrub																			
Holcus lanatus	Yorkshire Fog			-	-		Siliub																			
Hordeum leporinum	Barley Grass	Poaceae Poaceae	E	-	-																					
•	Barley Grass						Co.ub																			
Hovea heterophylla		Fabaceae (Faboideae)	N		-		Forb																			
Hovea spp.	Chindring Dansey	Fabaceae (Faboideae)	N				Forb																			
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N		-		Forb																			
Hydrocotyle sibthorpioides		Apiaceae	N		-		Forb																			
Hydrocotyle spp.	C. H. C. L.	Apiaceae	N		-		Forb												0.4							
Hypericum gramineum	Small St John's Wort	Clusiaceae	N	-	-		Forb												0.1	5						

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	25090	MAC2 2	25090	MAC2	25090	MAC2! 4	5090	MAC2	5090	MAC2 9	5090	MAC2 7	5090	MAC2: 0	5091	R01DN	NG
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	НТЕ				0.1	_					0.1	500	0.1	50	0.5	200	0.1	150		
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-			0.1	1000	0.1	500	0.1	500					0.1	100						
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-																				
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-									0.1	50	0.1	500			0	0	0.1	0		
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-																			0.3	300
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus		Juncaceae	Е	-	-																				
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike									0.1	10								
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike																	0.1	2
Lactuca serriola	Prickly Lettuce	Asteraceae	Е	-	-																				
Lagenifera spp.		Asteraceae	N	-	-		Forb																		
Lamarckia aurea	Goldentop	Poaceae	E	-	-																				
Lepidium africanum	Common Peppercress	Brassicaceae	E	-	-																				
Lepidium spp.	A Peppercress	Brassicaceae	N	-	-		Forb																		
Leptospermum myrtifolium	, , , oppo. e. ees	Myrtaceae	N	-	-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N	-	-		Shrub																		
Leucopogon appressus	100 000	Ericaceae	N	-	-		Shrub																		
Leucopogon fletcheri		Ericaceae	N	-	-		Shrub																		
Leucopogon virgatus		Ericaceae	N	-	-		Shrub																		
Linum marginale	Native Flax	Linaceae	N	-	-		Forb																		
Lissanthe spp.	Tracite Frax	Ericaceae	N	-			Shrub																		
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	-		om do																		
Lomandra cylindrica	r cremiur nyegrass	Lomandraceae		-			Grass & grasslike																		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-			Grass & grasslike					0.1	5	0.1	50	0.5	500	0.1	300			25	0		
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae		-			Grass & grasslike					0.1			0		5	0.1	300						
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike					0.1	_		Ū	0.1									
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-			Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.	TWEET EDITION	Juncaceae	N	-	-		Grass & grasslike																		
Lycium ferocissimum	African Boxthorn	Solanaceae	E	-	_	НТЕ																			
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-																					
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N				Forb																		
Malus pumila	Apple	Malaceae	E	-																					
Malva neglecta	Dwarf Mallow	Malvaceae			-																				
Marrubium spp.	Stat. Hallott	Lamiaceae	E	-																					
Marrubium vulgare	White Horehound	Lamiaceae		-	_																				
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-				0.1	20											0.5	500				
Medicago spp.	A Medic	Fabaceae (Faboideae)		-	-			5.1	20											0.5	300				

			0:40	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	5090	MAC2	25090	MAC2	5090	MAC2 4	5090	MAC2 6	5090	MAC2 9	5090	MAC2: 7	5090	MAC25 0	5 0 91	R01DN	G
ScientificName	Common Name	Family	Notice / Exatin	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike	0.5	100			0.5	100	5	0										
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Е	-	-																				
Modiola spp.		Malvaceae	Е	-	-																				
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																				
Monoculus monstrosus		Asteraceae	Е	-	-																		-		
Monotoca scoparia		Ericaceae	N	-	-		Shrub																		
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-											5	0								
Notothixos spp.		Viscaceae	N	_	_		Other																		
Olearia spp.		Asteraceae	N		-		Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	E		_		3111 015																		
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N		-		Fern							0.1	200										
Orobanche spp.	Adder 3 Tollgue	Scrophulariaceae		-			Forb							0.1	200									أنسا	
Oxalis perennans		Oxalidaceae	N		-		Forb																	0.1	100
Oxalis spp.		Oxalidaceae		-			Forb									0.1	50							0.1	100
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		-		Shrub									0.1	30								
•			N		-																				2000
Panicum effusum	Hairy Panic	Poaceae			-	1171	Grass & grasslike																	2	2000
Paspalum dilatatum	Paspalum	Poaceae	E N		-	HTI																			
Paspalum spp.	Kilomon Carana	Poaceae			-		Grass & grasslike																		
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E	-	-																				
Pentaschistis airoides	False Hairgrass	Poaceae	E	-	-		- 1																		
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N		-		Forb																		
Petrorhagia spp.		Caryophyllaceae		-	-																				
Phalaris aquatica	Phalaris	Poaceae	E	-	-																				
Phalaris minor	Lesser Canary Grass	Poaceae		-	-																				
Phalaris spp.		Poaceae	E	-	-			30	0	0.5	100			0.1	50	0.5	20			25	0	10	50		
Phragmites australis	Common Reed	Poaceae		-	-		Grass & grasslike																		
Phragmites spp.		Poaceae	N		-		Grass & grasslike																		
Pinus radiata	Radiata Pine	Pinaceae		-						90	0	70	0			50	0					0.1	1		
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae		-	-		Forb																		
Plantago lanceolata	Lamb's Tongues	Plantaginaceae	Е	-	-																				
Plantago spp.	Plantain	Plantaginaceae		-	-		Forb	0.1	1000	0.1	500	0	0	0.1	100			0.1	300	0.1	200	0.1	100		
Platylobium formosum		Fabaceae (Faboideae)	N	-	-		Shrub																		
Poa annua	Winter Grass	Poaceae	Е	-	-																				
Poa induta		Poaceae	N	-	-		Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	N	-	-		Grass & grasslike	0.5	50	5	50	5	0	10	0	45	0			25	0				
Poa meionectes		Poaceae	N	-	-		Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae	N	-	-		Grass & grasslike	20	0	1	100	5	0			5	0	5	0			5	0		
Poa spp.		Poaceae	N	-	-		Grass & grasslike					0.5	0									15	0		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae	Е		-																				
Polyscias sambucifolia	Elderberry Panax	Araliaceae		-	-		Shrub																البير	ألكية	
Populus spp.		Salicaceae		-			Tree																		

			Exotic	atus	tatus	at Weed	Plot Number (right) BAM	MAC2	5090	MAC2 2	25090	MAC2	25090	MAC25	5090	MAC2	5090	MAC2	25090	MAC2 7	25090	MAC2 0	5091	R01DN	IG
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb																		
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb																	0.1	1
Potentilla spp.		Rosaceae	Е	-	-																				
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern			5	0	5	C	25	0										
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern	35	0																
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub									0.1	3								
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	HTE												0.1	5						
Rosa spp.		Rosaceae	Ε	-	-															0.5	10				
Rubus fruticosus	Blackberry complex	Rosaceae	Е	-	-			25	0	10	0	50	C	20	0	1	15	0.5	10	20	0				
Rubus parvifolius	Native Raspberry	Rosaceae	N	-	-		Shrub																		
Rumex acetosella	Sheep Sorrel	Polygonaceae	Е	-	-																				
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb																		
Rumex crispus	Curled Dock	Polygonaceae	Е	-	-																				
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb													0.1	50				
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N	-	_		Grass & grasslike																	1	
Rytidosperma spp.	neuditine tranaz, erass	Poaceae	N	-	-		Grass & grasslike																	0.1	50
Salix fragilis	Crack Willow	Salicaceae	E	-	_		C. acc at 8. accimic																	1	
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-	-		Grass & grasslike																		
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N	-	-		Forb																		
Scolymus hispanicus	Golden Thistle	Asteraceae	E	-	_		1010	1	50	0.1	20			0.1	2					0.1	10	0.1	2		
Senecio diaschides	Colucii Illistic	Asteraceae	N	-	-		Forb	_	30	0.1				0.1						0.1	10	0.1	_		
Senecio gunnii		Asteraceae	N	-	-		Forb																		
Senecio gannii Senecio prenanthoides		Asteraceae		-			Forb																		
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N	-	_		Forb																		
Senecio spp.	Fireweed	Asteraceae	N		-		Forb							0.1	10	0.1	5								
Setaria gracilis	THEWECG	Poaceae	E		_		1010							0.1	10	0.1	<u> </u>								
Setaria graciiis	Pale Pigeon Grass	Poaceae	E	-	_																			0.1	100
Solanum nigrum	Black-berry Nightshade	Solanaceae	E		_																			0.1	100
Solenogyne spp.	Black Berry Wightshade	Asteraceae	N	-	-		Forb																		
Sonchus asper	Prickly Sowthistle	Asteraceae	E	-			1010																		
Sonchus spp.	Sowthistle	Asteraceae	N	-	_		Forb																		
Spergularia rubra	Sandspurry	Caryophyllaceae	E	-			1010																		
Sporobolus caroli	Fairy Grass	Poaceae	N				Grass & grasslike																		
Sporobolus creber	Slender Rat's Tail Grass	Poaceae	N	-			Grass & grasslike																	2	250
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae		-			Forb																		250
Stellaria media	Common Chickweed	Caryophyllaceae	E	-	_		1010																		
Stellaria pungens	Prickly Starwort	Caryophyllaceae	N		-		Forb																		
· -			N				Forb																		
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae		-	-																				
Styphelia spp.		Ericaceae	N	-	-		Shrub																		

			Exotic	atus	tatus	at Weed	Plot Number (<u>right</u>) BAM	MAC2	5090	MAC2 2	5090	MAC2	5090	MAC2	5090	MAC2	5090	MAC2! 9	5090	MAC2 7	5090	MAC2	5091	R01DN	G
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat We	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																			0.2	250
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb			0.1	10	0.1	20							0.1	200				
Themeda australis		Poaceae	N	-	-		Grass & grasslike																		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike	0.1	5													0.1	5		
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-																				
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-																				
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-													0.1	10	0.5	200				
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-																			0.2	300
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb																		
Verbascum spp.		Scrophulariaceae	Е	-	-																				
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb																		
Veronica spp.		Plantaginaceae	N	-	-		Forb																		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е	-	-															0.5	500				
Vicia spp.	Vetch	Fabaceae (Faboideae)	Е	-	-																				
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb											0.1	50						
Viola spp.		Violaceae	N	-	-		Forb							0.1	10										
Vittadinia dissecta		Asteraceae	N	-	-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae	N	-	-		Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	Е	-	-																				
Wahlenbergia communis	Tufted Bluebell	Campanulaceae	N	-	-		Forb																	0.1	1
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae		-			Forb																		
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-			Forb																		
Wurmbea dioica	Early Nancy	Colchicaceae	N		-		Forb																		
Xerochrysum spp.		Asteraceae		-	-		Forb																		
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb	0.1	50																
Zieria cytisoides	Downy Zieria	Rutaceae		-			Shrub																		
,																									

			Exotic	itus	tatus	at Weed	Plot Number (right) BAM	R02DI	NG	1330S 1		727- Shrub	land1	727-In	tact1	1197D	NG1	1197- Sparse		1197SI 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			8	20			1	15					10	70				
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																		
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub																	1	2
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)	N		-		Tree					2	5	0.7	4	0.7	12			1	5	1	15		
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	_	-		Shrub																		
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)		-	-		Shrub																		
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	_	-		Shrub																		
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N		-		Forb					0.1	2												
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb					0.1	_												
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	_			Forb																		
Acaena ovina	Acaena	Rosaceae	N		-		Forb																		
Acaena spp.	Sheep's Burr	Rosaceae	N				Forb			0.1	2			0.1	1									0.1	2
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E		-	HTI				0.1	_	0.6	150			0.2	40			0.1	30			0.1	
Acrotriche serrulata	Honeypots	Ericaceae	N			1111	Shrub			0.8	300	0.0	130			0.2	40			0.1	30				
Acrotriche spp.	Tioneypots	Ericaceae	N				Shrub																		
Aira cupaniana	Silvery Hairgrass	Poaceae	E				Siliub																		
	Silvery naligrass	Amaranthaceae					Forb																		
Alternanthera angustifolia			N	-	-		Shrub																		
Amperea xiphoclada	Day Mintlata	Euphorbiaceae			-																				
Amyema miquelii	Box Mistletoe	Loranthaceae	N	-	-		Other																		
Amyema pendula	National and a second	Loranthaceae		-	-		Other																		
Amyema spp.	Mistletoe	Loranthaceae	N		-		Other																		
Anagallis arvensis	Scarlet Pimpernel	Primulaceae		-			0 0 111																		
Anthosachne scabra	Common Wheatgrass	Poaceae	N	-	-		Grass & grasslike																		
Anthoxanthum odoratum	Sweet Vernal Grass	Poaceae		-								0.1	50	1											
Anthoxanthum spp.	Vernal Grass	Poaceae	E	-	-																	0.1	20		
Arctotheca calendula	Capeweed	Asteraceae		-	-																				
Aristida ramosa	Purple Wiregrass	Poaceae		-	-		Grass & grasslike	0.1	1	0.6	250														
Aristida spp.	A Wiregrass	Poaceae		-	-		Grass & grasslike																		
Aristida vagans	Threeawn Speargrass	Poaceae			-		Grass & grasslike																		
Asperula conferta	Common Woodruff	Rubiaceae	N		-		Forb																		
Asperula scoparia	Prickly Woodruff	Rubiaceae		-			Forb																		
Asperula spp.	Woodruff	Rubiaceae	N	-	-		Forb							0.2	40										
Asphodelus fistulosus	Onion Weed	Asphodelaceae	Е	-	-																				
Astroloma humifusum	Native Cranberry	Ericaceae	N	-	-		Shrub					0.1	2												
Austrodanthonia spp.		Poaceae	N	-	-		Grass & grasslike																		
Austrostipa nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike																		
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike			0.7	250							0.2	50					0.1	30
Austrostipa spp.	A Speargrass	Poaceae	N	-	-		Grass & grasslike						_	0.1	20		_		_	4	200				
Avena barbata	Bearded Oats	Poaceae	Ε	-	-																				

			Exotic	itus	atus	ıt Weed	Plot Number (right) BAM	R02DI	NG	1330S 1	Shrub	727- Shrub	oland1	727-lı	ntact1	11970	ONG1	1197- Spars		1197S 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Avena fatua	Wild Oats	Poaceae	Е	-	-																				
Avena sativa	Oats	Poaceae	Е	-	-																				
Avena spp.	Oats	Poaceae	E	-	-																			0.1	8
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-																			0.1	4
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other																		
Blechnum spp.		Blechnaceae	N	-	-		Fern																		
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub																		
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb																		
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike			4	300)												0.2	50
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub			0.1															
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	_		Forb																		
Brachyscome spp.	Trail y Catical Daisy	Asteraceae	N	-	-		Forb					0.1	1												
Brassica oleracea	Collards	Brassicaceae	E	_			10.0					0.1	_												
Brassica spp.	Brassica	Brassicaceae	E	-	_					0.1	6													Δ	80
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E	_		HTE				0.1		4													00
Bromus catharticus	Praire Grass	Poaceae	E	_	_																				
Bromus diandrus	Great Brome	Poaceae	E	_	_	HTE																			
Bromus hordeaceus	Soft Brome	Poaceae	E	_	_																				
Bulbine bulbosa	Bulbine Lily	Asphodelaceae		-	_		Forb																		
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	-	_		Shrub																		
Caesia spp.	Native Blackfiorii	Anthericaceae	N	_	_		Forb																		
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	_	_		Shrub																		
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	_			Forb																	0.1	20
Calotis spp.	A Burr-daisy	Asteraceae		-			Forb																	0.1	20
Carex appressa	Tall Sedge	Cyperaceae	N	_	_		Grass & grasslike																		
Carex bichenoviana	Tall Seuge	Cyperaceae		-			Grass & grasslike																		
Carex fascicularis	Tassel Sedge	Cyperaceae		-			Grass & grasslike																		
Carex gaudichaudiana	rasser seuge	Cyperaceae		-			Grass & grasslike																		
				-	_		Grass & grasslike																		
Carex spp. Cassinia aculeata	Dolly Buch	Cyperaceae		-			Shrub																		
	Dolly Bush	Asteraceae	N N				Shrub			2	20	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					200	1	20			0.4	15		
Cassinia arcuata	Sifton Bush	Asteraceae								2	20	,				Э	200	1	20			0.4	15		
Cassinia laevis	Cough Bush	Asteraceae		-			Shrub																		
Cassinia longifolia		Asteraceae	N				Shrub																		
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub					0.1	2												
Cassinia spp.	Division Only	Asteraceae			-		Shrub					0.1	2												
Casuarina cunninghamiana	River Oak	Casuarinaceae		-			Tree											0.1	2						
Centaurium spp.		Gentianaceae	E		-		- 1											0.1	2						
Centella asiatica	Indian Pennywort	Apiaceae		-			Forb			0.4												0.4		0.4	
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern			0.1	1											0.1	1	0.1	1
Cheilanthes spp.	Rock Fern	Pteridaceae		-	-		Fern																		
Chenopodium album	Fat Hen	Chenopodiaceae	E				o o																		
Chloris spp.		Poaceae	N				Grass & grasslike																		
Chloris truncata	Windmill Grass	Poaceae	N	-	-		Grass & grasslike																		

			Fvotic	tus	atus	at Weed	Plot Number (<u>right</u>) BAM	R02Df	NG	13309 1		727- Shrub	land1	727-I r	tact1	1197D	NG1	1197- Sparse		1197SI 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family	Native / Evotic	BC status	EPBC status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike			0.1	8														
Chondrilla juncea	Skeleton Weed	Asteraceae	Е	-	-																			0.1	10
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb																	0.1	3
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb																		
Cirsium vulgare	Spear Thistle	Asteraceae	Е	-	-											0.2	20			0.4	30				
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other							0.1	3										
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other																		
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	Е	-	-			0.1	1																
Conyza spp.	A Fleabane	Asteraceae	Е	-	-					0.1	8					0.1	3			0.1	7	0.1	1		
Coronidium elatum	7.1.00.00.10	Asteraceae	N	_	_		Shrub			0.12				4	2000	0.2				0.2		0.2	_		
Coronidium rutidolepis		Asteraceae	N	-	_		Siliub								2000										
Coronidium scorpioides	Button Everlasting	Asteraceae		-			Forb					Λ	2000									0.6	200		
Coronidium spp.	Dutton Everiasting	Asteraceae	N				Forb					7	2000	0.1	2			0.1	1			0.0	200		
		Malaceae	E	-		НТЕ								0.1				0.1							
Cotoneaster spp. Crassula sieberiana	Australian Stangeron	Crassulaceae		-	_	пп	Forb																		
	Australian Stonecrop Hawthorn	Malaceae	E	-	-	НТЕ																			
Crataegus monogyna	Smooth Hawksbeard			-	_	піс																		0.1	60
Crepis capillaris		Asteraceae	E N	-	-		Faul																	0.1	60
Cullen tenax	Emu-foot	Fabaceae (Faboideae)			-		Forb																		
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N		-		Forb																		
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae		-			Forb																		
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike			0.2	20													0.3	10
Cynodon spp.		Poaceae		-	-		Grass & grasslike																		
Cynodon transvaalensis	South African Couch	Poaceae	Е	-	-																				
Cyperus brevifolius		Cyperaceae		-	-																				
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	Е	-	-	HTE																			
Cyperus Ihotskyanus		Cyperaceae		-	-		Grass & grasslike																		
Cyperus spp.		Cyperaceae		-	-		Grass & grasslike																		
Cytisus scoparius	English Broom	Fabaceae (Faboideae)	Е	-	-	HTE																			
Dactylis glomerata	Cocksfoot	Poaceae		-	-																				
Daucus glochidiatus	Native Carrot	Apiaceae	N	-	-		Forb											0.1	1						
Daviesia corymbosa		Fabaceae (Faboideae)	N	-	-		Shrub											0.1	1						
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)	N	-	-		Shrub					0.2	3	0.1	1										
Daviesia leptophylla		Fabaceae (Faboideae)	N	-	-		Shrub																		
Daviesia spp.		Fabaceae (Faboideae)	N	-	-		Shrub															0.4	30		
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Forb																		
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Other																		
Dianella longifolia	Blueberry Lily	Phormiaceae	N	-	-		Forb																		
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb					0.1	1												
Dianella spp.	, ,	Phormiaceae	N		-		Forb																		
Dichanthium spp.		Poaceae	N		-		Grass & grasslike							0.1	30										
Dichondra repens	Kidney Weed	Convolvulaceae		-	-		Forb					0.1	1	0.1	1										
Dichopogon spp.	Chocolate Lily	Anthericaceae	N		-		Forb					0.1	2												
Digitaria brownii	Cotton Panic Grass	Poaceae		-			Grass & grasslike	0.2	150	6	600													3	150

			Exotic	tus	atus	at Weed	Plot Number (<u>right</u>) BAM	R02DI	IG	1330S 1		727- Shrub	land1	727-In	itact1	1197[ONG1	1197- Spars		1197S 1		1191- Sparse	·1	1330- Sparse	1
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub									0.2	8			0.1	1				
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb																		
Dipsacus spp.		Dipsacaceae	Е	-	-					0.1	1														
Drosera spp.		Droseraceae	N	-	-		Forb																		
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N	-	-		Forb	0.1	10																
Dysphania spp.		Chenopodiaceae	N	-	-		Forb																	0.1	50
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike																		
Echium plantagineum	Patterson's Curse	Boraginaceae	Е	-	-					3	1000														
Echium spp.		Boraginaceae	Е	-	-																				
Echium vulgare	Viper's Bugloss	Boraginaceae	Е	-	-			0.2	20															4	500
Einadia hastata	Berry Saltbush	Chenopodiaceae	N	-	-		Forb																		
Einadia nutans	Climbing Saltbush	Chenopodiaceae	N	-	-		Forb																		
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N	-	-		Forb			0.2	2													0.1	5
Eleocharis acuta		Cyperaceae	N	-	-		Grass & grasslike																		
Eleusine tristachya	Goose Grass	Poaceae	Е	-	-		J																		
Elymus scaber	Common Wheatgrass	Poaceae		-	-		Grass & grasslike																		
Enneapogon nigricans	Niggerheads	Poaceae	N	-	-		Grass & grasslike																		
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N	_	-		Grass & grasslike																		
Epacris spp.	, , , , , , , , , , , , , , , , , , , ,	Ericaceae	N	-	-		Shrub																		
Epilobium spp.		Onagraceae	N	_	_		Forb					0.1	1												
Eragrostis cilianensis	Stinkgrass	Poaceae	_	-	-			0.2	100															0.3	200
Eragrostis curvula	African Lovegrass	Poaceae	Е	_	_	HTE		3	60	3	100														
Eragrostis leptostachya	Paddock Lovegrass	Poaceae		-			Grass & grasslike			0.4														0.2	50
Eragrostis parviflora	Weeping Lovegrass	Poaceae	N	_	-		Grass & grasslike	0.1	100															0.1	10
Eragrostis spp.	A Lovegrass	Poaceae	N	_	-		Grass & grasslike		6000													0.1	2		
Erodium botrys	Long Storksbill	Geraniaceae		-	_		area or gracemic																		
Erodium cicutarium	Common Crowfoot	Geraniaceae	E	-	-																				
Erodium crinitum	Blue Crowfoot	Geraniaceae		-	-		Forb																		
Erodium malacoides		Geraniaceae	E	_	-																				
Erodium spp.	Crowfoot	Geraniaceae		_	_		Forb																	0.1	2
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N	_	-		Tree																	0.1	
Eucalyptus bridgesiana	Apple Box	Myrtaceae		-	-		Tree																		
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae		٧			Tree																		
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N	-	-		Tree					3	4	1	1			6	4			1	2		
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae		-			Tree											6				_			
Eucalyptus fastigata	Brown Barrel	Myrtaceae	N		-		Tree							45	30			J	,						
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	_	-		Tree							73	50									1	1
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae			-		Tree																	1	
Eucalyptus mannifera	Brittle Gum	Myrtaceae		-			Tree																		
Eucalyptus melliodora	Yellow Box	Myrtaceae		-			Tree											2	1					7	2

			;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	באסנור -	s d	arus	it Weed	Plot Number (<u>right</u>) BAM	R02DI	IG	1330 1		727- Shrub	land1	727-Ir	ntact1	11970	DNG1	1197- Sparse		1197Sh 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family	Notice of the state of the stat	יאמואבי /		EPBC Status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-			Tree													0.7	1	4	8		
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-			Tree																		
Eucalyptus spp.		Myrtaceae	N	-	-		-	Tree																		
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-			Tree																		
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		1	Tree																		
Euchiton japonicus		Asteraceae	N	-	-		F	Forb																		
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		F	Forb					0.1	10												
Euchiton spp.	A Cudweed	Asteraceae	N	-	-		F	Forb									0.1	6	0.1	1						
Euphorbia dallachyana		Euphorbiaceae	N		-			Forb																		
Euphorbia drummondii	Caustic Weed	Euphorbiaceae		-	-			Forb																		
Euphorbia spp.		Euphorbiaceae	N		-			Forb																		
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N		-			Shrub																		
Exocarpos strictus	Dwarf Cherry	Santalaceae	N		-			Shrub																		
Foeniculum vulgare	Fennel	Apiaceae	E		-																				0.1	1
Galium murale	Small Bedstraw	Rubiaceae	E		-																				0.2	
Gamochaeta calviceps	Cudweed	Asteraceae	E	-	-																					
Geranium graniticola		Geraniaceae	N	-	-			Forb																		
Geranium molle	Cranesbill Geranium	Geraniaceae	E					. 0.0																		
Geranium solanderi	Native Geranium	Geraniaceae	N		-			Forb																		
Geranium spp.	ridare deramani	Geraniaceae			-			Forb					0.1	20	0.1	4	0.1	2			0.1	4			0.1	2
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N		-			Other					0.1		0.1	2	0.1	_			0.1				0.1	
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)		-	_			Other							0.1	_										
Gonocarpus humilis	Small lear Glyenie	Haloragaceae	N		-			Forb																		
Gonocarpus spp.	Raspwort	Haloragaceae		-	-			Forb																		
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N		-			Forb																		
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N		-			Forb					0.1	3	0.1	4			0.1	3			0.1	2		
Goodenia hederacea	Ivy Goodenia	Goodeniaceae		-	-		_	Forb					0.1	J	0.1	-			0.1	J			0.1			
Goodenia spp.	ivy coodeina	Goodeniaceae		-	-			Forb																		
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N		-		_	Forb																		
Haloragis spp.	A Raspwort	Haloragaceae	N		_			Forb																		
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)		-	-			Other					0.1	2			0.2	4								
Helichrysum leucopsideum	Satin Everlasting	Asteraceae		-				Forb					0.1	_			0.2	•								
Helichrysum spp.	Satir Everiusting	Asteraceae	N				_	Forb																		
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae		-	-	H.		1015																		
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N		-	- ''		Shrub					0.6	50			0.1	2					0.1	2		
Holcus lanatus	Yorkshire Fog	Poaceae		-	_			Siliub					0.0	30			0.1						0.1			
Hordeum leporinum	Barley Grass	Poaceae	E	-	-																					
Hovea heterophylla	buriey Grass	Fabaceae (Faboideae)		-	_			Forb																		
Hovea spp.		Fabaceae (Faboideae)		-	-			Forb											0.1	1						
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae (Faboldeae)	N					Forb											0.1	1						
Hydrocotyle sibthorpioides	Juliking Pennywort	Apiaceae	N		-			Forb																		
			N		-			Forb							0.2	30					0.1	2	0.1	3		
Hydrocotyle spp. Hypericum gramineum	Small St John's Wort	Apiaceae Clusiaceae		-				Forb							0.2	30					0.1	2	0.1	3		

			Exotic	itus	tatus	at Weed	Plot Number (right) BAM	R02DI	NG	13309 1		727- Shrub	land1	727-I n	tact1	11970	ONG1	1197- Spars		1197S 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	HTE						0.1	4			0.1									
Hypericum spp.		Clusiaceae	N	-	-		Forb																		
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-																				
Hypochaeris radicata	Catsear	Asteraceae	Е	-	-			0.2	250																
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-																				
Hypochoeris radicata	Catsear	Asteraceae	Е	-	-					6	2000	0.3	250	0.1	10	2	800	1	300	3	2000	2	70		
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb																		
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike																		
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike																		
Juncus effusus		Juncaceae	Е	-	-																				
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike																		
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike																		
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike																		
Lactuca serriola	Prickly Lettuce	Asteraceae	Е	-	-																				
Lagenifera spp.		Asteraceae	N	-	-		Forb							0.1	4										
Lamarckia aurea	Goldentop	Poaceae	Е	-	-																				
Lepidium africanum	Common Peppercress	Brassicaceae	Е	-	-																				
Lepidium spp.	A Peppercress	Brassicaceae	N	-	-		Forb											0.1	1					0.1	20
Leptospermum myrtifolium		Myrtaceae	N	-	-		Shrub																		
Leptospermum spp.	Tea-tree	Myrtaceae	N	-	-		Shrub																		
Leucopogon appressus		Ericaceae	N	-	-		Shrub																		
Leucopogon fletcheri		Ericaceae	N	-	-		Shrub																		
Leucopogon virgatus		Ericaceae	N	-	-		Shrub																		
Linum marginale	Native Flax	Linaceae	N	-	-		Forb																		
Lissanthe spp.		Ericaceae	N	-	-		Shrub															0.1	1		
Lolium perenne	Perennial Ryegrass	Poaceae	Е	-	-																			10	4000
Lomandra cylindrica		Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae	N	-	-		Grass & grasslike					5	250	2	50	0.1	2	0.2	40						
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike																		
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike					0.1	8			0.8	100			0.1	1			0.1	1
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-	-		Shrub																		
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub																		
Luzula spp.		Juncaceae	N	-	-		Grass & grasslike					0.1	20												
Lycium ferocissimum	African Boxthorn	Solanaceae	E	-	-	HTE																			
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-	-											0.4	200			0.3	80				
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N	-	-		Forb									0.1	1								
Malus pumila	Apple	Malaceae	E	-																					
Malva neglecta	Dwarf Mallow	Malvaceae	Е	-	-																				
Marrubium spp.		Lamiaceae	E	-	-																				
Marrubium vulgare	White Horehound	Lamiaceae	Е	-	-																				
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-	-																				
Medicago spp.	A Medic	Fabaceae (Faboideae)	Е	-	-																				

			:	EXOLIC	tus etile	Weed w	n vveed	Plot Number (right) BAM	R02DI	IG	13309 1	ihrub	727- Shrub	oland1	727-Ir	ntact1	1197	DNG1	1197- Spars		11979 1		1191- Sparse		1330- Sparse	1
ScientificName	Common Name	Family		Native / Exotic	EDRC etatus	High Threat We		growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		(Shrub																		
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		9	Shrub																		
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		(Grass & grasslike			0.3	80	40	####	2	200	1	1000	8	3000	0.6	200	4	3000	0.1	20
Modiola caroliniana	Red-flowered Mallow	Malvaceae	Ε	-	-																				0.1	2
Modiola spp.		Malvaceae	Е	-	-																					
Moenchia erecta	Erect Chickweed	Caryophyllaceae	Е	-	-																					
Monoculus monstrosus		Asteraceae	Е	-	-																					
Monotoca scoparia		Ericaceae	N	-	-		9	Shrub					0.1	1												
Nassella trichotoma	Serrated Tussock	Poaceae	Е		-																					
Notothixos spp.		Viscaceae	N		_		(Other																		
Olearia spp.		Asteraceae	N		-			Shrub																		
Onopordum acanthium	Scotch Thistle	Asteraceae	E		_			5 4.5																		
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N		_			Fern																		
Orobanche spp.	Adder 3 Tongae	Scrophulariaceae	N		_			Forb																	0.1	3
Oxalis perennans		Oxalidaceae	N		-			Forb			0.1	20	0.1	4			0.2	80			0.2	100			0.1	
Oxalis spp.		Oxalidaceae	N		_			Forb			0.1	20	0.1				0.2	. 00			0.2	100				
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N		_			Shrub							0.1	1										
Panicum effusum	Hairy Panic	Poaceae	N					Grass & grasslike	0.2	400	0.1	6			0.1										0.1	3
Paspalum dilatatum	Paspalum	Poaceae	E			НТ		diass & grasslike	0.2	400	5	600													0.1	50
Paspalum spp.	raspaiuiii	Poaceae		-				Grass & grasslike			3	000													0.2	30
Pennisetum clandestinum	Kikuyu Grass		E					Glass & glasslike																		
	·	Poaceae	E																							
Pentaschistis airoides	False Hairgrass	Poaceae			-		-	r a ula																		
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N				_ '	Forb																		
Petrorhagia spp.	Dhalasia	Caryophyllaceae	E		-																				0.2	100
Phalaris aquatica	Phalaris	Poaceae	E		-																				0.2	100
Phalaris minor	Lesser Canary Grass	Poaceae	E		-						20	F000					0.2		0.1	20						
Phalaris spp.	Comment David	Poaceae		-				C 0			20	5000					0.2	50	0.1	20						
Phragmites australis	Common Reed	Poaceae		-	-			Grass & grasslike																		
Phragmites spp.	2 11 1 21	Poaceae		-			(Grass & grasslike					0.0	_							_	2	0.0	20		
Pinus radiata	Radiata Pine	Pinaceae	E		-		4						0.2	2			1	. 4			2	2	0.2	20		
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae		-			_ '	Forb														2222				
Plantago lanceolata	Lamb's Tongues	Plantaginaceae						_			2	700					0.7	300			4	2000			0.1	10
Plantago spp.	Plantain	Plantaginaceae	N		-			Forb																		
Platylobium formosum		Fabaceae (Faboideae)		-				Shrub					0.5	10	0.2	10										
Poa annua	Winter Grass	Poaceae	Е		-																					
Poa induta		Poaceae		-	-			Grass & grasslike																		
Poa labillardierei	Tussock	Poaceae	N		-			Grass & grasslike											15	800	10	300				
Poa meionectes		Poaceae			-			Grass & grasslike																		
Poa sieberiana	Snowgrass	Poaceae		-				Grass & grasslike					5	1500	8	600				2000						
Poa spp.		Poaceae		-			(Grass & grasslike									15	1500					15	5000		
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae		-	-																					
Polyscias sambucifolia	Elderberry Panax	Araliaceae		-	-			Shrub					0.1	1	0.1	5										
Populus spp.		Salicaceae	N	-	-			Tree																		

			Fvotic	2132	atus	at Weed	Plot Number (right) BAM	R02DN	NG	1330S 1		727- Shrubl	land1	727-In	tact1	11971	DNG1	1197- Spars		1197S 1		1191- Sparse		1330- Sparse:	1
ScientificName	Common Name	Family	Native / Evotic	BC ctafic	EPBC status	High Threat We	growth form (below)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb															0.1	20		
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb																		
Potentilla spp.		Rosaceae	Е	-	-					0.1	4														
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb																		
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern					2	150	5	150							0.4	40		
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern																		
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub																		
Rosa rubiginosa	Sweet Briar	Rosaceae	Е	-	-	нті																			
Rosa spp.		Rosaceae	Е	-	-																				
Rubus fruticosus	Blackberry complex	Rosaceae	Е	-	-					0.6	2	0.1	3	0.1	4	0.5	3	0.2	4	25	400	0.1	3		
Rubus parvifolius	Native Raspberry	Rosaceae	N	-	-		Shrub																		
Rumex acetosella	Sheep Sorrel	Polygonaceae	E	-	-																				
Rumex brownii	Swamp Dock	Polygonaceae		-	-		Forb			0.1	2														
Rumex crispus	Curled Dock	Polygonaceae	E	-	-		10.2			0.2	_														
Rumex spp.	Dock	Polygonaceae		-			Forb																		
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N		-		Grass & grasslike																		
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae		-	_		Grass & grasslike															2	30		
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N		_		Grass & grasslike																30		
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N		_		Grass & grasslike																أحما		
Rytidosperma spp.	Reddittief Wallaby Grass	Poaceae	N		_		Grass & grasslike			0.4	150	0.2	400	0.1	50	5	4000	2	1000	5	3000	1	500	Δ	2000
Salix fragilis	Crack Willow	Salicaceae	E				Grass & grassiike			0.4	130	0.2	400	0.1	50	J	4000		1000	<i>J</i>	3000		300		2000
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-			Grass & grasslike																		
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N				Forb					1	300												
Scolymus hispanicus	Golden Thistle	Asteraceae	E				1010						300												
Senecio diaschides	dolden mistle	Asteraceae			-		Forb																		
Senecio gunnii		Asteraceae	N		-		Forb							0.1	1	0.2	20	0.1	2						
Senecio prenanthoides		Asteraceae			-		Forb							0.1	4	0.2	20	0.1							
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N				Forb			0.2	Q					0.2	30			0.1	4				
Senecio spp.	Fireweed	Asteraceae		-			Forb			0.2	0					0.2	30			0.1					
Setaria gracilis	riieweeu	Poaceae	E	_	_		FUID	0.1	100	0.2	30									0.1	10				
Setaria pumila	Pale Pigeon Grass	Poaceae	E	-	-			0.1	100	0.2	30														
Solanum nigrum	Black-berry Nightshade	Solanaceae	E							0.1	1					0.1	10			0.2	40			0.1	1
Solenogyne spp.	black-belly Nightshade	Asteraceae	N				Forb			0.1				0.1	2	0.1	10			0.2	40			0.1	
	Driekly Courthistle		E				FUID			0.1	1			0.1	2	0.1	10			0.2	20				
Sonchus asper	Prickly Sowthistle	Asteraceae	N	-			Forb			0.1	4					0.1	10			0.2	20			0.1	1
Sonchus spp.	Sowthistle	Asteraceae		-	-		LOID																	0.1	1
Spergularia rubra	Sandspurry	Caryophyllaceae		-			Cross 9 and addition																		
Sporobolus caroli	Fairy Grass	Poaceae					Grass & grasslike	_	400																
Sporobolus creber	Slender Rat's Tail Grass	Poaceae		-	-		Grass & grasslike	2	100			0.4	_	0.4	2									البير	
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae			-		Forb					0.1	8	0.1	2										
Stellaria media	Common Chickweed	Caryophyllaceae	E	-	-		e. l							0.1	0.0									التي	
Stellaria pungens	Prickly Starwort	Caryophyllaceae		-	-		Forb							0.1	20										
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae	N		-		Forb					0.0										0.1	6	إلي	
Styphelia spp.		Ericaceae	N	-	-		Shrub					0.2	1												

			E v o t i r	ti e	tatus	at Weed	Plot Number (right) BAM	R02DI	NG	1330S 1	hrub	727- Shrub	land1	727-In	tact1	11970	NG1	1197- Spars		1197S 1		1191- Sparse		1330- Sparse	e1
ScientificName	Common Name	Family	Native / Evatic	RC ctatus	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance	Cover	Abundance
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub																		
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-																			0.1	10
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb																		
Themeda australis		Poaceae	N	-	-		Grass & grasslike															0.2	20		
Themeda triandra		Poaceae	N	-	-		Grass & grasslike																		
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Е	-	-																				
Tribulus terrestris	Cat-head	Zygophyllaceae	Е	-	-			0.1	1															0.1	3
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb																		
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)		-	-																				
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)		-	-																			0.2	2000
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-			5	4000																
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Е	-	-					0.1	20	0.1	2			0.1	50			0.2	300			0.3	1000
Urtica incisa	Stinging Nettle	Urticaceae	N		-		Forb																		
Verbascum spp.	5 5	Scrophulariaceae		-	-					0.2	20														
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Е	-	-																				
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb					0.1	20												
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N		-		Forb							0.1	8	0.2	20								
Veronica spp.	5 '	Plantaginaceae			-		Forb															0.1	20		
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Е	-	-																				
Vicia spp.	Vetch	Fabaceae (Faboideae)	E	-	-																				
Viola betonicifolia	Native Violet	Violaceae	N		-		Forb							0.2	80			0.1	2			0.1	5		
Viola spp.		Violaceae	N		_		Forb							0.1	20								_		
Vittadinia dissecta		Asteraceae		-	-		Forb																		
Vittadinia spp.	Fuzzweed	Asteraceae			-		Forb																		
Vulpia myuros	Rat's Tail Fescue	Poaceae	E		-																				
Wahlenbergia communis	Tufted Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae			-		Forb																		
Wahlenbergia spp.	Bluebell	Campanulaceae	N		-		Forb															0.1	1	0.3	200
Wahlenbergia stricta	Tall Bluebell	Campanulaceae		-			Forb															J		3.3	_50
Wurmbea dioica	Early Nancy	Colchicaceae		-			Forb																		
Xerochrysum spp.		Asteraceae			-		Forb									0.2	6	0.4	30						
Xerochrysum viscosum	Sticky Everlasting	Asteraceae		-			Forb									0.2		Ų. I							
Zieria cytisoides	Downy Zieria	Rutaceae			-		Shrub																		

			Exotic	ıtus	status	at Weed	Plot Number (right) BAM	1330- fragm	ents1	277DI	NG1
ScientificName	Common Name	Family	Native /	BC status	EPBC st	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Acacia acinacea	Gold-dust Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia buxifolia	Box-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia dealbata	Silver Wattle	Fabaceae (Mimosoideae)	N	-	-		Tree			0.2	3
Acacia deanei	Green Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia falciformis	Broad-leaved Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia gunnii	Ploughshare Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia implexa	Hickory Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia melanoxylon	Blackwood	Fabaceae (Mimosoideae)	N	-	-		Tree				
Acacia nana	Small Red-leaved Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia obliquinervia	Mountain Hickory	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acacia spp.	Wattle	Fabaceae (Mimosoideae)	N	-	-		Shrub				
Acaena agnipila	Hairy Sheep's Burr	Rosaceae	N	-	-		Forb				
Acaena echinata	Sheep's Burr	Rosaceae	N	-	-		Forb				
Acaena novae-zelandiae	Bidgee-widgee	Rosaceae	N	-	_		Forb				
Acaena ovina	Acaena	Rosaceae	N	-	_		Forb				
Acaena spp.	Sheep's Burr	Rosaceae	N	-	_		Forb				
Acetosella vulgaris	Sheep Sorrel	Polygonaceae	E	_	_	HTE		0.1	3		
Acrotriche serrulata	Honeypots	Ericaceae	N	_	_		Shrub	0.2			
Acrotriche spp.	Tioney pots	Ericaceae	N	-	_		Shrub				
Aira cupaniana	Silvery Hairgrass	Poaceae	E	_	_		Siliub				
Alternanthera angustifolia	Silvery Hailgrass	Amaranthaceae	N	_	_		Forb				
Amperea xiphoclada		Euphorbiaceae	N	_	_		Shrub				
Amyema miquelii	Box Mistletoe	Loranthaceae	N	-			Other				
Amyema pendula	BOX WISCIECOE	Loranthaceae	N				Other				
Amyema spp.	Mistletoe	Loranthaceae	N		_		Other				
Anagallis arvensis	Scarlet Pimpernel	Primulaceae	E		_		Other				
Anthosachne scabra	Common Wheatgrass	Poaceae	N	-	-		Grass & grasslike				
Anthoxanthum odoratum	Sweet Vernal Grass		E		-		Grass & grasslike				
	Vernal Grass	Poaceae	E	-	-						
Anthoxanthum spp.		Poaceae	E		-						
Arctotheca calendula Aristida ramosa	Capeweed	Asteraceae		-	-		Cross O grasslika				
	Purple Wiregrass	Poaceae	N	-	-		Grass & grasslike				
Aristida spp.	A Wiregrass	Poaceae	N	-	-		Grass & grasslike				
Aristida vagans	Threeawn Speargrass	Poaceae	N	-	-		Grass & grasslike			0.4	
Asperula conferta	Common Woodruff	Rubiaceae	N	-	-		Forb			0.1	2
Asperula scoparia	Prickly Woodruff	Rubiaceae	N		-		Forb				
Asperula spp.	Woodruff	Rubiaceae	N	-	-		Forb				
Asphodelus fistulosus	Onion Weed	Asphodelaceae	E	-	-		Cl. L				
Astroloma humifusum	Native Cranberry	Ericaceae	N	-	-		Shrub				
Austrodanthonia spp.		Poaceae	N	-	-		Grass & grasslike				
Austrostipa nodosa	A Speargrass	Poaceae	N	-	-		Grass & grasslike				
Austrostipa scabra	Speargrass	Poaceae	N	-	-		Grass & grasslike	0.2	30	2	1000
Austrostipa spp.	A Speargrass	Poaceae	N		_		Grass & grasslike				

			Exotic	status	status	at Weed	Plot Number (right) BAM	1330- fragme	ents1	277DN	IG1
ScientificName	Common Name	Family	Native /	BC sta	EPBC s	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Avena fatua	Wild Oats	Poaceae	Е	-	-						
Avena sativa	Oats	Poaceae	Е	-	-						
Avena spp.	Oats	Poaceae	Е	-	-						
Bidens subalternans	Greater Beggar's Ticks	Asteraceae	Е	-	-						
Billardiera scandens	Hairy Apple Berry	Pittosporaceae	N	-	-		Other				
Blechnum spp.		Blechnaceae	N	-	-		Fern				
Bossiaea buxifolia		Fabaceae (Faboideae)	N	-	-		Shrub				
Bossiaea prostrata		Fabaceae (Faboideae)	N	-	-		Forb				
Bothriochloa macra	Red Grass	Poaceae	N	-	-		Grass & grasslike	0.2	50	0.1	2
Brachyloma daphnoides	Daphne Heath	Ericaceae	N	-	-		Shrub				
Brachyscome rigidula	Hairy Cutleaf Daisy	Asteraceae	N	-	-		Forb				
Brachyscome spp.	, , , , , , , , , , , , , , , , , , , ,	Asteraceae	N	-	-		Forb				
Brassica oleracea	Collards	Brassicaceae	E	_	_						
Brassica spp.	Brassica	Brassicaceae	E	_	_			0.2	20		
Brassica tournefortii	Mediterranean Turnip	Brassicaceae	E	_	_	HTE		0.2	20		
Bromus catharticus	Praire Grass	Poaceae	E			1111		0.1	7		
Bromus diandrus	Great Brome	Poaceae	E		_	HTE		0.1	,		
Bromus hordeaceus	Soft Brome	Poaceae	E			IIIL					
Bulbine bulbosa				-	-		Forb				
	Bulbine Lily Native Blackthorn	Asphodelaceae	N	-	-						
Bursaria spinosa	Native Blackthorn	Pittosporaceae	N	-	-		Shrub				
Caesia spp.	Circa Balllaha ah	Anthericaceae	N	-	-		Forb				
Callistemon citrinus	Crimson Bottlebrush	Myrtaceae	N	-	-		Shrub	0.1			
Calotis lappulacea	Yellow Burr-daisy	Asteraceae	N	-	-		Forb	0.1	2		
Calotis spp.	A Burr-daisy	Asteraceae	N	-	-		Forb				
Carex appressa	Tall Sedge	Cyperaceae	N	-	-		Grass & grasslike	0.7	20		
Carex bichenoviana		Cyperaceae	N	-	-		Grass & grasslike				
Carex fascicularis	Tassel Sedge	Cyperaceae	N	-	-		Grass & grasslike				
Carex gaudichaudiana		Cyperaceae	N	-	-		Grass & grasslike	0.1	8		
Carex spp.		Cyperaceae	N	-	-		Grass & grasslike				
Cassinia aculeata	Dolly Bush	Asteraceae	N	-	-		Shrub				
Cassinia arcuata	Sifton Bush	Asteraceae	N	-	-		Shrub				
Cassinia laevis	Cough Bush	Asteraceae	N	-	-		Shrub				
Cassinia longifolia		Asteraceae	N	-	-		Shrub				
Cassinia quinquefaria		Asteraceae	N	-	-		Shrub				
Cassinia spp.		Asteraceae	N	-	-		Shrub				
Casuarina cunninghamiana	River Oak	Casuarinaceae	N	-	-		Tree				
Centaurium spp.		Gentianaceae	Е	-	-						
Centella asiatica	Indian Pennywort	Apiaceae	N	-	-		Forb				
Cheilanthes austrotenuifolia	Rock Fern	Pteridaceae	N	-	-		Fern				
Cheilanthes spp.	Rock Fern	Pteridaceae	N	-	-		Fern				
Chenopodium album	Fat Hen	Chenopodiaceae	E	-	-						
Chloris spp.		Poaceae	N	_	-		Grass & grasslike	4	800		
Chloris truncata	Windmill Grass	Poaceae	N				Grass & grasslike	0.2	70	0.1	50

			/ Exotic	ıtus	tatus	Threat Weed	Plot Number (<u>right</u>) BAM	1330- fragm	ents1	277D1	NG1
ScientificName	Common Name	Family	Native /	BC status	EPBC status	High Thre	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Chloris ventricosa	Tall Chloris	Poaceae	N	-	-		Grass & grasslike				
Chondrilla juncea	Skeleton Weed	Asteraceae	E	-	-						
Chrysocephalum apiculatum	Common Everlasting	Asteraceae	N	-	-		Forb				
Chrysocephalum semicalvum		Asteraceae	N	-	-		Forb				
Cirsium vulgare	Spear Thistle	Asteraceae	E	-	-						
Clematis aristata	Old Man's Beard	Ranunculaceae	N	-	-		Other				
Convolvulus angustissimus		Convolvulaceae	N	-	-		Other				
Conyza bonariensis	Flaxleaf Fleabane	Asteraceae	E	-	-						
Conyza spp.	A Fleabane	Asteraceae	E	-	-						
Coronidium elatum		Asteraceae	N	-	-		Shrub				
Coronidium rutidolepis		Asteraceae	N	-	-						
Coronidium scorpioides	Button Everlasting	Asteraceae	N	-	-		Forb				
Coronidium spp.		Asteraceae	N	-	-		Forb				
Cotoneaster spp.		Malaceae	Е	-	-	HTE					
Crassula sieberiana	Australian Stonecrop	Crassulaceae	N	-	-		Forb	0.2	6000		
Crataegus monogyna	Hawthorn	Malaceae	Е	-	-	HTE					
Crepis capillaris	Smooth Hawksbeard	Asteraceae	E	-	-						
Cullen tenax	Emu-foot	Fabaceae (Faboideae)	N	-	-		Forb				
Cymbonotus lawsonianus	Bear's Ear	Asteraceae	N	-	-		Forb				
Cymbonotus preissianus	Austral Bear's Ear	Asteraceae	N	-	_		Forb				
Cynodon dactylon	Common Couch	Poaceae	N	-	-		Grass & grasslike	0.2	3		
Cynodon spp.		Poaceae	N	-	-		Grass & grasslike	0.1	3		
Cynodon transvaalensis	South African Couch	Poaceae	Е	-	-		J	2	200		
Cyperus brevifolius		Cyperaceae	Е	-	_						
Cyperus eragrostis	Umbrella Sedge	Cyperaceae	Е	-	-	HTE		0.1	1		
Cyperus Ihotskyanus		Cyperaceae	N	-	_		Grass & grasslike				
Cyperus spp.		Cyperaceae	N	-	-		Grass & grasslike				
Cytisus scoparius	English Broom	Fabaceae (Faboideae)	E	-	-	HTE	-				
Dactylis glomerata	Cocksfoot	Poaceae	E	-	-						
Daucus glochidiatus	Native Carrot	Apiaceae	N	-	-		Forb				
Daviesia corymbosa		Fabaceae (Faboideae)	N	-	-		Shrub				
Daviesia latifolia	Bitter-pea	Fabaceae (Faboideae)	N	-	-		Shrub				
Daviesia leptophylla		Fabaceae (Faboideae)	N	-	-		Shrub				
Daviesia spp.		Fabaceae (Faboideae)	N	-	-		Shrub				
Desmodium gunnii	Slender Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Forb				
Desmodium spp.	Tick-trefoil	Fabaceae (Faboideae)	N	-	-		Other				
Dianella longifolia	Blueberry Lily	Phormiaceae	N	-	-		Forb				
Dianella revoluta	Blueberry Lily	Phormiaceae	N	-	-		Forb				
Dianella spp.	,,	Phormiaceae	N	-	-		Forb				
Dichanthium spp.		Poaceae	N	-	-		Grass & grasslike				
Dichondra repens	Kidney Weed	Convolvulaceae	N	-	-		Forb				
Dichopogon spp.	Chocolate Lily	Anthericaceae	N	_	_		Forb				
Digitaria brownii	Cotton Panic Grass	Poaceae	N				Grass & grasslike	0.4	80		

			Exotic	status	status	at Weed	Plot Number (<u>right</u>) BAM	1330- fragme	ents1	277DI	NG1
ScientificName	Common Name	Family	Native /	BC sta	EPBC st	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Dillwynia cinerascens		Fabaceae (Faboideae)	N	-	-		Shrub				
Dillwynia phylicoides	Parrot-pea	Fabaceae (Faboideae)	N	-	-		Shrub				
Dillwynia sericea	Egg and Bacon Pea	Fabaceae (Faboideae)	N	-	-		Shrub				
Dillwynia spp.		Fabaceae (Faboideae)	N	-	-		Shrub				
Dipodium hamiltonianum	Yellow Hyacinth-orchid	Orchidaceae	N	-	-		Forb				
Dipsacus spp.		Dipsacaceae	E	-	-						
Drosera spp.		Droseraceae	N	-	-		Forb				
Dysphania pumilio	Small Crumbweed	Chenopodiaceae	N	-	-		Forb				
Dysphania spp.		Chenopodiaceae	N	-	-		Forb				
Echinopogon ovatus	Forest Hedgehog Grass	Poaceae	N	-	-		Grass & grasslike				
Echium plantagineum	Patterson's Curse	Boraginaceae	E	-	-						
Echium spp.		Boraginaceae	E	-	-						
Echium vulgare	Viper's Bugloss	Boraginaceae	E	-	-			0.2	20		
Einadia hastata	Berry Saltbush	Chenopodiaceae	N	-	-		Forb				
Einadia nutans	Climbing Saltbush	Chenopodiaceae	N	-	-		Forb				
Einadia polygonoides	Knotweed Goosefoot	Chenopodiaceae	N	-	-		Forb				
Eleocharis acuta		Cyperaceae	N	-	-		Grass & grasslike				
Eleusine tristachya	Goose Grass	Poaceae	Е	-	-						
Elymus scaber	Common Wheatgrass	Poaceae	N	-	-		Grass & grasslike				
Enneapogon nigricans	Niggerheads	Poaceae	N	-	-		Grass & grasslike				
Enteropogon acicularis	Curly Windmill Grass	Poaceae	N	-	-		Grass & grasslike				
Epacris spp.		Ericaceae	N	-	-		Shrub				
Epilobium spp.		Onagraceae	N	-	-		Forb				
Eragrostis cilianensis	Stinkgrass	Poaceae	Е	-	-						
Eragrostis curvula	African Lovegrass	Poaceae	Е	-	-	HTE		0.3	20		
Eragrostis leptostachya	Paddock Lovegrass	Poaceae	N	-	-		Grass & grasslike	0.1	20		
Eragrostis parviflora	Weeping Lovegrass	Poaceae	N	-	-		Grass & grasslike				
Eragrostis spp.	A Lovegrass	Poaceae	N	-	-		Grass & grasslike				
Erodium botrys	Long Storksbill	Geraniaceae	Е	-	-						
Erodium cicutarium	Common Crowfoot	Geraniaceae	E	-	-						
Erodium crinitum	Blue Crowfoot	Geraniaceae	N	-	-		Forb	0.1	100		
Erodium malacoides		Geraniaceae	Е	-	-						
Erodium spp.	Crowfoot	Geraniaceae	N	-	_		Forb				
Eucalyptus blakelyi	Blakely's Red Gum	Myrtaceae	N	-	-		Tree	15	8		
Eucalyptus bridgesiana	Apple Box	Myrtaceae	N	-	-		Tree				
Eucalyptus cannonii	Capertee Stringybark	Myrtaceae	N	٧	-		Tree				
Eucalyptus dalrympleana	Mountain Gum	Myrtaceae	N	-	-		Tree				
Eucalyptus dives	Broad-leaved Peppermint	Myrtaceae	N	-	-		Tree				
Eucalyptus fastigata	Brown Barrel	Myrtaceae	N	-	-		Tree				
Eucalyptus goniocalyx	Bundy	Myrtaceae	N	-	-		Tree				
Eucalyptus macrorhyncha	Red Stringybark	Myrtaceae	N	-	-		Tree				
Eucalyptus mannifera	Brittle Gum	Myrtaceae	N	-	-		Tree				
Eucalyptus melliodora	Yellow Box	Myrtaceae	N	_	_		Tree				

			Exotic	status	status	at Weed	Plot Number (<u>right</u>) BAM	1330- fragm	ents1	277DI	NG1
ScientificName	Common Name	Family	Native /	BC sta	EPBC s	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Eucalyptus pauciflora	White Sally	Myrtaceae	N	-	-		Tree				
Eucalyptus rossii	Inland Scribbly Gum	Myrtaceae	N	-	-		Tree				
Eucalyptus spp.		Myrtaceae	N	-	-		Tree				
Eucalyptus stellulata	Black Sally	Myrtaceae	N	-	-		Tree				
Eucalyptus viminalis	Ribbon Gum	Myrtaceae	N	-	-		Tree				
Euchiton japonicus		Asteraceae	N	-	-		Forb				
Euchiton sphaericus	Star Cudweed	Asteraceae	N	-	-		Forb				
Euchiton spp.	A Cudweed	Asteraceae	N	-	-		Forb				
Euphorbia dallachyana		Euphorbiaceae	N	-	-		Forb				
Euphorbia drummondii	Caustic Weed	Euphorbiaceae	N	-	-		Forb	0.1	4		
Euphorbia spp.		Euphorbiaceae	N	_	_		Forb				
Exocarpos cupressiformis	Cherry Ballart	Santalaceae	N	-	_		Shrub				
Exocarpos strictus	Dwarf Cherry	Santalaceae	N	-	_		Shrub				
Foeniculum vulgare	Fennel	Apiaceae	E	_	_		5111 4.5				
Galium murale	Small Bedstraw	Rubiaceae	E	_	_						
Gamochaeta calviceps	Cudweed	Asteraceae	E								
Geranium graniticola	Cuaweeu	Geraniaceae	N				Forb				
Geranium molle	Cranesbill Geranium	Geraniaceae	E	-	-		FULD				
				-	-		Faula .				
Geranium solanderi	Native Geranium	Geraniaceae	N N	-	-		Forb	0.1	1		
Geranium spp.	Tarining abosing	Geraniaceae		-	-			0.1	4		
Glycine clandestina	Twining glycine	Fabaceae (Faboideae)	N	-	-		Other				
Glycine microphylla	Small-leaf Glycine	Fabaceae (Faboideae)	N	-	-		Other				
Gonocarpus humilis		Haloragaceae	N	-	-		Forb				
Gonocarpus spp.	Raspwort	Haloragaceae	N	-	-		Forb				
Gonocarpus tetragynus	Poverty Raspwort	Haloragaceae	N	-	-		Forb				
Gonocarpus teucrioides	Germander Raspwort	Haloragaceae	N	-	-		Forb				
Goodenia hederacea	Ivy Goodenia	Goodeniaceae	N	-	-		Forb				
Goodenia spp.		Goodeniaceae	N	-	-		Forb				
Haloragis heterophylla	Variable Raspwort	Haloragaceae	N	-	-		Forb				
Haloragis spp.	A Raspwort	Haloragaceae	N	-	-		Forb				
Hardenbergia violacea	False Sarsaparilla	Fabaceae (Faboideae)	N	-	-		Other				
Helichrysum leucopsideum	Satin Everlasting	Asteraceae	N	-	-		Forb				
Helichrysum spp.		Asteraceae	N	-	-		Forb				
Heliotropium amplexicaule	Blue Heliotrope	Boraginaceae	E	-	-	HTE					
Hibbertia obtusifolia	Hoary Guinea Flower	Dilleniaceae	N	-	-		Shrub				
Holcus lanatus	Yorkshire Fog	Poaceae	Е	-	-						
Hordeum leporinum	Barley Grass	Poaceae	Е	-	-						
Hovea heterophylla		Fabaceae (Faboideae)	N	-	-		Forb				
Hovea spp.		Fabaceae (Faboideae)	N	-	-		Forb				
Hydrocotyle laxiflora	Stinking Pennywort	Apiaceae	N	-	-		Forb				
Hydrocotyle sibthorpioides	j ,	Apiaceae	N	-	-		Forb				
Hydrocotyle spp.		Apiaceae	N	-	-		Forb				
Hypericum gramineum	Small St John's Wort	Clusiaceae	N		_		Forb				

				Native / Exotic BC status	BC status EPBC status	ا غِّا إ	Plot Number (right) BAM	1330- fragments1		277DNG1	
ScientificName	ScientificName Common Name Family		Native /				growth form (below)	Cover	Abundance	Cover	Abundance
Hypericum perforatum	St. Johns Wort	Clusiaceae	Е	-	-	HTE				0.1	2
Hypericum spp.		Clusiaceae	N	-	-		Forb				
Hypochaeris glabra	Smooth Catsear	Asteraceae	Е	-	-						
Hypochaeris radicata	Catsear	Asteraceae	E	-	-						
Hypochaeris spp.	A Catsear	Asteraceae	Е	-	-						
Hypochoeris radicata	Catsear	Asteraceae	Ε	-	-			0.3	200	5	2000
Hypoxis spp.		Hypoxidaceae	N	-	-		Forb				
Isolepis hookeriana		Cyperaceae	N	-	-		Grass & grasslike				
Joycea pallida	Redanther Wallaby Grass	Poaceae	N	-	-		Grass & grasslike				
Juncus effusus		Juncaceae	Е	-	-						
Juncus gregiflorus		Juncaceae	N	-	-		Grass & grasslike				
Juncus homalocaulis		Juncaceae	N	-	-		Grass & grasslike				
Juncus spp.	A Rush	Juncaceae	N	-	-		Grass & grasslike				
Lactuca serriola	Prickly Lettuce	Asteraceae	E	-	_		orace or gracemic				
Lagenifera spp.	Trickly Lettuce	Asteraceae	N	_	_		Forb				
Lamarckia aurea	Goldentop	Poaceae	E	_	_		1010				
Lepidium africanum	Common Peppercress	Brassicaceae	E		_						
Lepidium spp.	A Peppercress	Brassicaceae	N				Forb	0.1	6		
	A repperciess		N	-	-		Shrub	0.1	U		
Leptospermum myrtifolium	Tea-tree	Myrtaceae			-		Shrub				
Leptospermum spp.	rea-tree	Myrtaceae Ericaceae	N	-	-		Shrub				
Leucopogon appressus			N	-	-						
Leucopogon fletcheri		Ericaceae	N	-	-		Shrub				
Leucopogon virgatus	Maria ela	Ericaceae	N	-	-		Shrub				
Linum marginale	Native Flax	Linaceae	N	-	-		Forb				
Lissanthe spp.		Ericaceae	N	-	-		Shrub				
Lolium perenne	Perennial Ryegrass	Poaceae	E	-	-						
Lomandra cylindrica		Lomandraceae	N	-	-		Grass & grasslike				
Lomandra filiformis	Wattle Matt-rush	Lomandraceae	N	-	-		Grass & grasslike			0.1	50
Lomandra longifolia	Spiny-headed Mat-rush	Lomandraceae	N	-	-		Grass & grasslike	2	30		
Lomandra multiflora	Many-flowered Mat-rush	Lomandraceae	N	-	-		Grass & grasslike				
Lomandra spp.	Mat-rush	Lomandraceae	N	-	-		Grass & grasslike				
Lomatia ilicifolia	Holly Lomatia	Proteaceae	N	-	-		Shrub				
Lomatia myricoides	River Lomatia	Proteaceae	N	-	-		Shrub				
Luzula spp.		Juncaceae	N	-	-		Grass & grasslike				
Lycium ferocissimum	African Boxthorn	Solanaceae	Е	-	-	HTE					
Lysimachia arvensis	Scarlet Pimpernel	Primulaceae	E	-	-					0.1	1
Lythrum hyssopifolia	Hyssop Loosestrife	Lythraceae	N	-	-		Forb				
Malus pumila	Apple	Malaceae	Е	-	-						
Malva neglecta	Dwarf Mallow	Malvaceae	Е	-	-						
Marrubium spp.		Lamiaceae	Е	-	-						
Marrubium vulgare	White Horehound	Lamiaceae	Е	-	-						
Medicago polymorpha	Burr Medic	Fabaceae (Faboideae)	E	-	-						
Medicago spp.	A Medic	Fabaceae (Faboideae)	E	_	-			0.2	7000		

				status	status	at Weed	Plot Number (<u>right</u>) BAM	1330- fragments1		277DNG1	
ScientificName	Common Name	Family	Native / Exotic	BC sta		High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance
Melichrus urceolatus	Urn Heath	Ericaceae	N	-	-		Shrub				
Melicytus dentatus	Tree Violet	Violaceae	N	-	-		Shrub				
Microlaena stipoides	Weeping Grass	Poaceae	N	-	-		Grass & grasslike	0.2	80	0.2	100
Modiola caroliniana	Red-flowered Mallow	Malvaceae	E	-	-			0.1	3		
Modiola spp.		Malvaceae	E	-	-						
Moenchia erecta	Erect Chickweed	Caryophyllaceae	E	-	-						
Monoculus monstrosus		Asteraceae	Е	-	-						
Monotoca scoparia		Ericaceae	N	-	-		Shrub				
Nassella trichotoma	Serrated Tussock	Poaceae	Е	-	-						
Notothixos spp.		Viscaceae	N	-	-		Other				
Olearia spp.		Asteraceae	N	-	-		Shrub				
Onopordum acanthium	Scotch Thistle	Asteraceae	Е	-	-						
Ophioglossum lusitanicum	Adder's Tongue	Ophioglossaceae	N	-	-		Fern				
Orobanche spp.		Scrophulariaceae	N	-	-		Forb				
Oxalis perennans		Oxalidaceae	N	-	-		Forb	0.1	3	0.1	1
Oxalis spp.		Oxalidaceae	N	-	-		Forb				
Ozothamnus diosmifolius	White Dogwood	Asteraceae	N	-	-		Shrub				
Panicum effusum	Hairy Panic	Poaceae	N	_	-		Grass & grasslike	0.1	3	0.1	80
Paspalum dilatatum	Paspalum	Poaceae	E	_	_	HTE	or acc or gracemic	4	250		
Paspalum spp.		Poaceae	N	_	_		Grass & grasslike				
Pennisetum clandestinum	Kikuyu Grass	Poaceae	E	_	_		or acc or gracemic				
Pentaschistis airoides	False Hairgrass	Poaceae	E	_	_						
Persicaria prostrata	Creeping Knotweed	Polygonaceae	N	_	_		Forb				
Petrorhagia spp.	creeping informed	Caryophyllaceae	E	_	_		10.0				
Phalaris aquatica	Phalaris	Poaceae	E	_	_						
Phalaris minor	Lesser Canary Grass	Poaceae	E	_	_						
Phalaris spp.	Lesser Carrary Grass	Poaceae	E	_	_			20	3000	1	500
Phragmites australis	Common Reed	Poaceae	N	_	_		Grass & grasslike	20	3000		300
Phragmites spp.	Common Reed	Poaceae	N	_	_		Grass & grasslike				
Pinus radiata	Radiata Pine	Pinaceae	E				Orass & grasslike			0.2	1
Plantago gaudichaudii	Narrow Plantain	Plantaginaceae	N				Forb			0.2	200
Plantago lanceolata	Lamb's Tongues	Plantaginaceae	E	_			1010	0.2	30		200
	Plantain	Plantaginaceae	N	_	_		Forb	0.2	30		
Plantago spp. Platylobium formosum	riaiitaiii	Fabaceae (Faboideae)	N				Shrub				
Poa annua	Winter Grass	Poaceae (Fabolideae)	E				Jiliub				
Poa induta	William Glass	Poaceae	N				Grass & grasslike				
Poa labillardierei	Tussock	Poaceae	N				Grass & grasslike				
Poa meionectes	TUSSUCK		N				Grass & grasslike				
	Snowgrass	Poaceae					_				
Poa sieberiana	Snowgrass	Poaceae	N				Grass & grasslike				
Poa spp.	Foundation of Allered	Poaceae	N	-	-		Grass & grasslike				
Polycarpon tetraphyllum	Four-leaved Allseed	Caryophyllaceae	E	-	-		Cl I.				
Polyscias sambucifolia	Elderberry Panax	Araliaceae	N	-	-		Shrub				

			Exotic	_ 12	status	at Weed	Plot Number (<u>right</u>) BAM	1330- fragmo	ents1	277DI	NG1
ScientificName	ScientificName Common Name Family	Native /	EPBC st		High Threat Weed	growth form (below)	Cover	Abundance	Cover	Abundance	
Poranthera microphylla	Small Poranthera	Phyllanthaceae	N	-	-		Forb				
Portulaca oleracea	Pigweed	Portulacaceae	N	-	-		Forb				
Potentilla spp.		Rosaceae	E	-	-						
Pseudognaphalium luteoalbum	Jersey Cudweed	Asteraceae	N	-	-		Forb				
Pteridium esculentum	Bracken	Dennstaedtiaceae	N	-	-		Fern				
Pteridium spp.		Dennstaedtiaceae	N	-	-		Fern				
Pultenaea microphylla	A Bush Pea	Fabaceae (Faboideae)	N	-	-		Shrub				
Rosa rubiginosa	Sweet Briar	Rosaceae	E	-	-	HTE					
Rosa spp.		Rosaceae	E	-	-						
Rubus fruticosus	Blackberry complex	Rosaceae	Е	-	-						
Rubus parvifolius	Native Raspberry	Rosaceae	N	-	-		Shrub				
Rumex acetosella	Sheep Sorrel	Polygonaceae	Е	-	-						
Rumex brownii	Swamp Dock	Polygonaceae	N	-	-		Forb				
Rumex crispus	Curled Dock	Polygonaceae	E	-	-						
Rumex spp.	Dock	Polygonaceae	N	-	-		Forb				
Rytidosperma caespitosum	Ringed Wallaby Grass	Poaceae	N	-	-		Grass & grasslike				
Rytidosperma longifolium	Long-leaved Wallaby Grass	Poaceae	N	-	-		Grass & grasslike				
Rytidosperma monticola	Mountain Wallaby Grass	Poaceae	N	-	-		Grass & grasslike				
Rytidosperma pallidum	Redanther Wallaby Grass	Poaceae	N	_	_		Grass & grasslike				
Rytidosperma spp.		Poaceae	N	-	-		Grass & grasslike	0.1	40	10	4000
Salix fragilis	Crack Willow	Salicaceae	Е	_	_		J				
Schoenus apogon	Fluke Bogrush	Cyperaceae	N	-	-		Grass & grasslike				
Scleranthus biflorus	Two-flowered Knawel	Caryophyllaceae	N	_	_		Forb				
Scolymus hispanicus	Golden Thistle	Asteraceae	E	-	-						
Senecio diaschides		Asteraceae	N	_	_		Forb				
Senecio gunnii		Asteraceae	N	_	_		Forb				
Senecio prenanthoides		Asteraceae	N	_	_		Forb				
Senecio quadridentatus	Cotton Fireweed	Asteraceae	N	-	-		Forb				
Senecio spp.	Fireweed	Asteraceae	N	_	_		Forb				
Setaria gracilis		Poaceae	E	_	_			0.1	30		
Setaria pumila	Pale Pigeon Grass	Poaceae	E	_	_			0.1			
Solanum nigrum	Black-berry Nightshade	Solanaceae	E	-	-						
Solenogyne spp.	ze ;gconduc	Asteraceae	N	_	_		Forb			0.1	1
Sonchus asper	Prickly Sowthistle	Asteraceae	E	-	-					0.1	_
Sonchus spp.	Sowthistle	Asteraceae	N	_	_		Forb				
Spergularia rubra	Sandspurry	Caryophyllaceae	E	-	-						
Sporobolus caroli	Fairy Grass	Poaceae	N	_	_		Grass & grasslike				
Sporobolus creber	Slender Rat's Tail Grass	Poaceae	N	-	-		Grass & grasslike	0.1	10		
Stackhousia viminea	Slender Stackhousia	Stackhousiaceae	N	_	_		Forb	0.1	10		
Stellaria media	Common Chickweed	Caryophyllaceae	E	_	_						
Stellaria pungens	Prickly Starwort	Caryophyllaceae	N	_	_		Forb				
Stylidium graminifolium	Grass Triggerplant	Stylidiaceae	N				Forb				
Styphelia spp.	Orass Trigger plant	Ericaceae	N				Shrub				

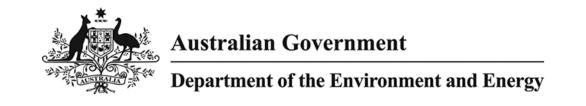
			Exotic	Exotic stus	tatus	at Weed	Plot Number (right) BAM	1330- fragments1		277DNG1	
ScientificName	Common Name	Family	Native / Exotic	BC status	EPBC status	High Threat Weed	growth form (<u>below</u>)	Cover	Abundance	Cover	Abundance
Styphelia triflora	Pink Five-Corners	Ericaceae	N	-	-		Shrub				
Taraxacum officinale	Dandelion	Asteraceae	Е	-	-			0.1	1		
Taraxacum spp.	Dandelion	Asteraceae	N	-	-		Forb				
Themeda australis		Poaceae	N	-	-		Grass & grasslike				
Themeda triandra		Poaceae	N	-	-		Grass & grasslike				
Thinopyrum ponticum	Tall Wheat Grass	Poaceae	Ε	-	-						
Tribulus terrestris	Cat-head	Zygophyllaceae	Ε	-	-						
Tricoryne elatior	Yellow Autumn-lily	Anthericaceae	N	-	-		Forb				
Trifolium angustifolium	Narrow-leaved Clover	Fabaceae (Faboideae)	Ε	-	-						
Trifolium arvense	Haresfoot Clover	Fabaceae (Faboideae)	Е	-	-						
Trifolium repens	White Clover	Fabaceae (Faboideae)	Е	-	-						
Trifolium spp.	A Clover	Fabaceae (Faboideae)	Ε	-	-			0.2	2000	0.4	1000
Urtica incisa	Stinging Nettle	Urticaceae	N	-	-		Forb				
Verbascum spp.		Scrophulariaceae	Е	-	-			0.1	1		
Verbascum virgatum	Twiggy Mullein	Scrophulariaceae	Ε	-	-						
Veronica calycina	Hairy Speedwell	Plantaginaceae	N	-	-		Forb				
Veronica plebeia	Trailing Speedwell	Plantaginaceae	N	-	-		Forb				
Veronica spp.		Plantaginaceae	N	-	-		Forb				
Vicia sativa	Common vetch	Fabaceae (Faboideae)	Ε	-	-						
Vicia spp.	Vetch	Fabaceae (Faboideae)	Е	-	-			0.1	5		
Viola betonicifolia	Native Violet	Violaceae	N	-	-		Forb				
Viola spp.		Violaceae	N	-	-		Forb				
Vittadinia dissecta		Asteraceae	N	-	-		Forb				
Vittadinia spp.	Fuzzweed	Asteraceae	N	-	-		Forb				
Vulpia myuros	Rat's Tail Fescue	Poaceae	E	-	-						
Wahlenbergia communis	Tufted Bluebell	Campanulaceae	N	-	-		Forb				
Wahlenbergia gracilenta	Annual Bluebell	Campanulaceae	N	-	-		Forb				
Wahlenbergia gracilis	Sprawling Bluebell	Campanulaceae	N	-	-		Forb				
Wahlenbergia spp.	Bluebell	Campanulaceae	N	-	-		Forb				
Wahlenbergia stricta	Tall Bluebell	Campanulaceae	N	-	-		Forb				
Wurmbea dioica	Early Nancy	Colchicaceae	N	-	-		Forb				
Xerochrysum spp.		Asteraceae	N	-	-		Forb				
Xerochrysum viscosum	Sticky Everlasting	Asteraceae	N	-	-		Forb				
Zieria cytisoides	Downy Zieria	Rutaceae	N	-	-		Shrub				

Appendix C

Protected Matters Search Results

C.1 Mine development

J180395 | 13 | v1 C.2



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about <u>Environment Assessments</u> and the EPBC Act including significance guidelines, forms and application process details.

Report created: 31/08/20 11:30:08

Summary

Details

Matters of NES
Other Matters Protected by the EPBC Act
Extra Information

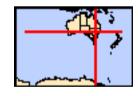
Caveat

<u>Acknowledgements</u>



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the <u>Administrative Guidelines on Significance</u>.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	29
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A <u>permit</u> may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	30
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	800 - 900km upstream
Hattah-kulkyne lakes	600 - 700km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	300 - 400km upstream

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

F		
Name	Status	Type of Presence
Natural Temperate Grassland of the South Eastern	Critically Endangered	Community likely to occur
<u>Highlands</u>		within area
White Box-Yellow Box-Blakely's Red Gum Grassy	Critically Endangered	Community likely to occur
Woodland and Derived Native Grassland		within area
Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos		
Grey Falcon [929]	Vulnerable	Species or species habitat
		likely to occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat
		known to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat
		likely to occur within area
<u>Lathamus discolor</u>		
Swift Parrot [744]	Critically Endangered	Species or species habitat
		likely to occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat
Mancelowi [554]	Valitable	likely to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat
		may occur within area
Delutelia evveina en !!		
Polytelis swainsonii	\/lm a wa la la	Charles or anasiss
Superb Parrot [738]	Vulnerable	Species or species

Name	Status	Type of Presence
Rostratula australis		habitat known to occur within area
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
<u>Litoria booroolongensis</u>		
Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area
<u>Litoria castanea</u> Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area
[1040]		intery to occur within area
Insects		
Synemon plana Golden Sun Moth [25234]	Critically Endangered	Species or species habitat
Golden Sun Moth [25254]	Childally Endangered	may occur within area
Mammals		
Chalinolobus dwyeri	\/ln analala	On spine or anneline habitat
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland populati	on)	
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld,	NSW and the ACT)	
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Eucalyptus aggregata	\	On a size and the latter of
Black Gum [20890]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pulverulenta Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
<u>Lepidium hyssopifolium</u> Basalt Pepper-cress, Peppercress, Rubble Peppercress, Pepperweed [16542]	Endangered	Species or species habitat may occur within area
Leucochrysum albicans subsp. tricolor Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area
Delma impar Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on	the EPBC Act - Threatened	l Species list.
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis	0	
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Other Matters Protected by the EPBC Act		
Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on t	he EPBC Act - Threatened	Species list.
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		On a sing on an arian babitat
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans		
Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
<u>Lathamus discolor</u>		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava		Oppoint of the late to the
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within

Name	Threatened	Type of Presence
Dhinidura rufifrana		area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis		
Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis		
European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus		
House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus		
Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis		
Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris		
Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula		
Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		

Name	Status Type of Presence	
Bos taurus		
Domestic Cattle [16]	Species or species habitat likely to occur within area	t
Canis lupus familiaris		
Domestic Dog [82654]	Species or species habitat likely to occur within area	t
Capra hircus		
Goat [2]	Species or species habitat likely to occur within area	t
Felis catus		
Cat, House Cat, Domestic Cat [19]	Species or species habitat likely to occur within area	t
Feral deer		
Feral deer species in Australia [85733]	Species or species habitat likely to occur within area	t
Lepus capensis		
Brown Hare [127]	Species or species habitat likely to occur within area	t
Mus musculus		
House Mouse [120]	Species or species habitat likely to occur within area	t
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]	Species or species habitat likely to occur within area	t
Rattus rattus		
Black Rat, Ship Rat [84]	Species or species habitat likely to occur within area	t
Sus scrofa		
Pig [6]	Species or species habitat likely to occur within area	t
Vulpes vulpes		
Red Fox, Fox [18]	Species or species habitat likely to occur within area	t
Plants		
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]	Species or species habitat likely to occur within area	t
Genista sp. X Genista monspessulana Broom [67538]	Species or species habitat may occur within area	t
Lycium ferocissimum		
African Boxthorn, Boxthorn [19235]	Species or species habitat likely to occur within area	t
Nassella neesiana		
Chilean Needle grass [67699]	Species or species habitat likely to occur within area	t
Nassella trichotoma		
Serrated Tussock, Yass River Tussock, Yass Tussock Nassella Tussock (NZ) [18884]	Species or species habitat likely to occur within area	t
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding	Species or species habitat	t
Pine [20780]	may occur within area	
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]	Species or species habitat likely to occur within area	t

Name	Status	Type of Presence
Salix spp. except S.babylonica, S.x calodendro	on & S.x reichardtii	
Willows except Weeping Willow, Pussy Willow Sterile Pussy Willow [68497]	and	Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the gualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.44557 149.36545,-33.44562 149.36538,-33.45164 149.36417,-33.45436 149.3646,-33.4661 149.36237,-33.47319 149.36126,-33.47448 149.36932,-33.48501 149.36727,-33.48379 149.35911,-33.50319 149.35576,-33.49925 149.34855,-33.49832 149.34521,-33.49939 149.34109,-33.49846 149.33568,-33.49725 149.32667,-33.49725 149.31997,-33.49775 149.31139,-33.49918 149.30727,-33.49954 149.30538,-33.49868 149.30195,-33.49832 149.298,-33.49896 149.29551,-33.49417 149.29637,-33.49259 149.28523,-33.48679 149.28918,-33.48522 149.29124,-33.4787 149.29193,-33.47921 149.29871,-33.45096 149.30506,-33.45375 149.32377,-33.44199 149.32606,-33.44493 149.35292,-33.44385 149.35318,-33.44557 149.36545

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

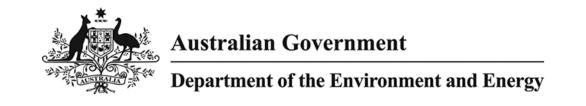
- -Office of Environment and Heritage, New South Wales
- -Department of Environment and Primary Industries, Victoria
- -Department of Primary Industries, Parks, Water and Environment, Tasmania
- -Department of Environment, Water and Natural Resources, South Australia
- -Department of Land and Resource Management, Northern Territory
- -Department of Environmental and Heritage Protection, Queensland
- -Department of Parks and Wildlife, Western Australia
- -Environment and Planning Directorate, ACT
- -Birdlife Australia
- -Australian Bird and Bat Banding Scheme
- -Australian National Wildlife Collection
- -Natural history museums of Australia
- -Museum Victoria
- -Australian Museum
- -South Australian Museum
- -Queensland Museum
- -Online Zoological Collections of Australian Museums
- -Queensland Herbarium
- -National Herbarium of NSW
- -Royal Botanic Gardens and National Herbarium of Victoria
- -Tasmanian Herbarium
- -State Herbarium of South Australia
- -Northern Territory Herbarium
- -Western Australian Herbarium
- -Australian National Herbarium, Canberra
- -University of New England
- -Ocean Biogeographic Information System
- -Australian Government, Department of Defence
- Forestry Corporation, NSW
- -Geoscience Australia
- -CSIRO
- -Australian Tropical Herbarium, Cairns
- -eBird Australia
- -Australian Government Australian Antarctic Data Centre
- -Museum and Art Gallery of the Northern Territory
- -Australian Government National Environmental Science Program
- -Australian Institute of Marine Science
- -Reef Life Survey Australia
- -American Museum of Natural History
- -Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
- -Tasmanian Museum and Art Gallery, Hobart, Tasmania
- -Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

C.2 Pipeline development

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EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about <u>Environment Assessments</u> and the EPBC Act including significance guidelines, forms and application process details.

Report created: 20/05/20 10:31:59

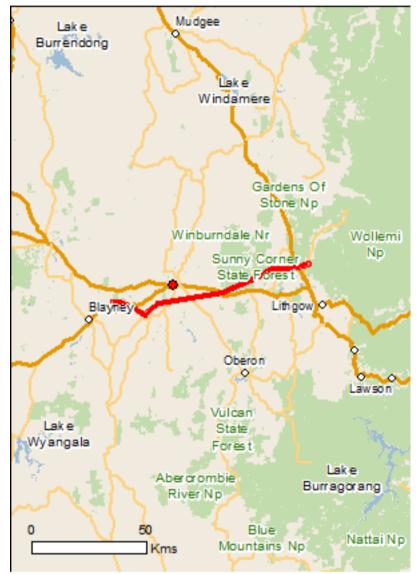
Summary

Details

Matters of NES
Other Matters Protected by the EPBC Act
Extra Information

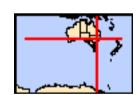
Caveat

<u>Acknowledgements</u>



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the <u>Administrative Guidelines on Significance</u>.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	49
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A <u>permit</u> may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	19
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	32
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	800 - 900km upstream
Hattah-kulkyne lakes	600 - 700km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	300 - 400km upstream

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

produce maleative distribution maps.		
Name	Status	Type of Presence
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area
Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Breeding known to occur within area
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat
		likely to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
		incery to occur within area
<u>Leipoa ocellata</u>		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Ni una anti un una de mana anti anna in		-
Numenius madagascariensis Factors Curlow Far Factors Curlow [947]	Critically Endangered	Species or appaies habitat
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Polytelis swainsonii	Ciaiae	1) 0 1 10001100
Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Maccullochella macquariensis Trout Cod [26171]	Endangered	Species or species habitat may occur within area
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Prototroctes maraena		
Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus		
Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area
Litoria aurea		
Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat may occur within area
<u>Litoria booroolongensis</u>		
Booroolong Frog [1844]	Endangered	Species or species habitat known to occur within area
Litoria castanea		
Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area
Litoria littlejohni		
Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat likely to occur within area
Insects		
Paralucia spinifera		
Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus maculatus maculatus (SE mainland populat	ion)	
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata		
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Phascolarctos cinereus (combined populations of Qld,	NSW and the ACT)	
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area
Boronia deanei Deane's Boronia [8397]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
<u>Dichanthium setosum</u> bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus pulverulenta Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus robertsonii subsp. hemisphaerica Robertson's Peppermint [56223]	Vulnerable	Species or species habitat known to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
<u>Lepidium hyssopifolium</u> Basalt Pepper-cress, Peppercress, Rubble Peppercress, Pepperweed [16542]	Endangered	Species or species habitat known to occur within area
Leucochrysum albicans var. tricolor Hoary Sunray, Grassland Paper-daisy [56204]	Endangered	Species or species habitat likely to occur within area
Persoonia marginata Clandulla Geebung [10852]	Vulnerable	Species or species habitat may occur within area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Pultenaea glabra Smooth Bush-pea, Swamp Bush-pea [11887]	Vulnerable	Species or species habitat known to occur within area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area

Nama	Ctatus	Tune of Dresence
Name	Status	Type of Presence
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area
<u>Delma impar</u> Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
Eulamprus leuraensis Blue Mountains Water Skink [59199]	Endangered	Species or species habitat
		may occur within area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat likely to occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on	the EPBC Act - Threatened	d Species list.
Name	Threatened	Type of Presence
Migratory Marine Birds		71
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Watlanda Chasica		
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat
		may occur within area

Name	Threatened	Type of Presence
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat
	· · · · · ·	may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land	[Resource Information]
Commonwealth Land	I Nesource information

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name Commonwealth Land - Australian Telecommunic	cations Corporation	
Listed Marine Species		[Resource Information]
* Species is listed under a different scientific nan		•
Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		

<u>Calidris melanotos</u>

Pectoral Sandpiper [858] Species or species habitat may occur within area

Chrysococcyx osculans

Black-eared Cuckoo [705] Species or species habitat likely to occur within area

Gallinago hardwickii

Latham's Snipe, Japanese Snipe [863] Species or species habitat

may occur within

Name	Threatened	Type of Presence
		area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
<u>Lathamus discolor</u>		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Forestry Management Areas in Bathurst (FMZ2)	NSW

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis		
Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area

Name	Status Type of Presence	
Carduelis carduelis		
European Goldfinch [403]	Species or species	s habitat
	likely to occur withi	in area
Columba livia	On a sing on an anasis a	. l l. !t - t
Rock Pigeon, Rock Dove, Domestic Pigeon [803]	Species or species	
	likely to occur withi	n area
Passer domesticus		
House Sparrow [405]	Species or species	s habitat
react opalitem [188]	likely to occur withi	
Passer montanus		
Eurasian Tree Sparrow [406]	Species or species	
	likely to occur withi	n area
Pycnonotus jocosus		
Red-whiskered Bulbul [631]	Species or species	hahitat
Ned-Willskered Balbar [001]	likely to occur withi	
	intery to cood! With	iii aroa
Streptopelia chinensis		
Spotted Turtle-Dove [780]	Species or species	s habitat
	likely to occur withi	in area
Sturnus vulgaris		
Common Starling [389]	Species or species	
	likely to occur withi	n area
Turdus merula		
Common Blackbird, Eurasian Blackbird [596]	Species or species	: hahitat
Common Blackbird, Edrasian Blackbird [650]	likely to occur withi	
Mammals		
Bos taurus		
Domestic Cattle [16]	Species or species	
	likely to occur withi	n area
Canis lupus familiaris		
Domestic Dog [82654]	Species or species	habitat
	likely to occur withi	
	,	
Capra hircus		
Goat [2]	Species or species	
	likely to occur withi	n area
Felis catus		
Cat, House Cat, Domestic Cat [19]	Species or species	hahitat
Cat, Flouse Cat, Domestic Cat [19]	likely to occur withi	
	intoly to obodi with	ii ai oa
Feral deer		
Feral deer species in Australia [85733]	Species or species	habitat
	likely to occur withi	in area
Lanua cononcia		
Lepus capensis	Charles ar angeles	. b.ab.;tat
Brown Hare [127]	Species or species likely to occur withi	
	likely to occur with	iii aica
Mus musculus		
House Mouse [120]	Species or species	habitat
	likely to occur withi	
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]	Species or species	
	likely to occur withi	n area
Rattus rattus		
Black Rat, Ship Rat [84]	Species or species	s habitat
, I L- J	likely to occur withi	
	•	
Sus scrofa		
Pig [6]	Species or species	
	likely to occur withi	ıı area

Name	Status	Type of Presence
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Cytisus scoparius Broom, English Broom, Scotch Broom, Commo Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass T Nassella Tussock (NZ) [18884]	ūssock,	Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wile Pine [20780]	ding	Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendro Willows except Weeping Willow, Pussy Willow Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Ulex europaeus		Charles or appairs babitat

Gorse, Furze [7693]

Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the gualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.347827 150.103626,-33.363025 150.035991,-33.363025 149.960803,-33.389975 149.909991,-33.441271 149.765796,-33.470774 149.554652,-33.477361 149.516544,-33.51272 149.466418,-33.49039 149.419383,-33.479222 149.389514,-33.474927 149.381446,-33.474068 149.375438,-33.473781 149.361533,-33.470917 149.341964

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- -Office of Environment and Heritage, New South Wales
- -Department of Environment and Primary Industries, Victoria
- -Department of Primary Industries, Parks, Water and Environment, Tasmania
- -Department of Environment, Water and Natural Resources, South Australia
- -Department of Land and Resource Management, Northern Territory
- -Department of Environmental and Heritage Protection, Queensland
- -Department of Parks and Wildlife, Western Australia
- -Environment and Planning Directorate, ACT
- -Birdlife Australia
- -Australian Bird and Bat Banding Scheme
- -Australian National Wildlife Collection
- -Natural history museums of Australia
- -Museum Victoria
- -Australian Museum
- -South Australian Museum
- -Queensland Museum
- -Online Zoological Collections of Australian Museums
- -Queensland Herbarium
- -National Herbarium of NSW
- -Royal Botanic Gardens and National Herbarium of Victoria
- -Tasmanian Herbarium
- -State Herbarium of South Australia
- -Northern Territory Herbarium
- -Western Australian Herbarium
- -Australian National Herbarium, Canberra
- -University of New England
- -Ocean Biogeographic Information System
- -Australian Government, Department of Defence
- Forestry Corporation, NSW
- -Geoscience Australia
- -CSIRO
- -Australian Tropical Herbarium, Cairns
- -eBird Australia
- -Australian Government Australian Antarctic Data Centre
- -Museum and Art Gallery of the Northern Territory
- -Australian Government National Environmental Science Program
- -Australian Institute of Marine Science
- -Reef Life Survey Australia
- -American Museum of Natural History
- -Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
- -Tasmanian Museum and Art Gallery, Hobart, Tasmania
- -Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Appendix D

Biodiversity credit report

D.1 Mine development

J180395 | 13 | v1 D.2



Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00016791/BAAS17013/19/00016792	McPhillamys Gold Project - mine development	18/06/2020
Assessor Name	Report Created 05/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision 0	Assessment Type Major Projects	

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Broad-	eaved Peppermin	t - Brittle Gum -	Red Stringyl	bark dry op	en forest on the South Eastern Highlan	ds Bioregion		
1	727_High	31.6	3.9	0.25	High Sensitivity to Potential Gain	1.75		54
2	727_Poor	36.4	12.1	0.25	High Sensitivity to Potential Gain	1.75		193



3 727_Medium	44.1	36.7	0.25	High Sensitivity to Potential Gain	1.75		708
						Subtotal	95
rex sedgeland of the slope	s and tablelands						
4 766_Poor	17.4	3.0	0.25	High Sensitivity to Potential Gain	2.00		2
						Subtotal	2
ountain Gum - Manna Gum	open forest of	the South E	astern H	ighlands Bioregion			
5 951_Poor	27.6	33.7	0.25	High Sensitivity to Potential Gain	2.00		464
						Subtotal	464
low Box - Blakely's Red Gu	ım grassy wood	and on the	tablelan	ds, South Eastern Highlands Bioregion			
6 1330_Other	26.4	8.0	0.25	High Sensitivity to Potential Gain	2.00	TRUE	10
7 1330_High	35.9	1.6	0.25	High Sensitivity to Potential Gain	2.00	TRUE	29
8 1330_Medium	49.8	21.0	0.25	High Sensitivity to Potential Gain	2.00	TRUE	523
9 1330_Poor	42.2	25.3	0.25	High Sensitivity to Potential Gain	2.00	TRUE	534
						Subtotal	1096
						Total	2541

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Petaurus norfolcensis ,	' Squirrel Glider (Fauna)					
951_Poor	27.6	33.68	0.25	2	False	464
1330_High	35.9	1.63	0.25	2	False	29



1330_Medium	49.8	21	0.25	2 False	52
1330_Poor	42.2	25.3	0.25	2 False	534
1330_Other	26.4	0.76	0.25	2 False	10
727_High	31.6	3.89	0.25	2 False	62
727_Medium	44.0	36.74	0.25	2 False	809
727_Poor	36.4	12.08	0.25	2 False	220
				Subtotal	2651
Phascolarctos cinereus / Koal	la (Fauna)				
951_Poor	27.6	33.68	0.25	2 False	464
1330_High	35.9	1.63	0.25	2 False	29
1330_Medium	49.8	21	0.25	2 False	523
1330_Poor	42.2	25.3	0.25	2 False	534
1330_Other	26.4	0.76	0.25	2 False	10
727_High	31.6	3.89	0.25	2 False	62
727_Medium	44.1	36.74	0.25	2 False	809
				Subtotal	2431

D.2 Pipeline development

J180395 | 13 | v1 D.3



Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00020208/BAAS17013/20/00021140	McPhillamys Pipeline - Bathurst_northern option	18/06/2020
Assessor Name	Report Created 10/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision 0	Assessment Type Major Projects	

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Blakely	's Red Gum - Yello	ow Box grassy tal	l woodland	of the NSW	South Western Slopes Bioregion			
1	277_DNG	1.3	0.5	0.25	High Sensitivity to Potential Gain	2.00	TRUE	0
2	277_Moderate	1.5	0.0	0.25	High Sensitivity to Potential Gain	2.00	TRUE	1



							Subtotal	1
Yellow I	Box - Blakely's Red Gur	m grassy wood	land on the	tablelan	ds, South Eastern Highlands Bioregion			
3	1330_DNG	7.2	10.2	0.25	High Sensitivity to Potential Gain	2.00	TRUE	37
4	1330_Fragments	1.4	1.4	0.25	High Sensitivity to Potential Gain	2.00	TRUE	C
5	1330_Intact	7.6	1.7	0.25	High Sensitivity to Potential Gain	2.00	TRUE	6
6	1330_Shrubland	22.9	0.1	0.25	High Sensitivity to Potential Gain	2.00	TRUE	1
7	1330_Sparse	9.0	4.7	0.25	High Sensitivity to Potential Gain	2.00	TRUE	21
							Subtotal	65
							Total	66

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Lepidium hyssopifoliu	m / Aromatic Peppercress (Flora)				
277_DNG	1.3	0.48	0.25	2	False	0
277_Moderate	1.5	0.02	0.25	2	False	0
1330_DNG	7.2	10.21	0.25	2	False	37
1330_Intact	7.6	0.29	0.25	2	False	1
1330_Shrubland	22.9	0.07	0.25	2	False	1
					Subtotal	39
Litoria booroolongens	is / Booroolong Frog (Faun	a)				
1330_Intact	7.6	0.3	0.25	2	False	1



1330_Sparse	9.0	0.26	0.25	2	False	1
					Subtotal	2
Petaurus norfolcensis / Squiri	rel Glider (Fauna)					
1330_Intact	7.6	0.43	0.25	2	False	2
1330_Shrubland	22.9	0.07	0.25	2	False	1
1330_Sparse	9.0	0.25	0.25	2	False	1
					Subtotal	4
Phascolarctos cinereus / Koal	a (Fauna)					
1330_Intact	7.6	0.43	0.25	2	False	2
1330_Sparse	9.0	0.25	0.25	2	False	1
					Subtotal	3
Swainsona sericea / Silky Swa	iinson-pea (Flora)					
1330_DNG	7.2	10.21	0.25	2	False	37
1330_Intact	7.6	0.29	0.25	2	False	1
1330_Shrubland	22.9	0.07	0.25	2	False	1
					Subtotal	39
Thesium australe / Austral To	oadflax (Flora)					
1330_DNG	7.2	10.21	0.25	1.5	False	28
1330_Intact	7.6	0.29	0.25	1.5	False	1
1330_Shrubland	22.9	0.07	0.25	1.5	False	1



Subtotal	30
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Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00020208/BAAS17013/20/00020209	McPhillamys Pipeline Bathurst_southern option	18/06/2020
Assessor Name	Report Created 10/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision 0	Assessment Type Major Projects	

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits
Blakely	s Red Gum - Yello	ow Box grassy tal	l woodland	of the NSW	South Western Slopes Bioregion			
1	277_DNG	1.4	0.4	0.25	High Sensitivity to Potential Gain	2.00	TRUE	0
2	277_Moderate	1.5	0.0	0.25	High Sensitivity to Potential Gain	2.00	TRUE	1



							Subtotal	1
ellow l	Box - Blakely's Red Gur	m grassy woodl	and on the	tablelan	ds, South Eastern Highlands Bioregion			
3	1330_DNG	7.6	18.9	0.25	High Sensitivity to Potential Gain	2.00	TRUE	72
4	1330_Intact	7.4	0.8	0.25	High Sensitivity to Potential Gain	2.00	TRUE	3
5	1330_Shrubland	22.9	0.1	0.25	High Sensitivity to Potential Gain	2.00	TRUE	1
6	1330_Sparse	8.9	4.8	0.25	High Sensitivity to Potential Gain	2.00	TRUE	21
							Subtotal	97
							Total	98

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Aprasia parapulchella	/ Pink-tailed Legless Lizard	d (Fauna)				
1330_DNG	7.6	2.93	0.25	2	False	11
1330_Intact	7.4	0.02	0.25	2	False	0
1330_Sparse	8.9	0.05	0.25	2	False	0
					Subtotal	11
Lepidium hyssopifoliu	m / Aromatic Peppercress (Flora)				
277_DNG	1.4	0.44	0.25	2	False	0
1330_DNG	7.6	18.88	0.25	2	False	72
1330_Intact	7.4	0.29	0.25	2	False	1
1330_Shrubland	22.9	0.07	0.25	2	False	1



277_Moderate	1.5	0.02	0.25	2 False	0
				Subtotal	74
Litoria booroolongensis / Boor	oolong Frog (Fauna)				
1330_Intact	7.4	0.3	0.25	2 False	1
1330_Sparse	8.9	0.49	0.25	2 False	2
				Subtotal	3
Petaurus norfolcensis / Squirre	l Glider (Fauna)				
1330_Intact	7.4	0.43	0.25	2 False	2
1330_Shrubland	22.9	0.07	0.25	2 False	1
1330_Sparse	8.9	0.25	0.25	2 False	1
				Subtotal	4
Phascolarctos cinereus / Koala	(Fauna)				
1330_Intact	7.4	0.43	0.25	2 False	2
1330_Sparse	8.9	0.25	0.25	2 False	1
				Subtotal	3
Swainsona sericea / Silky Swai	nson-pea (Flora)				
1330_DNG	7.6	18.88	0.25	2 False	72
1330_Intact	7.4	0.29	0.25	2 False	1
1330_Shrubland	22.9	0.07	0.25	2 False	1
				Subtotal	74



Thesium australe / Aus	tral Toadflax (Flora)					
1330_DNG	7.6	18.88	0.25	1.5	False	54
1330_Intact	7.4	0.29	0.25	1.5	False	1
1330_Shrubland	22.9	0.07	0.25	1.5	False	1
					Subtotal	56



Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00020208/BAAS17013/20/00020212	McPhillamys pipeline Capertee	18/06/2020
Assessor Name	Report Created 10/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision	Assessment Type Major Projects	

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits	
Red Str	Red Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion								
1	1093_Fragments	18.7	0.9	0.25	High Sensitivity to Potential Gain	1.75		7	
2	1093_Intact	24.9	5.3	0.25	High Sensitivity to Potential Gain	1.75		58	
3	1093_Shrubland	18.3	2.6	0.25	High Sensitivity to Potential Gain	1.75		21	



							Subtotal	86
now G	um - Candle Bark wood	dland on broad	valley flats	of the t	ablelands and slopes, South Eastern Higl	nlands Bioregio	n	
4	1191_DNG	12.2	0.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	3
5	1191_Fragments	13.5	0.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	2
6	1191_Intact	20.1	3.6	0.25	High Sensitivity to Potential Gain	2.50	TRUE	45
7	1191_Shrubland	20.8	1.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	16
8	1191_Sparse	0.8	0.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	0
							Subtotal	66
							Total	152

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Cercartetus nanus / Ea	stern Pygmy-possum (Fau	na)				
1093_Fragments	18.7	0.83	0.25	2	False	8
1093_Intact	24.9	5.2	0.25	2	False	65
1093_Shrubland	18.3	1.77	0.25	2	False	16
1191_Intact	20.1	3.27	0.25	2	False	33
1191_Shrubland	20.8	0.75	0.25	2	False	8
1191_Sparse	0.8	0.17	0.25	2	False	0
					Subtota	130

Assessment Id



Chalinolobus dwye	eri / Large-eared Pied Bat (Fau	na)				
1191_Shrubland	20.8	0.29	0.25	3	True	5
1191_Sparse	0.8	0.17	0.25	3	True	0
					Subtotal	5
Eucalyptus aggrege	ata / Black Gum (Flora)					
1191_Sparse	N/A	1	0.25	2	False	2
					Subtotal	2
Litoria booroolong	ensis / Booroolong Frog (Faun	a)				
1191_DNG	12.2	0.03	0.25	2	False	0
1191_Intact	20.1	3.11	0.25	2	False	31
1191_Sparse	0.8	0.26	0.25	2	False	0
					Subtotal	31
Ninox connivens /	Barking Owl (Fauna)					
1191_Intact	20.1	0.58	0.25	2	False	6
					Subtotal	6
Ninox strenua / Po	werful Owl (Fauna)					
1093_Intact	24.9	0.39	0.25	2	False	5
1093_Shrubland	18.3	0.19	0.25	2	False	2
1191_Intact	20.1	0.78	0.25	2	False	8
					Subtotal	15



Paralucia spinifera / Purple C	opper Butterfly, Bathurst Copp	er Butterfly (Fauna)				
1093_Intact	24.9	0.43	0.25	2	False	5
1093_Shrubland	18.3	0.18	0.25	2	False	2
					Subtotal	7
Persoonia marginata / Clando	ulla Geebung (Flora)					
1093_Intact	24.9	0.24	0.25	2	False	3
1093_Shrubland	18.3	0.06	0.25	2	False	1
					Subtotal	4
Petaurus norfolcensis / Squirr	el Glider (Fauna)					
1093_Intact	24.9	5.25	0.25	2	False	65
1191_Intact	20.1	3.61	0.25	2	False	36
					Subtotal	101
Petrogale penicillata / Brush-	tailed Rock-wallaby (Fauna)					
1191_Shrubland	20.8	0.29	0.25	3	True	5
1191_Sparse	0.8	0.1	0.25	3	True	0
					Subtotal	5
Phascogale tapoatafa / Brush	-tailed Phascogale (Fauna)					
1093_Intact	24.9	5.25	0.25	2	False	65
					Subtotal	65
Phascolarctos cinereus / Koal	a (Fauna)					
1093_Intact	24.9	5.25	0.25	2	False	65

Assessment Id Proposal Name Page 4 of 5



1191_Intact	20.1	3.61	0.25	2	False	36
					Subtotal	101
Tyto novaehollandiae / Ma	asked Owl (Fauna)					
1093_Intact	24.9	0.39	0.25	2	False	5
1093_Shrubland	18.3	0.19	0.25	2	False	2
1191_Intact	20.1	0.78	0.25	2	False	8
					Subtotal	15



Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00020208/BAAS17013/20/00020215	McPhillamys Pipeline Hill End	18/06/2020
Assessor Name	Report Created 05/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision	Assessment Type	

Assessment Revision Assessment Tyl

) Major Projects

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits		
Broad-	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion									
1	727_Intact	6.0	0.3	0.25	High Sensitivity to Potential Gain	1.75		1		
2	727_Shrubland	3.1	0.5	0.25	High Sensitivity to Potential Gain	1.75		1		
							Subtotal	2		

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.



3	1093_DNG	4.9	0.2	0.25	High Sensitivity to Potential Gain	1.75		1
4	1093_Fragments	19.0	0.4	0.25	High Sensitivity to Potential Gain	1.75		3
5	1093_Intact	16.3	1.0	0.25	High Sensitivity to Potential Gain	1.75		7
6	1093_Shrubland	11.4	0.6	0.25	High Sensitivity to Potential Gain	1.75		3
							Subtotal	14
10w G	Gum - Candle Bark wood	lland on broad	valley flats	of the t	ablelands and slopes, South Eastern High	lands Bioregio	n	
7	1191_Fragments	10.0	0.1	0.25	High Sensitivity to Potential Gain	2.50	TRUE	1
8	1191_Intact	10.6	0.6	0.25	High Sensitivity to Potential Gain	2.50	TRUE	4
9	1191_Sparse	0.5	0.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	0
							Subtotal	5
now G	Gum - Mountain Gum tu	ssock grass-her	b forest of	the Sou	th Eastern Highlands Bioregion			
10	1197_DNG	2.6	0.2	0.25	High Sensitivity to Potential Gain	2.50	TRUE	1
11	1197_Intact	17.2	4.4	0.25	High Sensitivity to Potential Gain	2.50	TRUE	48
12	1197_Shrubland	7.5	0.4	0.25	High Sensitivity to Potential Gain	2.50	TRUE	2
13	1197_Sparse	7.0	0.3	0.25	High Sensitivity to Potential Gain	2.50	TRUE	1
							Subtotal	52
ellow	Box - Blakely's Red Gun	n grassy woodla	and on the	tablelan	ds, South Eastern Highlands Bioregion			
14	1330_DNG	7.3	1.8	0.25	High Sensitivity to Potential Gain	2.00	TRUE	6
15	1330_Fragments	0.0	0.1	0.25	High Sensitivity to Potential Gain	2.00	TRUE	0
	1330_Intact	4.6	0.9		High Sensitivity to Potential Gain		TRUE	2

Assessment Id Proposal Name Page 2 of 6



17 1330_Shrubland 18 1330_Sparse	9.3 7.4	0.1	0.25 High Sensitivity to Potential Gain0.25 High Sensitivity to Potential Gain		TRUE	1
10 1330_3parse	7.4	0.2	0.23 High Sensitivity to Potential Gain	2.00	Subtotal	10
					Total	83

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Burhinus grallarius / E	Bush Stone-curlew (Fauna)					
1191_Intact	10.6	0.24	0.25	2	False	1
1197_Intact	17.2	3.78	0.25	2	False	32
1197_Shrubland	7.5	0.02	0.25	2	False	0
					Subtotal	33
Callocephalon fimbria	tum / Gang-gang Cockatod	(Fauna)				
727_Intact	6.0	0.29	0.25	2	False	1
727_Shrubland	3.1	0.12	0.25	2	False	0
1197_Intact	17.2	1.2	0.25	2	False	10
1197_Shrubland	7.5	0.04	0.25	2	False	0
					Subtotal	11
Cercartetus nanus / Ea	stern Pygmy-possum (Fau	na)				
727_Intact	6.0	0.29	0.25	2	False	1
1093_Intact	16.3	0.91	0.25	2	False	7



1093_Shrubland	11.4	0.03	0.25	2 False	0
1191_Intact	10.6	0.6	0.25	2 False	3
1191_Sparse	0.5	0.32	0.25	2 False	0
				Subt	otal 11
Ninox strenua / Powerful Ow	l (Fauna)				
727_Intact	6.0	0.16	0.25	2 False	0
727_Shrubland	3.1	0.03	0.25	2 False	0
1093_Intact	16.3	0.41	0.25	2 False	3
1093_Shrubland	11.4	0.02	0.25	2 False	0
1197_Intact	17.2	0.55	0.25	2 False	5
1197_Shrubland	7.5	0.02	0.25	2 False	0
				Subt	otal 8
Paralucia spinifera / Purple C	Copper Butterfly, Bathurst Copp	oer Butterfly (Fauna)			
1093_DNG	4.9	0.06	0.25	2 False	0
1093_Fragments	19.0	0.01	0.25	2 False	0
1093_Shrubland	11.4	0.05	0.25	2 False	0
1197_Intact	17.2	0.25	0.25	2 False	2
1330_DNG	7.3	0.05	0.25	2 False	0
1330_Intact	4.6	0.15	0.25	2 False	0
				Subt	otal 2



Petaurus norfolcensis / Squiri	rel Glider (Fauna)					
1191_Intact	10.6	0.24	0.25	2 Fa	llse	1
1191_Sparse	0.5	0.06	0.25	2 Fa	llse	0
1197_Intact	17.2	3.78	0.25	2 Fa	llse	32
1197_Shrubland	7.5	0.02	0.25	2 Fa	llse	0
1330_Intact	4.6	0.74	0.25	2 Fa	lse	2
					Subtotal	35
Phascogale tapoatafa / Brush	n-tailed Phascogale (Fauna)					
1093_Intact	16.3	0.95	0.25	2 Fa	lse	8
					Subtotal	8
Phascolarctos cinereus / Koal	a (Fauna)					
727_Intact	6.0	0.29	0.25	2 Fa	lse	1
1093_Intact	16.3	0.95	0.25	2 Fa	lse	8
1191_Intact	10.6	0.6	0.25	2 Fa	lse	3
1197_Intact	17.2	3.78	0.25	2 Fa	llse	32
1330_Intact	4.6	0.47	0.25	2 Fa	llse	1
					Subtotal	45
Swainsona sericea / Silky Swa	iinson-pea (Flora)					
1191_Intact	10.6	0.6	0.25	2 Fa	llse	3
1330_Intact	4.6	0.85	0.25	2 Fa	lse	2
					Subtotal	5

Assessment Id 00020208/BAAS17013/20/00020215

Proposal Name

Page 5 of 6



Tyto novaehollandiae / Mask	red Owl (Fauna)				
727_Intact	6.0	0.16	0.25	2 False	0
727_Shrubland	3.1	0.03	0.25	2 False	0
1093_Intact	16.3	0.41	0.25	2 False	3
1093_Shrubland	11.4	0.02	0.25	2 False	0
1197_Intact	17.2	0.55	0.25	2 False	5
1197_Shrubland	7.5	0.02	0.25	2 False	0
				Subtotal	8
Veronica blakelyi / Veronica	blakelyi (Flora)				
1197_Intact	17.2	4.43	0.25	2 False	38
				Subtotal	38



Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00020208/BAAS17013/20/00020216	McPhillamys Pipeline Orange	18/06/2020
Assessor Name	Report Created 10/08/2020	BAM Data version * 29
Assessor Number	BAM Case Status Open	Date Finalised To be finalised
Assessment Revision 0	Assessment Type Major Projects	

^{*} Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	Vegetation integrity loss / gain	Area (ha)	Constant	Species sensitivity to gain class (for BRW)	Biodiversity risk weighting	Potential SAII	Ecosystem credits	
Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion									
2	277_Intact	10.2	1.1	0.25	High Sensitivity to Potential Gain	2.00	TRUE	6	
3	277_DNG	1.2	1.6	0.25	High Sensitivity to Potential Gain	2.00	TRUE	0	
4	277_Moderate	11.8	3.8	0.25	High Sensitivity to Potential Gain	2.00	TRUE	23	

Assessment Id Proposal Name Page 1 of 3



							Subtotal	29
Red Str	led Stringybark - Brittle Gum - Inland Scribbly Gum dry open forest of the tablelands, South Eastern Highlands Bioregion							
1	1093_Intact	4.8	0.5	0.25	High Sensitivity to Potential Gain	1.75		1
							Subtotal	1
							Total	30

Species credits for threatened species

Vegetation zone name	Habitat condition (HC)	Area (ha) / individual (HL)	Constant	Biodiversity risk weighting	Potential SAII	Species credits
Aprasia parapulchella	/ Pink-tailed Legless Lizard	d (Fauna)				
277_Intact	10.2	0.53	0.25	2	False	
					Subtotal	
Ninox connivens / Bar	king Owl (Fauna)					
277_Intact	10.2	0.09	0.25	2	False	
					Subtotal	
Ninox strenua / Power	rful Owl (Fauna)					
277_Intact	10.2	0.09	0.25	2	False	
277_Moderate	11.8	0.99	0.25	2	False	
1093_Intact	4.8	0.12	0.25	2	False	
					Subtotal	
Petaurus norfolcensis ,	/ Squirrel Glider (Fauna)					
277_Intact	10.2	1.1	0.25	2	False	



1093_Intact	4.8	0.54	0.25	2 False	1
				Subtotal	7
Phascogale tapoatafa / Brush	-tailed Phascogale (Fauna)				
277_Intact	10.2	1.1	0.25	2 False	6
1093_Intact	4.8	0.54	0.25	2 False	1
				Subtotal	7
Phascolarctos cinereus / Koal	a (Fauna)				
277_Intact	10.2	1.01	0.25	2 False	5
1093_Intact	4.8	0.4	0.25	2 False	1
				Subtotal	6
Swainsona recta / Small Purp	le-pea (Flora)				
277_Intact	10.2	1	0.25	2 False	5
277_Moderate	11.8	3.84	0.25	2 False	23
				Subtotal	28
Swainsona sericea / Silky Swa	ninson-pea (Flora)				
277_Intact	10.2	1	0.25	2 False	5
277_Moderate	11.8	3.84	0.25	2 False	23
				Subtotal	28

Appendix E

Expert reports

Katie Diver

From: Katie Diver

Sent: Monday, 1 June 2020 6:09 PM

To: Michelle Howarth; Renee Shepherd; Samantha Wynn

Cc: Janet Krick

Subject: McPhillamys Gold Project pipeline - candidate species assessment

Evening ladies,

Thanks again for making the time to work through the candidate species assessment with me today. Here are some notes regarding what we discussed, and any actions identified.

Assessment	Comment	Action/s
component Targeted flora species with potential to occur, where targeted survey may not be possible	The BAMC predicts that Acacia meiantha (SAII candidate entity) may occur in PCT 1093 in the Hill End and Capertee Uplands IBRA subregions. The species can be surveyed in July, but our report is due mid-August so this doesn't leave much time to discuss avoidance/minimisation measures. The BAMC predicts that Prasophyllum petilum may be associated with PCT 1197 in the Capertee Uplands IBRA subregion, but targeted survey is not possible until September, which is postlodgement of the RTS.	We would prefer to send out an expert (Colin Bower, who studied the known populations) out this month to do a targeted survey for Acacia meiantha as he can confidently identify the species outside the flowering season. The reasons for this and Colin's CV demonstrating his expertise will be included in the BDAR. We would look to get Colin Bower approved as an expert for Prasophyllum petilum so that he could conduct a habitat-based survey concurrent with the Acacia meiantha survey. The average time to get an expert approved is 14-21 days, so we may send out Colin to do the survey concurrent with his application to become an expert. If this process could be expedited by BCD given our time constraints we
Area polygons for threatened flora species	Section 6.4.1.29 of the BAM states that for count-based flora species (ie <i>Eucalyptus aggregata</i>) that the assessor must place a 30 m buffer around each individual plant or group of plants. If this is a count-based species, only the count goes into the BAMC, and not the area of the buffer.	BCD to confirm that my assumption is correct for count-based species and if we are required to map a species polygon.
General approach to determining species polygons	The general approach to calculating species polygons was to first check if the species has a listed habitat constraint and map based on these, and if not to map based on the instructions in the threatened species profile database and supporting information if needed. The approach adopted thus far was not to map all vegetation	BCD commented that these decisions must be fully justified in the BDAR and it was better to err on the side of caution when assuming presence. EMM will consider this in finalising the species polygons.

	zones within a PCT as candidate species habitat where it was too degraded or didn't contain suitable habitat features.	
Approach to determining direct and indirect offsets	The approach to calculating direct (total clearance for the pipeline corridor) and indirect impacts (tree root and weed management zones) was shown.	BCD showed in principle support for this approach however suggested that the underpinning assumptions should be fully justified in the BDAR. EMM will justify assumptions in the BDAR which were developed for linear infrastructure and supported by field monitoring data.

Feel free to comment if there's anything I've missed.

Many thanks,

Katie Diver

National Technical Leader - Ecology



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in Connect with us

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Katie Diver

From: Katie Diver

Sent: Tuesday, 12 May 2020 9:17 AM

To: Michelle Howarth
Cc: Renee Shepherd

Subject: RE: McPhillamys Gold Project

That was quick! Thanks so much, Michelle. Our discussion with Regis on limiting their disturbance footprint went well yesterday. Just to give you a quick update as to where we are at, we've revised the vegetation mapping dataset and will be heading to site tomorrow to start collecting the remaining plots. After that, I'll re-run the calculations with the complete plot dataset and the new footprint that is being prepared.

So far, we've set up a parent case with all the child cases for each IBRA subregion and it is working well. Each IBRA subregion has a mix of different PCTs and vegetation zones, and is predicting slightly different candidate species. Regis will present two different pipeline options in the RTS, which will likely require 5-6 different child cases. I've set up a different parent case for the mine as its not a linear development. So that will be about 6-7 cases for you to assess in total. It's been a bit of a learning curve for me nutting out how this can be applied to a complex project across different IBRA subs – I'm truly down the rabbit hole of the BAMC!

I'll let you know how we are travelling and when I'll be at the stage where the calcs are complete, so we can work through the VI scores, management zones and species polygons together.

Thanks,

Katie

From: Michelle Howarth < Michelle. Howarth@environment.nsw.gov.au>

Sent: Tuesday, 12 May 2020 9:04 AM

To: Katie Diver <kdiver@emmconsulting.com.au>

Cc: Renee Shepherd < Renee. Shepherd@environment.nsw.gov.au>

Subject: RE: McPhillamys Gold Project

Hi Katie

I have confirmed that the hybrid is not considered to be the threatened species.

Happy to have those discussions when you are ready. Look forward to hearing from you.

Thanks

Michelle Howarth

Senior Conservation Planning Officer, Planning North West I work part time Monday, Friday and alternate Tuesday's

Biodiversity and Conservation Division | Department of Planning, Industry and Environment

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The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Katie Diver < kdiver@emmconsulting.com.au >

Sent: Monday, 11 May 2020 4:49 PM

To: Michelle Howarth < <u>Michelle.Howarth@environment.nsw.gov.au</u>> **Cc:** Renee Shepherd < <u>Renee.Shepherd@environment.nsw.gov.au</u>>

Subject: RE: McPhillamys Gold Project

Hi Michelle,

Thanks for the quick chat earlier. As I mentioned, we found a number of trees in the eastern most part of the pipeline alignment that looked to be the vulnerable Capertee Stringybark (*Eucalyptus cannonii*) or a hybrid of Capertee Stringybark and the non-threatened Red Stringybark (*Eucalyptus macrorhyncha*). We sent a number of specimens with a range of features off to the National Herbarium for confirmation of their ID. Some came back as Red Stringybark, while others came back as Capertee Stringybark x Red Stringybark. I just wanted to confirm with you that the hybrid individuals <u>wouldn't</u> be treated as a threatened species. I've come across this situation before when doing work on a modification for Moolarben and it was not treated as a threatened species.

We are getting closer to a construction footprint with the client so I would like to continue our discussions soon regarding VI scores as most plots were undertaken during drought conditions, and discuss our approach to calculating candidate species polygons. I also want to discuss our approach to offsetting direct (ie total clearance) and indirect pipeline impacts. Once I have some things sorted with the client I'll send an invite for a teleconference over teams, and you can let me know if the date/time works for you.

Thanks,

Katie

From: Michelle Howarth < Michelle. Howarth@environment.nsw.gov.au>

Sent: Friday, 13 March 2020 10:01 AM

To: Katie Diver < kdiver@emmconsulting.com.au >

Cc: Janet Krick <jkrick@emmconsulting.com.au>; Renee Shepherd <Renee.Shepherd@environment.nsw.gov.au>

Subject: RE: McPhillamys Gold Project

Hi Katie

For linear developments the assessor must carry out a separate habitat suitability assessment for each IBRA subregion for both ecosystem and species credits. The IBRA subregion used for the assessment does not simply affect the candidate species list, it will also affect the trading groups for ecosystems credits and potentially the Biodiversity Risk Weighting used to calculate the ecosystems credits. As such the assessor must carry out a separate habitat suitability assessment for each IBRA subregion. This requires the accredited assessor to submit separate cases in the BAM credit calculator.

Happy to discuss if you have any further questions.

Michelle Howarth Senior Conservation Planning Officer, Planning North West I work part time Monday, Friday and alternate Tuesday's

Biodiversity and Conservation Division | Department of Planning, Industry and Environment

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The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Katie Diver <kdiver@emmconsulting.com.au>

Sent: Tuesday, 10 March 2020 11:40 AM

To: Michelle Howarth < <u>Michelle.Howarth@environment.nsw.gov.au</u>>

Cc: Janet Krick < jkrick@emmconsulting.com.au >

Subject: McPhillamys Gold Project

Hi Michelle,

Thanks again for making the time to meet with us yesterday and the offer to contact you with any additional questions. I was reviewing my notes this morning and realised I forgot to ask you an important question with regard to the different cases required for each of the IBRA subregions that intersect the pipeline development.

We propose an alternative that we think might reduce data entry errors and minimise your review time. Could we set up a single case in the calculator for the pipeline in one IBRA subregion, then check the TSPD to see if any other species credit species would be filtered in, and add them to the single case, manually?

Katie Diver

National Technical Leader - Ecology



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Appendix F

Biodiversity Assessment Report in accordance with the Framework for Biodiversity Assessment







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McPhillamys Gold Project

Biodiversity Assessment Report

National Technical Leader - Ecology

3 September 2020

Report Number	
J180395 RP7	
Client	
LFB Resources NL	
Date	
3 September 2020	
Version	
Final	
Prepared by	Approved by
Abivez	NA
Katie Diver	Nathan Garvey

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

3 September 2020

Associate Director - Ecology

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Executive Summary

ES1 The project

LFB Resources NL is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis) is seeking development consent for the construction and operation of the McPhillamys Gold Project, a greenfield open-cut gold mine in the Central West region of New South Wales (NSW).

The project for which development consent is sought comprises the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the mine development). The mine development project area is approximately 8 kilometres (km) north-east of Blayney, within the Blayney and Cabonne local government areas, and within the Orange IBRA sub-region of the former Lachlan Catchment Management Authority (CMA).

In accordance with the requirements of the EP&A Act, the NSW *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) and the Secretary's Environmental Assessment Requirements (SEARs) for the project, an Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project. Accordingly, an Amendment Report has been prepared by EMM Consulting Pty Ltd (EMM 2020a) to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the amended project, compared to those that were presented in the EIS. This report forms part of the Amendment Report and presents an assessment of the biodiversity impacts of the amended project.

ES2 Ecological values

Field surveys revealed that vegetation within the mine site, which has experienced historic pastural use, mainly comprises open paddocks with some fragmented patches of timbered natural vegetation scattered throughout. Field surveys also recorded four native plant community types (PCT), comprising:

- Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330);
- Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727);
- Mountain Gum Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951); and
- Carex sedgeland of the slopes and tablelands (PCT 766).

All native plant community types recorded varied from higher condition patches to poor condition patches.

One PCT, Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, represents White Box Yellow Box Blakely's Red Gum Woodland, is listed as a critically endangered ecological community (CEEC) under the NSW *Biodiversity Conservation Act 2016*. Patches of this PCT in moderate/good (high) and moderate/good (medium) condition also represent White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands, also listed as a CEEC under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Two ecosystem credit species, namely Little Lorikeet (Glossopsitta pusilla) and Swift Parrot (Lathamus discolor) were predicted to be associated with the PCTs in the mine development project area by the Biodiversity Assessment Method Calculator (BAMC). Two candidate species, comprising the Koala (Phascolarctos cinereus) and Squirrel Glider (Petaurus norfolcensis) were also recorded in the mine development project area. The Koala is associated with three PCTs across the site, namely PCT 727 (medium and high condition vegetation zones only), PCT 951 and PCT 1330. PCT 727 contains Broad-leaved Peppermint (E. dives), Bundy (E. goniocalyx), Apple Box (E. bridgesiana) and sparse areas of Brittle Gum (E. mannifera). PCT 951 contains Manna Gum (Eucalyptus viminalis). PCT 1330 contains Apple Box (E. bridgesiana; and Yellow Box (E. melliodora). The aforementioned tree species have been identified by State Environmental Planning Policy (Koala Habitat Protection) 2019 as koala feed trees in the central and southern tablelands koala management area, in which the mine is located. The Squirrel Glider has been associated with all woody communities on site. Approximately 116.95 ha of Koala habitat and 127.35 ha of Squirrel Glider habitat occurs in the mine disturbance footprint. Three species listed under the EPBC Act were recorded in the mine development project area. These comprised two species listed as vulnerable (Koala and Superb Parrot Polytelis swainsonii) and two migratory species (Latham's Snipe (Gallinago hardwickii) and Rainbow Bee-eater (Merops ornatus)). PCTs 727, 951 and 1330 in the mine development project area were assessed against the Koala habitat assessment tool in the EPBC Act referral guidelines for the vulnerable Koala (Commonwealth of Australia 2014). With a total score of seven, vegetation in the mine development project area represents Koala habitat, in accordance with the referral guidelines (ie a score greater than five).

One Superb Parrot was recorded directly south of the mine development project area. The breeding range is concentrated on the NSW South Western Slopes and Riverina Bioregions; however, the mine development project area does not occur within any of the three main breeding areas identified by the species recovery plan. The species may occasionally forage in the mine development project area; however, the mine development project area does not comprise habitat critical to the species survival as it does not contain the required vegetation types stated in the species recovery plan and is not considered core breeding habitat.

Latham's Snipe was recorded directly adjacent to the mine development project area. This species breeds in Japan and in far eastern Russia during the northern summer and then migrates to Australia, where it remains for the duration of the northern winter. Latham's Snipe is a non-breeding visitor to south-eastern Australia, that migrates through northern Australia to reach non-breeding areas located further south. Only one site in Australia, Seaford Swamp in Victoria, is recognised as an internationally important wetland for the species (Bamford et al 2008). The internationally important habitat occurs outside the mine development project area.

A single Rainbow Bee-eater was recorded in the mine development project area. The Rainbow Bee-eater is widely distributed throughout Australia, Asia, Papua New Guinea and Solomon Islands. The majority of the global population breeds in Australia (including on Rottnest Island and islands in the south-west Torres Strait). Breeding has also been recorded in eastern Papua New Guinea (around Port Moresby and the Ramu Valley) and may possibly occur in the Lesser Sundas. The species important breeding habitat occurs outside the mine development project area.

ES3 Impact avoidance, minimisation and mitigation

Numerous alternative designs have been prepared and evaluated for the mine development. This process has facilitated the development of a considered project design which will efficiently recover a highly valuable resource, while minimising environmental impacts and potential land use conflicts and delivering socio-economic benefits to the local and broader communities. The mine disturbance footprint was minimised to avoid and minimise biodiversity impacts, particularly impacts to White Box Yellow Box Blakely's Red Gum Woodland CEEC and threatened species habitat.

Key avoidance measures implemented by Regis into the mine development design comprise:

- avoidance of all areas of PCT 1330 Moderate/Good (High) condition within the mine development project area, apart from a small area in the direct footprint of the open cut mine. This area was impossible to avoid due to this being the location of the gold deposit targeted by the mine development;
- minimisation of impacts to PCT 1330 Medium condition wherever feasible; and
- development of a tailings storage facility (TSF) which avoids almost all White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands identified within the TSF investigation area.

ES4 Biodiversity impacts

ES4.1 Comparison of EIS impacts with amended project

Impacts on biodiversity have changed for the mine development due to a revision of the mine disturbance footprint. Changes to the mine disturbance footprint have resulted in no change for some PCTS, decreased impacts for some PCTs and small increases for others. Overall, the amended project will reduce the impact on PCTs by 1.97 ha, reducing from 132.36 for the EIS mine disturbance footprint to 130.39 in the amended project mine disturbance footprint. Of this area of native vegetation impacted, the amended project will increase the impacts on Box Gum Woodland as listed under the BC Act and EPBC Act by 1.93 ha.

The method for calculating Koala impacts has changed since the EIS, with the introduction of State Environmental Planning Policy (SEPP) (Koala Habitat Protection) 2019. Koala habitat impacts were calculated in the EIS based on the repealed SEPP 44 and the feed tree species for the central and southern tablelands koala management area in the Koala Recovery Plan (DECC 2008). Koala impacts were estimated to be 75.77 ha in the EIS, which would increase to 78.57 ha for the amended project, representing a 2.8 ha increase.

Koala impacts have been re-calculated in this BDAR in accordance with the feed tree species for the central and southern tablelands koala management area in SEPP (Koala Habitat Protection) 2019. Using SEPP (Koala Habitat Protection) 2019, the EIS mine disturbance footprint would have directly impacted 115.06 ha, increasing by 1.89 ha to 116.95 ha for the amended project.

In the EIS, direct impacts on the Squirrel Glider were 129.32 ha. The amended project would reduce direct Squirrel Glider impacts by 1.97 ha to 127.35 ha.

ES4.2 Potential biodiversity impacts

Following the implementation of avoidance and minimisation measures, the mine development will remove 130.39 ha of native vegetation. The mine development will remove 45.60 ha of vegetation (PCT 1330) that represents White Box Yellow Box Blakely's Red Gum Woodland CEEC listed under the NSW BC Act; 20.43 ha of which also represents Box Gum Woodland CEEC listed under the Commonwealth EPBC Act. These impacts will be compensated through the implementation of the project's biodiversity offset strategy.

Three PCTs, comprising retained patches of PCT 727, 951 and 1330 surrounding the mine disturbance footprint overlie shallow groundwater ranging from 0 to 20 metres below ground level. A high proportion of the distribution of two PCTs (951 and 1330) had access to groundwater. Accordingly, these PCTs were identified as opportunistic users of groundwater. The predicted watertable levels at the end of mining and 100 years following mining were compared with existing levels. No negative groundwater access impacts are expected to occur for GDEs.

A conservative approach was used in the groundwater assessment (Appendix K of the EIS) to simulate seepage from the TSF and assess any changes in groundwater quality. The Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report) identified the potential for groundwater quality changes because of:

- seepage from the TSF to the watertable and towards the Belubula River;
- seepage from stockpiles to the watertable;
- seepage from water storage ponds to the watertable; and

Potential impacts related to the last three hazard items have been assessed in the Groundwater Assessment (Appendix K of the EIS) and assessed to present minimal to no impacts on the water environment from a water quality perspective. The potential impacts of seepage from the TSF was also assessed in the Groundwater Assessment (Appendix K of the EIS), however as the TSF schedule has been adjusted for the amended project, this assessment has been revisited and is included in Groundwater Assessment Addendum (Appendix H of the Amendment Report).

ES5 Biodiversity credits required

The mine development requires 3,863 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the mine development also requires 3,041 species credits for the Koala and 2,802 species credits for the Squirrel Glider. Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

The above ecosystem and species credits have been provided for the amended project in accordance with the FBA, purposes of DAWE's assessment. However, it is intended that ecosystem and species credits requirements will be in accordance with the Biodiversity Assessment Method (BAM), provided in the McPhillamys Gold Project Amendment Report — Biodiversity Development Assessment Report (BDAR), provided in Appendix M of the Amendment Report.

ES6 Biodiversity offset strategy

Under the NSW Biodiversity Offsets Scheme, proponents can meet their offset requirements through one, or a combination of the following actions:

- 1. establishment of a biodiversity stewardship site containing the required ecosystem and species credits;
- 2. purchase and retirement of the required ecosystem and species credits from the biodiversity credit market;
- 3. payment into the Biodiversity Conservation Fund; and
- 4. fund a management action that directly benefits the species and/or ecological communities impacted.

The disturbance footprint may shift within the construction envelope.

The proponent has purchased and conducted detailed studies to assess native PCTs and threatened species at a future stewardship site in Blayney (ie option 1, above). The property is approximately 388 ha and contains some of the required ecosystem and species credits (PCT 951, PCT 1330 and Koala). It is the proponent's intention to secure the property under a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust. The proponent will assess the residual ecosystem and species credits and secure these under one, or a combination of options 2 to 4, in accordance with the Biodiversity Offset Scheme.

ES7 Conclusion

This Biodiversity Assessment Report has been prepared in accordance with the FBA, biodiversity-related Environmental Assessment Requirements issued by the Department of Planning and Environment and agency-specific assessment requirements. Regis has carried out annual biodiversity surveys within the mine development project area since acquiring Exploration Licence 5760 in 2012. These surveys have been carried out in parallel with, and have informed the evolution of, the mine development design. This process has ensured the avoidance of biodiversity constraints as far as practicable.

The mine development requires 3,863 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the mine development also requires 3,041 species credits for the Koala and 2,802 species credits for the Squirrel Glider. Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

The Biodiversity Assessment Report has also considered impacts on species and ecological communities listed under the EPBC Act. The mine development is expected to result in significant impacts on White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands and the Koala. As the McPhillamys Gold Project is being assessed in accordance with the bilateral agreement made between the NSW and the Commonwealth under Section 45 of the EPBC Act, impacts on this listed ecological community and species will be compensated through the implementation of the biodiversity offset strategy.

Table of Contents

Exe	cutive	Summary	,	ES.1
Sta	ge 1 Bi	odiversity	y Assessment	
1	Intro	duction		1
	1.1	Backgro	pund	1
	1.2	Develop	oment proposal	1
		1.2.1	Water supply pipeline	2
	1.3	Informa	ation sources	5
		1.3.1	Publications and databases	5
		1.3.2	Spatial data	5
	1.4	Purpose	e of this report	6
	1.5	Submiss	sions on the EIS	7
	1.6	Termino	ology	8
2	Legislative context			10
	2.1	Commo	nwealth legislation	10
		2.1.1	Environment Protection and Biodiversity Conservation Act 1999	10
	2.2	State Le	egislation	11
		2.2.1	Environmental Planning and Assessment Act 1979	11
		2.2.2	State Environmental Planning Policy (Koala Habitat Protection) 2019	12
		2.2.3	Threatened Species Conservation Act 1995	12
		2.2.4	Biodiversity Conservation Act 2016	13
		2.2.5	Biosecurity Act 2015	13
3	Landscape context			14
	3.1	Site des	cription	14
	3.2	Bioregio	ons and landscape regions	14
		3.2.1	Rivers, streams and estuaries	15
		3.2.2	Wetlands	15
		3.2.3	Connectivity	15
	3.3	Assessn	nent of site context	18
4	Nativ	ve vegetat	ion	19
	4.1	Backgro	ound review	19

	4.2	Methods		20
	4.3	Results		21
		4.3.1	Flora and plant community types	21
5	Threa	reatened species		37
	5.1	Habitat a	assessment	37
	5.2	Candidate species assessment		37
		5.2.1	Geographic habitat features	37
		5.2.2	Ecosystem credit species assessment	38
		5.2.3	Species credit species assessment	38
	5.3	Methods	5	40
		5.3.1	Targeted flora surveys	40
		5.3.2	Targeted fauna surveys	43
		5.3.3	Limitations	50
	5.4	Targeted	l survey results	50
		5.4.1	Targeted flora surveys	50
		5.4.2	Targeted fauna surveys	50
6	Grour	oundwater dependent ecosystems		52
	6.1	Background		52
	6.2	Method		52
		6.2.1	Study area	52
		6.2.2	Spatial data review	52
		6.2.3	Groundwater model	52
		6.2.4	Groundwater interaction assessment	53
		6.2.5	GDE identification	54
		6.2.6	Risk assessment	55
	6.3	Results		56
		6.3.1	Impact assessment	57
	6.4	Required	l mitigation	62
Sta	ge 2 Im	pact Asse	ssment (biodiversity values)	63
7	Impad	ct assessm	ent	64
	7.1	Impact s	ummary	64
		7.1.1	Direct and indirect impacts	64
	7.2	Compari	son of predicted EIS impacts with amended project	64

J180395 | RP7 | v1 ii

	7.3	Measure	es implemented to avoid, minimise and mitigate impacts	66
	7.4	Residua	Impacts	70
7.5 Thres			lds for assessment and offsetting	71
		7.5.1	Impacts requiring further consideration	71
		7.5.2	Impacts requiring offsets	72
		7.5.3	Impacts not requiring offsets or not requiring further assessment	72
	7.6	Biodiver	sity credit report	75
	7.7	Biodiver	sity Offset Strategy	77
8	Asses	sment ag	ainst relevant biodiversity legislation	79
	8.1	Environ	ment Protection and Biodiversity Conservation Act 1999	79
		8.1.1	Likelihood of occurrence	79
		8.1.2	Significant impact assessment	89
	8.2	Environ	mental Planning and Assessment Act 1979	99
		8.2.1	State Environmental Planning Policy (Koala Habitat Protection) 2019	99
	8.3	Biosecui	rity Act 2015	102
9	Concl	usion		103
Ref	erences	5		104
App	endice	S		
App	endix A	A P	rotected Matters Search	
App	endix E	3 P	lot and transect data	
App	endix (В	ioBanking credit report	
Tab	loc			
Tab Tab	le 1.1		ey comments received in BCD's submissions relating to Mine Development BAR and	7
Tab	le 3.1		ipeline Development BDAR, and how they have been addressed	7
	le 3.2		andscape features	14
	le 4.1		extent of native vegetation cover before and after development	18 19
			egetation zones in mine development project area (EnviroKey 2017)	
	le 4.2 le 4.4		lant community types mapped within the mine development project area	22 25
			egetation zones 1-4 description	
	le 4.5		egetation zones 5-7 description	28
ıab	le 4.6	V	egetation zone 8 description	30

Table 4.7	Vegetation zone 9 description	32
Table 4.8	Vegetation zone 10-12 description	34
Table 4.9	Vegetation zone summary	36
Table 5.1	Assessment of geographic habitat features within the disturbance footprint	37
Table 5.2	Ecosystem credit species predicted on site and associated vegetation types	38
Table 5.4	Stratification units and survey area – diurnal birds	43
Table 5.5	Methods and survey effort – diurnal birds	44
Table 5.6	Stratification units and survey area – small terrestrial mammals	44
Table 5.7	Methods and survey effort – small terrestrial mammals	45
Table 5.8	Stratification units and survey area – arboreal mammals	45
Table 5.9	Methods and survey effort – arboreal mammals	46
Table 6.1	Groundwater dependence categories	55
Table 6.2	GDE risk assessment matrix	55
Table 6.3	Ecological value definitions	55
Table 6.4	Ecological values of and risks to GDEs	56
Table 6.5	Changes in access to shallow groundwater	58
Table 6.6	Concentrations in groundwater following mixing with TSF seepage	62
Table 7.1	Comparison of mine development PCT impacts	65
Table 7.2	Comparison of mine development species impacts	66
Table 7.3	Impact avoidance and minimisation strategy – mine and pipeline development	67
Table 7.4	Residual project impacts	70
Table 7.5	Impacts requiring further consideration	71
Table 7.6	Ecosystem credits required	76
Table 7.7	Species credits required	77
Table 8.2	Likelihood of occurrence for threatened species	82
Table 8.3	Likelihood of occurrence for migratory species	87
Table 8.4	Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the mine development project area	91
Table 8.5	Koala habitat assessment tool (Commonwealth of Australia 2014) for the in the mine development project area	93
Table 8.6	Assessment of significance for the Koala for the mine development project area	94
Table 8.7	Assessment of significance for the Superb Parrot for the mine development project area	96
Table 8.8	Assessment of significance for Latham's Snipe in the mine development project area	98
Table 8.9	Assessment of significance for Rainbow Bee-eater in the mine development project area	99

Table 8.10	Koala feed tree species for the central and southern tablelands KMA	99
Table B.1	Plot and transect data	B.1
Figures		
Figure 1.1	Project application area – regional setting	3
Figure 1.2	Mine development project area	۷
Figure 3.1	Location map	16
Figure 3.2	Site map	17
Figure 4.1	Plant community types in the mine development project area and plot/transect locations	
		23
Figure 5.1	Threatened flora survey methods	42
Figure 5.2	Fauna survey effort	49
Figure 5.3	Threatened fauna species credit species recorded in the mine development project area	51
Figure 6.1	Potential impacts on groundwater availability for terrestrial vegetation	59
Figure 7.1	Evolution of the mine development	69
Figure 7.2	Areas of vegetation requiring offset	73
Figure 7.3	Species credit polygons	74
Figure 7.4	Current exploration licenses at potential stewardship site	78
Photographs Photograph 2.1	The mine development project area, comprising cleared low hills with scattered patches	
Photograph 3.1	of native vegetation	14
Photograph 4.1	Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern	
	Highlands Bioregion within the mine development project area (moderate/good high - plot ID EMM8Zone1)	27
Photograph 4.2	Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (moderate/good_high - plot ID EMM3Zone5)	29
Photograph 4.3	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (moderate/good_poor - plot ID 103_WL_2_E).	31
Photograph 4.4	Wet tussock grasslands of cold air drainage areas of the tablelands (moderate/good_poor - plot ID EMM5Zone9).	33
Photograph 4.5	Open grassland areas.	35

Plates

Plate 6.1	GDE categories	54
Plate 6.2	TSF multi-barrier approach	60
Plate 8.1	Flowchart to determine presence of the listed community (or otherwise)	90

Stage 1

Biodiversity Assessment

1 Introduction

1.1 Background

LFB Resources NL is seeking State significant development (SSD) consent under Part 4 of the New South Wales (NSW) *Environmental Planning and Assessment Act 1979* (EP&A Act) to develop and operate a greenfield open cut gold mine and associated mine infrastructure in Central West NSW. The project application area is illustrated at a regional scale in Figure 1.1. LFB Resources NL is a 100% owned subsidiary of Regis Resources Limited (herein referred to as Regis).

As shown in Figure 1.1, the McPhillamys Gold Project (the project) is comprised of two key components; the mine site where the ore will be extracted, processed and gold produced for distribution to the market (the mine development), and an associated water supply pipeline which will enable the supply of water from approximately 90 kilometres (km) away near Lithgow to the mine site (the pipeline development). The mine development project area is around 8 km north-east of Blayney, within the Blayney and Cabonne local government areas (LGAs). The pipeline is an approximately 90 km long pipeline alignment from Centennial's Angus Place and Springvale Coal Services Operations (SCSO) and Energy Australia's Mount Piper Power Station (MPPS), near Lithgow, to the mine development area. The pipeline development runs through the LGAs of Bathurst and Lithgow.

Up to 8.5 Million tonnes per annum (Mtpa) of ore will be extracted from the McPhillamys gold deposit over a total project life of 15 years. The mine development will include a conventional carbon-in-leach processing facility, waste rock emplacement, an engineered tailings storage facility (TSF) and associated mine infrastructure including workshops, administration buildings, roads, water management infrastructure, laydown and hardstand areas, and soil stockpiles.

In accordance with the requirements of the EP&A Act, the NSW *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) and the Secretary's Environmental Assessment Requirements (SEARs) for the project, an Environmental Impact Statement (EIS) was prepared to assess the potential environmental, economic and social impacts of the project. The development application and accompanying EIS was submitted to the NSW Department of Planning, Industry and Environment (DPIE) and subsequently publicly exhibited for six weeks, from 12 September 2019 to 24 October 2019. During this exhibition period Regis received submissions from government agencies, the community, businesses and other organisations regarding varying aspects of the project.

In response to issues raised in submissions received, as well as a result of further detailed mine planning and design, Regis has made a number of refinements to the project. Accordingly, an Amendment Report has been prepared by EMM Consulting Pty Ltd (EMM) (2020a) to outline the changes to the project that have been made since the public exhibition of the EIS and to assess the potential impacts of the amended project, compared to those that were presented in the EIS. This report forms part of the Amendment Report and presents an assessment of the biodiversity impacts of the amended project.

1.2 Development proposal

A summary of the key amendments to the project since the exhibition of the EIS are summarised below and described in detail in Chapter 2 of the Amendment Report (EMM 2020a):

• Site access – a new location for the site access intersection off the Mid Western Highway is proposed, approximately 1 km east of the original location assessed in the EIS, in response to feedback from Transport for NSW (TfNSW, former Roads and Maritime Services) and the community. A new alignment is subsequently proposed for the site access road to the mine administration and infrastructure area.

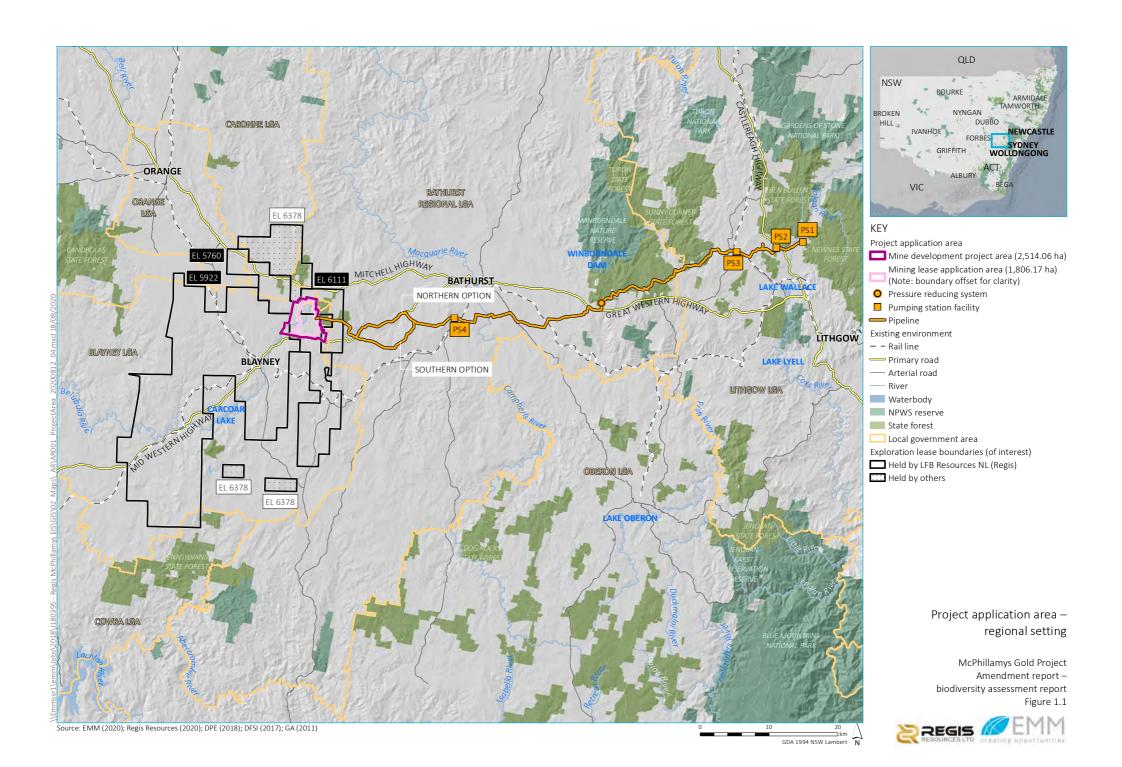
- Mine and waste rock emplacement schedule revision of the mine schedule and the subsequent
 construction sequence of the waste rock emplacement has been undertaken, in particular consideration
 of predicted noise levels in Kings Plains. This achieved a reduction in predicted noise levels at nearby
 residences while extending the construction timeframe for the southern amenity bund.
- **Pit amenity bund** the size of the pit amenity bund has been reduced as a result of optimisation of the open cut pit design and the improved location of exit ramps for haul trucks.
- Tailings Storage Facility (TSF) amendments to the design include changes to the embankment design and construction timing, the TSF footprint, and the TSF post closure landform.
- Water management system the secondary water management facility (WMF) has been removed from
 the water management system resulting in an avoidance of impacts to a potential item of historic heritage
 (MGP 23 Hallwood Farm Complex (Hallwood)). The size of the WMFs has also been revised to achieve a
 reduced likelihood of discharge from the storages within the operational water management system as
 part of a revised nil discharge design.
- Mine administration and infrastructure area the layout of this area has been revised and optimised.
- Mine development project area a very small change has been made to the mine development project area along the eastern boundary (an additional 1 hectare (ha), or 0.04% change), to accommodate the required clean water management system. The change takes the mine development project area from 2,513 ha to 2,514 ha.

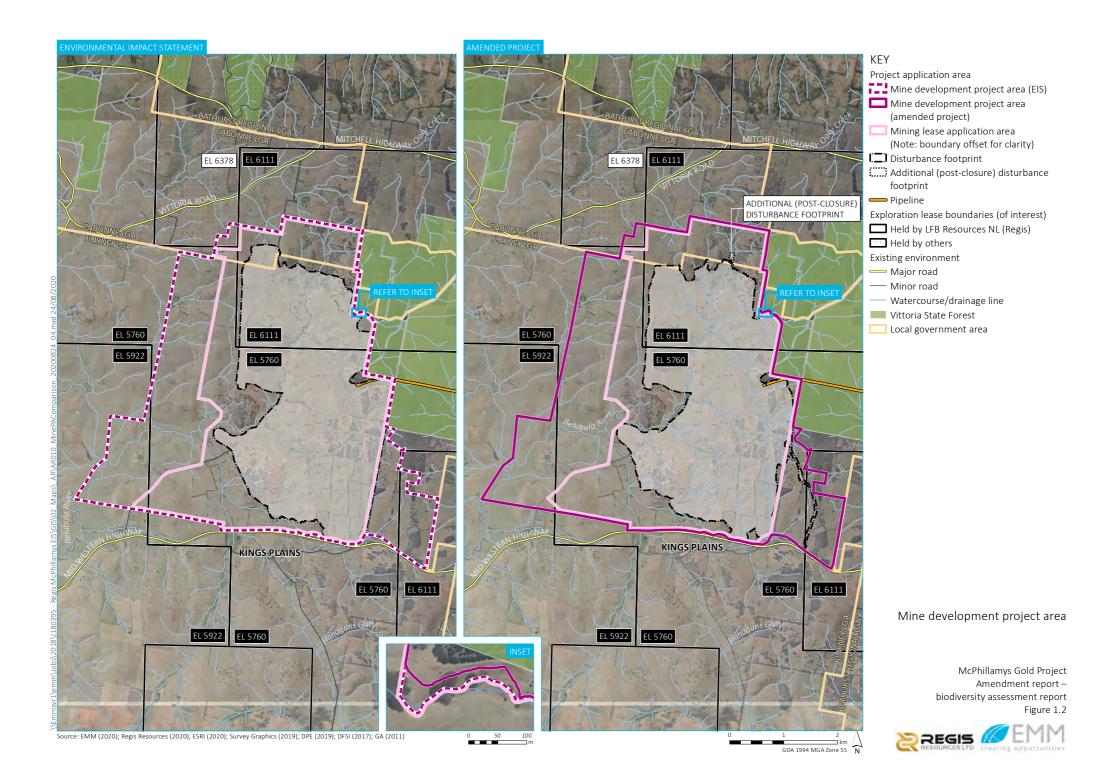
No amendments have been made to other key aspects of the mine development as presented in the EIS for which approval is sought, such as the proposed mining method, operating hours, annual ore extraction rate of 8.5 Mtpa, annual ore processing rate of up to 7 Mtpa, employee numbers, and rehabilitation methods and outcomes.

The amended mine development project layout, compared to that assessed in the EIS, is shown in Figure 1.2. A comparison of the biodiversity impacts of the amended mine development project with the mine development project assessed in the EIS is provided in Section 7.2 of this report.

1.2.1 Water supply pipeline

As noted in Section 1.1, the water supply pipeline component of the project is being assessed separately under the NSW *Biodiversity Conservation Act 2016* (BC Act) and associated Biodiversity Assessment Method (BAM, (OEH 2017). The water supply pipeline is not discussed further within this BAR.





1.3 Information sources

1.3.1 Publications and databases

In order to provide context for, information about flora and fauna within 15 km of the mine development project area was obtained from relevant public databases. The centre point of the mine development project area was taken as Latitude -33.46, Longitude 149.33. Records from the following databases were collated and reviewed:

- Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool for matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- NSW BioNet the database for the Atlas of NSW Wildlife for threatened species listed under the EPBC Act and BC Act;
- PlantNET (The Royal Botanic Gardens and Domain Trust) for Rare or Threatened Australian Plants (RoTAP);
- Other sources of biodiversity information:
 - The NSW Plant Community Types, as held within the Vegetation Information System (VIS) Classification 2.1 database;
 - State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS_ID 4778 (OEH 2018a); and
 - Groundwater Dependent Ecosystems Atlas (BOM 2013).

The following studies and reports were also reviewed:

- Local setting and biodiversity constraints analysis (EnviroKey 2017), prepared for the mine development project area; and
- A regional assessment (EnviroKey 2013), also prepared for the project.

There are few uncertainties in the site-based studies (EnviroKey 2013 and 2017) as these were detailed studies, conducted at the site scale. The remaining resources are government databases and were used to provide an indication of threatened biodiversity relevant to the project. Threatened biodiversity was then verified as present/absent in the mine development project area during site-based studies (Envirokey 2013, 2017 and this report).

1.3.2 Spatial data

Mapping was conducted using hand-held (uncorrected) GPS units (GDA94), mobile tablet computers running Collector for $ArcGIS^{TM}$ and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the GPS units (generally \pm 7 metres) and dependent on the limitations of aerial photo rectification and registration. Site plans were supplied by Regis in March 2019.

Mapping has been produced using a Geographic Information System (GIS).

1.4 Purpose of this report

The requirements of the SEARs issued for the project in relation to the assessment of biodiversity impacts at the state level under the EP&A Act requested a 'hybrid' biodiversity assessment where:

- the mine development was to be assessed against the Framework for Biodiversity Assessment (FBA) (OEH 2014) and the NSW Biodiversity Offsets Policy for Major Projects (Major Projects Policy) as per the Biodiversity Conservation (Savings and Transitional) Regulation 2017 (BC Transitional Regulation); and
- a separate biodiversity assessment was required for the pipeline development under BC Act, in accordance with the Biodiversity Assessment Method (BAM; OEH 2017).

In accordance with the SEARs, two biodiversity assessments were prepared for the project and included in the EIS; one for the mine development in accordance with the FBA (EMM 2019), and one for the pipeline development in accordance with the requirements of the BC Act using the BAM (OzArk 2019).

While the EIS was prepared strictly in accordance with the SEARs issued by DPIE, a separate BDAR has been prepared in accordance with the BAM (OEH 2017) to assess the potential biodiversity impacts of the amended project, considering both the mine development and pipeline development components together. The BDAR assessment considers and outlines the differences in impacts associated with the amended project compared to the original project as presented in the EIS. The purpose of the BDAR of the amended project is to allow assessment of the amended project under EP&A Act and BC Act.

The EPBC Act referral decision concluded the referred mine development was a controlled action (while the pipeline development was not a controlled action) on 28 May 2019. The mine development required assessment under the EPBC Act as the DAWE considered that the action would be likely to have a significant impact on White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands (a threatened ecological community) and the Koala.

Due to the amendments made to the project since the submission of the EPBC Act referral, an application to vary the action to reflect the amended project under section 156A of the EPBC Act will be submitted to to DAWE. The purpose of the variation will be to provide a revised assessment for the threatened species and ecological communities listed under the EPBC Act, following amendments to the mine development and pipeline development footprints and the additional biodiversity assessments undertaken. The variation application will also provide additional strategies to avoid, minimise, mitigate, and offset biodiversity impacts relating to the amended project.

Since the time that the mine development was declared to be a controlled action, and following the commencement of the BC Act, an amending bilateral agreement has been executed between the Commonwealth and NSW (in March 2020). However, while an assessment is presented with the Amendment Report of biodiversity impacts in accordance with the BC Act requirements, the varied action needs to be assessed under the FBA and Major Projects Policy in order to be compliant with the 2015 bilateral agreement referenced in the controlled action determination and SEARs.

Accordingly, this revised BAR has been prepared for the mine development component of the amended project in accordance with the FBA, for the purposes of DAWE's assessment.

The specific objectives of this assessment are to:

- describe biodiversity values of the mine development project area associated with the amended project;
- assess the likelihood that threatened species and communities (threatened biodiversity) listed under relevant the BC Act and EPBC Act could occur in the mine development project area associated with the amended project;

- document the strategies implemented to avoid and/or minimise impacts of the amended project on threatened biodiversity;
- assess residual threatened biodiversity impacts potentially associated with the amended project, after avoidance and minimisation strategies have been implemented;
- provide environmental safeguards to mitigate threatened biodiversity impacts during construction and operation of the amended project; and
- provide a strategy to offset residual threatened biodiversity impacts associated with the amended project.

1.5 Submissions on the EIS

Several minor issues were raised relating to the Mine Development BAR (EMM 2019) in the DPIE - Biodiversity Conservation Division's (BCD's) submission on the EIS. These issues have been considered and incorporated into this revised assessment.

Detailed responses to all the submissions received are provided in the Submissions Report prepared for the project (EMM 2020b), which has been prepared in conjunction with the Amendment Report (EMM 2020a). A summary of the key issues relevant to this assessment are provided in Table 1.1, together with how each matter has been addressed within this report.

Table 1.1 Key comments received in BCD's submissions relating to Mine Development BAR and Pipeline Development BDAR, and how they have been addressed

Issue Where addressed

Mine development

- 1. Further assessment of Silky Swainson-pea (*Swainsona sericea*) is required. Targeted surveys were conducted in surveys were conducted in 2013 for Small Purple-pea (*Swainsona recta*). The 2013 surveys PCT 1298 (since revised to PCT 766) were conducted in Spring, with adequate coverage of two plant community types: for Silky Swainson-pea. The methods
- PCT 654 Apple Box Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion.
- - PCT 727 Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest on the South Eastern Highlands Bioregion.

In a letter to the consultants (DOC19/182640) BCD noted that no transects were conducted in the northernmost part of the proposed disturbance footprint. This area contains PCT 1298 – Wet tussock grasslands of cold air drainage areas of the tablelands. As PCT 1298 is potential habitat for Silky Swainson-pea the exclusion of species within this PCT will need to be fully justified.

The BAR states that the Silky Swainson-pea is not identified as a threatened species requiring consideration by the BBAM calculator and therefore requires no further assessment. Section 6.5.1.2 of the FBA states that a threatened species is identified as a candidate species for the development site if the geographic distribution of the species is known or predicted to include the IBRA subregion in which the development site is located. As Silky Swainson-pea is predicted to occur in the Orange IBRA subregion it should be assessed and, as no targeted surveys were conducted in PCT 1298, it should either be assumed to be present or an expert report should be obtained.

Recommendation 1

Justification for the exclusion of Silky Swainson-pea should be provided, or conduct targeted surveys, assume presence or obtain an expert report.

Targeted surveys were conducted in PCT 1298 (since revised to PCT 766) for Silky Swainson-pea. The methods for the targeted surveys are described in Section 5.3.1. The survey did not record any Silky Swainson-pea.

Table 1.1 Key comments received in BCD's submissions relating to Mine Development BAR and Pipeline Development BDAR, and how they have been addressed

Issue Where addressed

2. A species polygon is required for the Squirrel Glider. Section 7.3 of the BAR concludes that there will be a residual impact of 129.3 ha of habitat for the Squirrel Glider and 75.77 ha of habitat for the Koala. However, Figure 7.3 of the BAR depicts a species credit polygon that is labelled for both Koala and Squirrel Glider totalling 75.76 ha.

It is a requirement of the FBA that species polygons for species credit species be provided in the BAR. The species polygon provided reflects the area of habitat likely to be used by the koala (75.77 ha). An additional species polygon is required for the Squirrel Glider (129.3 ha).

Recommendation 2

A figure showing the species polygon for the Squirrel Glider is required.

3. Relocation of koala will require consultation with BCD.

Section 7.2 of the BAR includes a mitigation measure to "develop specific procedures for koala pre-clearance inspections and safe relocations outside the clearing area". Any planned relocation of koalas should be consistent with the Office of Environment and Heritage (OEH) Translocation Operational Policy (OEH 2019).

The proponent should demonstrate how they will maximise and report on animal welfare outcomes at each stage of the translocation process. Procedures for the potential relocation of koalas, including the selection of nearby habitat suitable for release and monitoring of translocation success, should be developed in consultation with BCD.

Recommendation 3

Any planned relocation of Koalas should be consistent with the OEH Translocation Operational Policy (OEH 2019) and be developed in consultation with BCD.

The species polygons for Koala and Squirrel Glider have been revised to account for changes in the mine footprint and the revised list of feed tree species in the central and southern tablelands koala management area defined in *State Environmental Planning Policy (Koala Habitat Protection) 2019.* These are discussed in Section 8.2.1 and shown on Figure 7.3.

It is not the intention to formally translocate Koalas from the mine project development area.

Rather, the intention is to conduct pre-clearance inspections to determine if Koalas are present in areas of native vegetation prior to clearing. In the unlikely event that Koalas are found to be present, appropriate methods (such as staged clearing) will be followed to allow Koalas to move unassisted into adjacent retained vegetation. Such measures are outlined in Section 7.3 and will be detailed in the Biodiversity Management Plan that would be prepared if development consent is granted.

1.6 Terminology

The following terms were used throughout the EIS to describe the project, and remain relevant for this assessment and the amended project:

• **the project** – the project in its entirety; encompassing the mine development and the pipeline development. In this report, the term 'the project' refers to the amended project for which approval is now sought. Where the original project design as presented in the EIS is being discussed, this will be clarified;

- **project application area** the area in its entirety to which the development application (SSD 9505) relates; comprising the mine development project area and the pipeline corridor as illustrated in Figure 1.1. In this report, the term 'the project application area' refers to the amended area that relates to the development for which approval is now sought. Where the original project application area, as presented in the EIS, is being discussed, this will be clarified;
- **mine development project area** refers to the mine development project area as illustrated in Figure 1.1;
- **mine development** construction and operation of the mine and associated mine infrastructure within the mine development project area; and
- **mine disturbance footprint** refers to the mine development disturbance footprint as illustrated in Figure 1.1.

2 Legislative context

2.1 Commonwealth legislation

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's key piece of environmental legislation. The EPBC Act applies to developments and associated activities that have the potential to significantly impact on Matters of National Environmental Significance (MNES) protected under the Act.

Nine MNES are identified under the EPBC Act:

- world heritage properties;
- national heritage places;
- wetlands of international importance (also known as 'Ramsar' wetlands);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, activities that have potential to result in significant impacts on MNES must be referred to the Commonwealth Minister for the Environment for assessment.

A proposed action was referred to the Commonwealth Minister in April 2019 under the EPBC Act. The referred action included the mine development but excluded the pipeline on the basis that the pipeline was considered unlikely to result in a significant impact on MNES.

The EPBC Act referral decision concluded the referred mine development (the action) was a controlled action on 28 May 2019 requiring assessment under the EPBC Act as the DAWE considered that the action would be likely to have a significant impact on the following MNES:

- listed threatened species and communities (sections 18 and 18A);
 - White Box Yellow Box Blakely's Red Gum Grassy woodland and Derived Native Grassland –
 Critically Endangered; and
 - Koala (QLD, NSW, ACT) (*Phascolarctus cinereus*) Vulnerable.

The decision also stated that the assessment process for the listed threatened species and communities (ss 18 and 18A of the EPBC Act) impacted by the action was to be completed by the NSW Government pursuant to the accredited bilateral agreement, which commenced on 26 February 2015. Supplementary SEARs for the MNES relevant to the project were provided on 30 May 2019.

The amended project involves a change in the layout and disturbance footprint of the mine development, which has resulted in a small change to the predicted impacts on MNES; particularly the area of Box Gum Woodland to be cleared. Approximately 20.43 ha of the EPBC Act listed White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland will be removed because of the amended project. This is compared to 18.5 ha which was proposed to be removed in the EIS.

Due to the amendments made to the project since the submission of the EPBC Act referral, an application to vary the action to reflect the amended project under section 156A of the EPBC Act will be submitted to DAWE. The purpose of the variation will be to provide a revised assessment for the threatened species and ecological communities listed under the EPBC Act, following amendments to the mine development and pipeline development footprints and the additional biodiversity assessments undertaken. The variation application will also provide additional strategies to avoid, minimise, mitigate, and offset biodiversity impacts relating to the amended project.

As described above, a revised BDAR (Appendix M of the Amendment Report) has been prepared for the amended project (comprising both the mine development and the pipeline development) in accordance with the BC Act using the BAM to address requirements at a State level. Since the time that the mine development was declared to be a controlled action and following the commencement of the BC Act, an amending bilateral agreement has been executed between the Commonwealth and NSW (in March 2020). However, while the BDAR presented in Appendix M of Amendment Report assesses biodiversity impacts in accordance with the NSW BC Act requirements, the varied action needs to be assessed under the FBA and Major Projects Policy in order to be compliant with the 2015 bilateral agreement referenced in the controlled action determination and SEARs.

Accordingly, this revised BAR has been prepared for the amended project in accordance with the FBA, for the purposes of DAWE's assessment.

2.2 State Legislation

2.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act was enacted to encourage the proper consideration and management of impacts of proposed development or land-use changes on the environment (both natural and built) and the community. The Act is administered by the DPIE (previously Department of Planning and Environment (DPE)).

As described in Chapter 1, the project is State significant development (SSD) pursuant to Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* (State and Regional Development SEPP). Accordingly, approval is required under Part 4 of the EP&A Act for the project.

As described above, SEARs were issued by the DPIE on 24 August 2018 and revised on 19 December 2018. The SEARs required that biodiversity impacts related to the project were to be assessed and documented in accordance with the FBA (OEH 2014) by an appropriately accredited person. The report was prepared by Accredited Assessors Katie Diver and Nathan Garvey. Following the declaration of the project as a controlled action, supplementary SEARs relating to MNES were issued by DPIE on 30 May 2019.

The SEARs and supplementary SEARs were satisfied following lodgement of the Mine Development Biodiversity Assessment Report for the project (EMM 2019).

2.2.2 State Environmental Planning Policy (Koala Habitat Protection) 2019

The State Environmental Planning Policy (Koala Habitat Protection) 2019 (the Koala Habitat Protection SEPP) aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas to ensure a permanent free-living population over their present range and reverse the current trend of Koala population decline. It triggers consideration of a Development Application Map and if areas are mapped as Koala habitat, the subject lots are greater than 1 ha size, and within local government areas listed in Schedule 1 of the Koala Habitat Protection SEPP, then a Koala assessment report is required for development.

Assessment of the Koala SEPP is required for development applications under Part 4 of the EP&A Act, which includes SSD projects. The Koala SEPP does not strictly apply to this BAR in accordance with the savings and transitional provision in Clause 15, as the development application was made upon lodgement of the EIS but has not yet been determined. Notwithstanding, consideration has been given to the potential occurrence and impacts upon the Koala within this report and has been provided in Section 8.2.1.

2.2.3 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) aimed broadly to conserve ecological diversity through protecting species and their critical habitat, and by managing threatening processes. The Act is administered by the Biodiversity and Conservation Division of DPIE (BCD) (previously the OEH). This Act is now repealed and has been replaced by the BC Act.

The BC Transitional Regulation sets out "pending or interim planning applications" to which the former planning provisions would continue to apply. This included projects where an environmental impact statement was to be submitted and the proponent had undertaken "substantial environmental assessment" in connection with the statement before the commencement of the BC Act.

Regis received confirmation from the DPIE on 16 January 2018 that the project is considered a pending or interim planning application and that the former planning provisions continue to apply. The project application must be made within 18 months after the determination that the former planning provisions apply.

In accordance with the SEARs, the amended project has been assessed in accordance with the FBA, and the TSC Act provisions still apply for the purposes of DAWE's assessment.

Notwithstanding, a separate BDAR has been prepared in accordance with the BAM (OEH 2017) to assess the potential biodiversity impacts of the amended project, considering both the mine development and pipeline development components together, for the purposes of the BCD's assessment.

2.2.4 Biodiversity Conservation Act 2016

The BC Act aims to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Threatened species, populations and communities that were formerly listed under the TSC Act are now listed in Schedule 1 and 2 of the BC Act.

For the purposes of the Commonwealth assessment (Section 2.1.1), the project will be assessed under the former planning provisions. However, any proposed offset sites will be assessed in accordance with the BC Act and associated BAM (OEH 2017).

2.2.5 Biosecurity Act 2015

The *Biosecurity Act 2015* (Biosecurity Act) replaced the *Noxious Weeds Act 1993* on 1 July 2017. The Biosecurity Act aims broadly to provide a framework for the prevention, elimination and minimisation of biosecurity risks posed by biosecurity matter, carriers and other activities. The Act is administered by the Department of Primary Industries.

3 Landscape context

3.1 Site description

The mine development project area is 2,514.06 ha. It lies approximately 8 km north-east of Blayney within the Blayney and Cabonne LGAs and the South Eastern Highlands Interim Biogeographic Regionalization of Australia (IBRA) region and Orange IBRA sub-region. Landform elements within the mine development project area consist of low hills, small plains and gullies, which is consistent with the broader locality. Vegetation within the site has experienced historical pastural use and is therefore mainly open paddock with some fragmented patches of timbered natural vegetation scattered throughout (Photograph 3.1). The upper reaches of the Belubula River catchment lie within the mine development project area, and several small unnamed tributaries run through the site with some feeding into dams scattered throughout.



Photograph 3.1 The mine development project area, comprising cleared low hills with scattered patches of native vegetation

3.2 Bioregions and landscape regions

Bioregions and landscapes relevant to the mine development are listed in Table 3.1.

Table 3.1 Landscape features

Landscape feature	Mine development
IBRA Bioregion/s	South Eastern Highlands
IBRA subregion/s	Orange
NSW Landscape Regions	Byng Ultramafics
	Mullion Slopes
	Upper Lachlan Channels and Floodplains

3.2.1 Rivers, streams and estuaries

The mine development project area is located within the Lachlan catchment, in eastern NSW. One mapped watercourse, the Belubula River, and several smaller tributaries intersect the mine development project area (Figure 3.1). The headwaters of the Belubula River form to the north-east of the mine development project area, before flowing through the mine development project area and then south-west towards Blayney and, beyond that, Carcoar Dam. In the mine development project area, the Belubula River forms a 3rd, 4th and 5th order stream. A 5th order unnamed tributary of the Belubula River occurs within the mine development project area to the south-west of the mine disturbance footprint. Where these two waterways meet, within the mine development project area but south-west of the mine disturbance footprint, they become a 6th order stream.

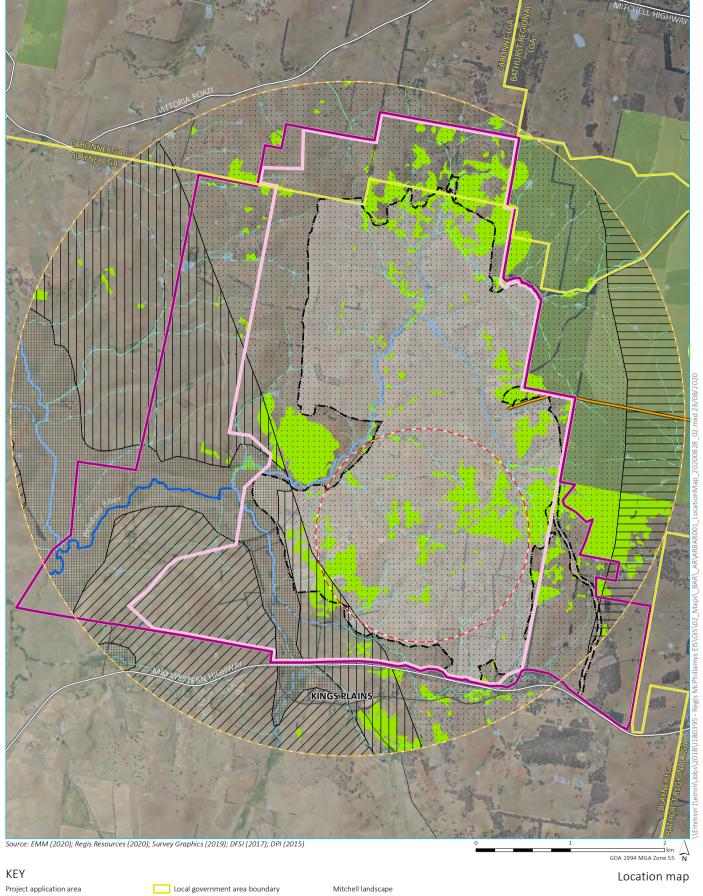
3.2.2 Wetlands

Thirteen nationally important wetlands occur in the South Eastern Highlands Bioregion. None of these wetlands occur in the project area.

3.2.3 Connectivity

The locality of the mine development project area is considered highly fragmented with native vegetation often occurring in isolated patches surrounded by a matrix of agricultural land. This is also consistent with the remaining vegetation within and adjoining the mine development project area.

The mine development project area is located within the riparian buffer of a 5th order stream. A riparian buffer 40 meters (m) either side of a 4th order stream will be removed for the amended project, as shown on Figure 3.2 These riparian buffers occur in a highly disturbed state due to past agricultural practices.



Mine development project area Inner assessment circle (400 ha) Byng Ultramafics Mining lease application area (Note: boundary offset for clarity) Mandurama Slopes Outer assessment circle (4,000 ha) McPhillamys Gold Project Native vegetation within assessment circles · · · Mullion Slopes Amendment report -Disturbance footprint Strahler stream order Rockley Plains **⊃** Pipeline Upper Lachlan Channels biodiversity assessment report 1st order Existing environment and Floodplains Figure 3.1 2nd order —— Major road 3rd order

Minor road

Vittoria State Forest

Waterbody

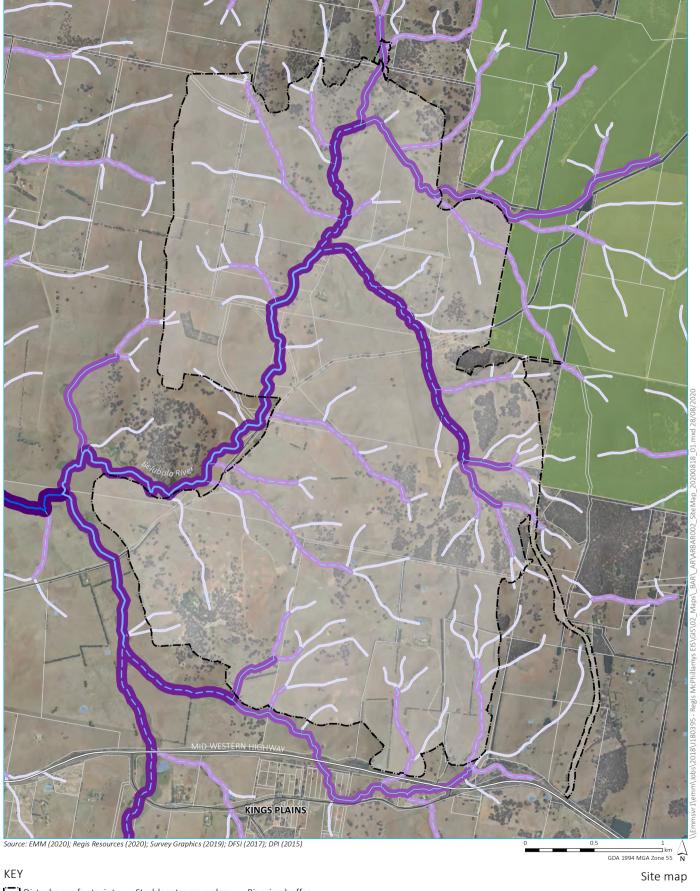
— — 4th order

- 5th order

- 6th order







[] Disturbance footprint Strahler stream order Riparian buffer Existing environment 1st order 10 m ─ Major road 2nd order 20 m — Minor road 3rd order 30 m Waterbody – 4th order **4**0 m 5th order Cadastral boundary 50 m Vittoria State Forest - 6th order

McPhillamys Gold Project Amendment report – biodiversity assessment report Figure 3.2





3.3 Assessment of site context

In the EIS, vegetation mapping for the locality (OEH 2018) was used to determine the extent of native vegetation for the mine development project area and the assessment circles. In accordance with the FBA, the native vegetation extent should be calculated using a combination of mapping for the mine development project area and locality. For this revised BAR, the native vegetation extent has been corrected, and uses a combination of the mapped native vegetation in the mine development project area and the locality (OEH 2018). The extent of native vegetation cover based on these data sources is shown in Figure 3.1.

The extent of native vegetation cover before development for both outer and inner assessment circles was determined as the sum of the area of native vegetation cover based on the data sources listed above. To determine the extent of native vegetation cover after development, the extent of vegetation required for removal is subtracted from the extent of native vegetation cover before development. Table 3.2 provides a summary of the extent of native vegetation cover within the inner and outer assessments circles, before and after development.

Table 3.2 Extent of native vegetation cover before and after development

Assessment circle	Before development		After de	evelopment
	Area (ha)	Percentage (%)	Area (ha)	Percentage (%)
Outer assessment circle (4,000 ha)	362.38	9.06	231.98	5.8
Inner assessment circle (400 ha)	57.39	14.35	0.17	0.04

4 Native vegetation

4.1 Background review

Preliminary biodiversity surveys were conducted by EnviroKey between 2013 and 2017 to identify biodiversity to be considered during project planning (EnviroKey 2017). Surveys included the mine development project area as well as the surrounding lands.

Preliminary vegetation mapping was undertaken by EnviroKey between May 2013 and April 2017. Vegetation mapping across the mine development project area included delineation of biometric vegetation types (BVTs – hereafter referred to as plant community types (PCTs) to align with current requirements) and stratification of PCTs into vegetation zones "based on presence/absence of the over-storey canopy and the condition of the groundcover layer..." (EnviroKey 2017, p.3-39). Plot/transect surveys were also undertaken using the methods outlined in the FBA (OEH 2014).

Surveys identified four PCTs across the mine development project area, and seven vegetation zones (Table 4.1). Vegetation zones were delineated by the presence/absence of canopy and condition of derived grasslands.

Table 4.1 Vegetation zones in mine development project area (EnviroKey 2017)

PCT ID	PCT name	Condition	
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open	Canopy present	
	forest on the South Eastern Highlands Bioregion (LA124)	Derived grassland (Mod-good cond.)	
951	Mountain Gum - Manna Gum open forest of the South Eastern	Canopy present	
	Highlands Bioregion (LA164)	Derived grassland (Low cond.)	
654	Apple Box - Yellow Box dry grassy woodland of the South Eastern	Canopy present	
	Highlands Bioregion (LA103) ¹	Derived grassland (Low cond.)	
1375	Wet tussock grasslands of cold air drainage areas of the tablelands $(LA213)^2$	-	

Notes:

Building on EnviroKey's work, EMM undertook the following additional tasks to inform preparation of this biodiversity assessment report:

- refinement of vegetation mapping to further stratify PCTs into vegetation zones based on broad condition state, using biometric data derived from plot surveys;
- revise vegetation zone mapping to align with condition thresholds under the EPBC Act;
- collect additional plot/transect data to meet minimum requirements of the FBA; and
- undertake targeted flora surveys in accordance with OEH (2016), including transects spaced at 10 m intervals.

¹ Envirokey mapped this community as PCT 654, however in this report and the Biobanking Calculator the community it is mapped as PCT 1330. Further discussion and justification is provided in Section 4.3.1.

² Envirokey mapped this community as PCT 1375; however, in this report and the Biobanking Calculator the community it is mapped as PCT 766. PCT 1375 was not available in the BioBanking credit calculator.

4.2 Methods

Native vegetation was assessed in the field by EnviroKey on the following dates:

- 22 25 May 2013;
- 10 13 September 2013;
- 23 -24 October 2013;
- 6 -7 November 2013;
- 20 26 November 2013;
- 24 29 March 2014; and
- 27 28 April 2017.

Field surveys were undertaken by stratifying the mine development project area by air photo interpretation and on-ground validation into PCTs. Vegetation mapping involved the area being traversed on foot and by vehicle to maximise the opportunity of detecting significant or sparsely distributed flora species and vegetation communities, using the random meander method (EnviroKey 2017). Vegetation boundaries were mapped on site using the professional mapping software application 'GIS Pro' and an Ipad with internal GPS. Polygons were later checked, and redefined where necessary using ArcGIS software (v10) (Envirokey 2017).

Plot and transects were undertaken in accordance with the methods outlined within the FBA (OEH 2014). At each survey site, a 50 m x 20 m plot combined with a 50 m step point transect was surveyed in accordance with the methodology (EnviroKey 2017). A total of 53 plots were undertaken by EnviroKey across the mine development project area, with 44 of these plots located within the disturbance footprint (Figure 4.1).

Additional flora surveys were conducted by EMM ecologists over three survey events:

- 4 8 February 2019;
- 18 22 February 2019; and
- 11 15 March 2019.

The first survey event comprised verifying and amending mapped vegetation within the mine development project area, including further stratification of PCTs into vegetation zones. These surveys were carried out on foot and by vehicle. The purpose of this assessment was to review and, where necessary, refine vegetation mapping and undertake an assessment of vegetation condition of all vegetation in accordance with the requirements of the FBA (OEH 2014). Detailed mapping of vegetation communities was conducted using handheld (uncorrected) tablet computers using the ArcGIS Collector application and aerial photo interpretation. Areas of native vegetation for which a PCT could validly be assigned were identified and delineated in the field, and their condition determined. Identification of PCTs within the mine development project area was confirmed with reference to the community profile descriptions (and diagnostic species tests) held within the NSW Vegetation Information System (VIS): Classification Version 2.1.

The second survey event focused on targeted surveys for Hoary Sunray (*Leucochrysum albicans* subsp. *tricolor*) with survey methodology outlined below in Section 5.3.1.

The third survey event followed the stratification of vegetation zones. Site values were assessed using data obtained via a series of additional plots and transects to ensure survey effort was consistent with the FBA (OEH 2014) requirements. The collection of data from these plots was in accordance with the FBA (OEH 2014). Plot and transect data were collected and comprised:

- a 20 m x 50 m quadrat and 50 m transect for assessment of site attributes; and
- a 20 x 20 m quadrat, nested within the quadrat outlined above, for full floristic survey to determine native plant species richness.

The minimum number of plots/transects per vegetation zone was determined using Table 3 of the FBA (OEH 2014). A total of 23 plots/transects were completed across the broader mine development project area, with 21 of the plots/transects located within the disturbance footprint (Figure 4.1). Plot data entered into the FBA calculator, along with original datasheets, are provided in Appendix B.

Surveys for flora and vegetation communities were completed under the authority of Scientific License (SL100409). A list of flora species was compiled for each plot and PCT. Records of all flora species will be submitted to BCD for incorporation into the Atlas of NSW Wildlife.

4.3 Results

4.3.1 Flora and plant community types

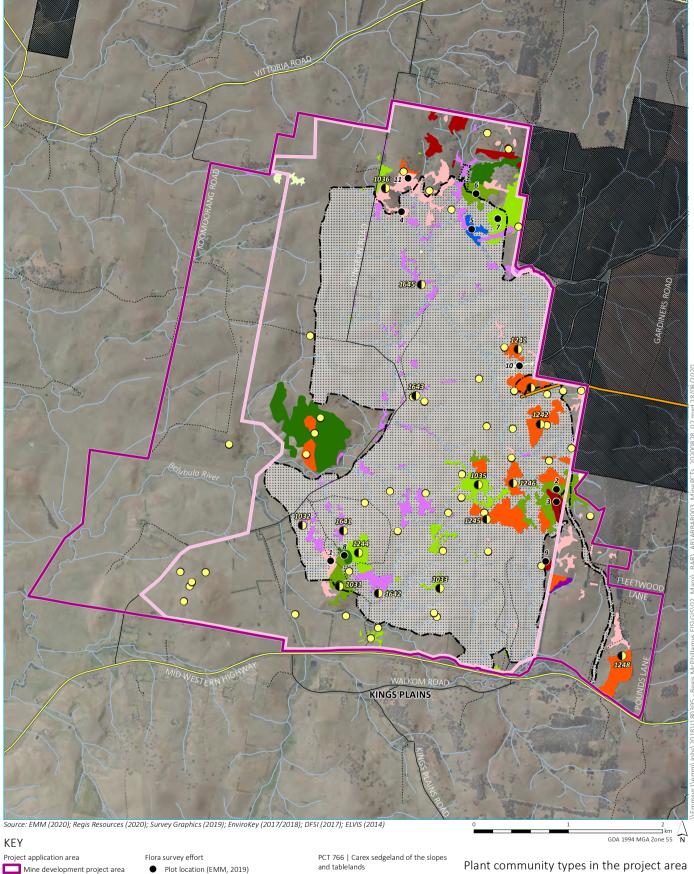
Four PCTs and seven vegetation zones were initially identified across the mine development project area (Section 4.1). Vegetation zones were delineated by the presence/absence of canopy and condition of derived grasslands. During the background review (Section 4.1), PCT 1375 – Wet tussock grasslands of cold air drainage areas of the tablelands (LA213) was revised to PCT 766 – Carex sedgeland of the slopes and tablelands (LA130) as PCT 1375 was not available in the BioBanking Calculator. PCT 654 – Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion (LA103) was also revised to PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276) as vegetation across the mine development project area shared more floristic similarities with PCT 1330 than with PCT 654 and the Statewide Mapping (OEH 2018) has the site as supporting PCT 1330 (with no PCT 654 mapped nearby). Four PCTs were identified across the disturbance footprint (Figure 4.1). Depending on the condition of these PCTs, they were allocated to a condition class of either Moderate-Good (Mod-Good) or Low. Within each condition class, an ancillary code of High, Medium, Other or Poor was attributed depending on the condition of vegetation.

The majority of the mine development project area is dominated by open grasslands of varying condition and quality. Most of these areas have been heavily impacted by pastoral activities, particularly grazing, and are dominated by exotic plant species. In some areas, a simplified native cover of species such as Kangaroo Grass, Red-anthered Wallaby Grass and Weeping Grass occurs. However, these areas are usually small, and rapidly change over tens of metres to exotic dominated pasture, making discrete mapping problematic. To account for this, all plot data collected from open grasslands was inputted into the calculator using three vegetation zones of the same size (986.79 ha) across the three identified PCTs.

A list of PCTs occurring across the disturbance footprint, including the area of direct impact, is provided in Table 4.2.

Table 4.2 Plant community types mapped within the mine development project area

PCT ID	PCT name	Vegetation formation	Vegetation class	Extent in disturbance footprint (ha)
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124)	Dry Sclerophyll Forests (shrubby subformation)	Southern Tableland Dry Sclerophyll Forests	48.78
951	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)	Wet Sclerophyll Forests (shrubby sub- formation)	Southern Tableland Wet Sclerophyll Forests	32.73
766	Carex sedgeland of the slopes and tablelands (LA130)	Freshwater Wetlands	Montane Bogs and Fens	3.04
1330	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)	Grassy Woodlands	Southern Tableland Grassy Woodlands	45.84
-	Exotic grassland	-	-	986.79
Sub-t	otal (native vegetation)			130.39
Sub-t	otal (exotic grassland)			986.79
Total				1,117.18



Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

Pipeline

Existing environment

— Major road

Minor road

Vehicular track

Watercourse/drainage line

Vittoria State Forest

Plot location (EMM, 2019)

Plot location (EMM (2019); EnviroKey Plot locacia (2017/2018))

O Plot location (EnviroKey (2017/2018))

::::: Exotic grassland (986.79 ha)

Plant community types

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands

Moderate/Good (High) Moderate/Good (Medium) Moderate/Good (Poor)

Moderate/Good (Poor)

PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands

Bioregion Moderate/Good (Medium) Moderate/Good (Poor)

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

Moderate/Good (High) Moderate/Good (Medium) Moderate/Good (Poor)

Moderate/Good (Other)

and plot/transect locations

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 4.1





i Flora species richness

A total of 123 species (72 native and 51 exotic) were recorded across the 44 EnviroKey plots and transects and the 11 additional plots EMM carried out. Species recorded were largely canopy and groundcover species as a result of the removal of midstorey vegetation due to cattle and sheep continuing to graze on the property.

ii Plant community types

To identify PCTs within the mine development project area, data collected during the preliminary site visit to map vegetation was assessed. Floristic data collected during plot surveys were used to confirm the vegetation mapping. A total of four PCTs were identified within the mine development project area, as described in the following sections. Within each PCT further stratification into differing vegetation zones was also required to meet the requirements of the FBA (OEH 2014) and better define Threatened Ecological Communities (TECs). A summary of vegetation zones is provided in Table 4.3.

Table 4.3 Summary of vegetation zones

Plant community type	Vegetation formation	Vegetation class	Zone	Area (ha)	Total (ha)
PCT 727 – Broad-leaved	Dry Sclerophyll	Southern	Moderate/good_high	2.84	48.78
Peppermint – Brittle Gum – Red Stringybark	Forests (shrubby sub-formation)	Tableland Dry Sclerophyll	Moderate/good_medium	35.54	
dry open forest of the South Eastern Highlands Bioregion	,	Forests	Moderate/good_poor	10.40	
PCT 766 – Carex sedgeland of the slopes and tablelands	Freshwater Wetlands	Montane Bogs and Fens	Moderate/good_poor	3.04	3.04
PCT 951 – Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	Wet Sclerophyll Forests (shrubby sub-formation)	Southern Tableland Wet Sclerophyll Forests	Moderate/good_poor	32.73	32.73
PCT 1330 – Yellow Box -	Grassy	Southern	Moderate/good_high	1.47	45.84
Blakely's Red Gum grassy woodland on the		Tableland Grassy Woodlands	Moderate/good_medium	18.96	
tablelands, South			Moderate/good_poor	24.65	
Eastern Highlands Bioregion			Moderate/good_other	0.76	
Total	-	-	-	130.39	130.39

a PCT 1330 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)

PCT 1330 is best described as dry grassy woodland. PCT 1330 has been heavily grazed across the mine development project area. Areas of high to poor quality are distinguished largely by presence or absence of woody debris, and by the species composition. Table 4.4 provides a description of the vegetation zones attributed to this PCT.

Table 4.4 Vegetation zones 1-4 description

Vegetation Zones 1-4 Bioregion (PCT 1330)	4 – Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands
PCT ID	1330
Common name	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)
Condition class	Vegetation zone 1 – moderate/good_high
	Vegetation zone 2 – moderate/good_medium
	Vegetation zone 3 – moderate/good_poor
	Vegetation zone 4 – moderate/good_other
Extent within	45.84 ha
disturbance	1.47 ha (moderate/good_high)
footprint	18.96 ha (moderate/good_medium)
	24.65 ha (moderate/good_poor)
	0.76 ha (moderate/good_other)
Description	The canopy is co-dominated by Yellow Box (<i>Eucalyptus melliodora</i>) with occasional stands of Apple Box (<i>Eucalyptus bridgesiana</i>).
	The midstorey is largely absent. A single native shrub occurs, being Silver Wattle (<i>Acacia dealbata</i> subsp. <i>dealbata</i>). Two exotic shrub species occur rarely within the PCT, being Blackberry complex (<i>Rubus fruticosis</i> aggregate) and Briar Rose (<i>Rosa rubiginosa</i>).
	The groundlayer is co-dominated by native and exotic grass species. Dominant native grasses are Purplish Wallaby Grass (<i>Rytidosperma tenuius</i>), Short Wallaby Grass (<i>Rytidosperma carphoides</i>), Snow Grass (<i>Poa sieberiana</i>), Common Wheatgrass (<i>Anthosachne scaber</i>) and Weeping Grass (<i>Microlaena stipoides</i>). Dominant exotic grass species recorded include Harding Grass (<i>Phalaris aquatica</i>) and Creeping Bentgrass (<i>Agrostis stolonifera</i>).
Survey effort	Nine plots/transects within the disturbance footprint:
	• Vegetation zone 1 – moderate/good_high: 1
	Vegetation zone 2 – moderate/good_medium: 3
	Vegetation zone 3 – moderate/good_poor: 1
	Vegetation zone 4 – moderate/good_other: 4
Condition description	The community is largely in medium to poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. An area of higher condition occurs in the northern part of the mine development project area, but this has largely been avoided during detailed design.
	The midstorey (shrub layer) is largely absent. An exotic forb and grass species occur within the PCT, being Flatweed (<i>Hypochaeris radicata</i>) and Rhodes grass (<i>Chloris gayana</i>) respectively. Surrounding land use (mostly grazing and forestry) and associated edge impacts contribute even further to the existing condition of this PCT.
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that align with the dominant species listed as characteristic of this PCT include Yellow Box and Apple Box, although Blakely's Red Gum (<i>Eucalyptus blakelyi</i>) was absent in the mine development project area but was found to occur immediately adjacent to the east where it was co-dominant. The midstorey of the community on site contains Silver Wattle. However, the midstorey species listed for PCT 1330 under the NSW VIS Classification Version 2.1 are <i>Lissanthe strigosa</i> and <i>Melichrus urceolatus</i> . These two species were not present at McPhillamys, even in ungrazed areas adjacent to the site.
	Aligning ground layer species include Snow Grass. The description under the NSW VIS Classification Version 2.1 for PCT 1330 is brief and has few identifying ground layer species. This said, analysing the plot data against the key species in the PCT descriptions gives a match of 57% for PCT 1330.

Table 4.4 Vegetation zones 1-4 description

Vegetation Zones 1-4 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (PCT 1330)

Justification of evidence used to identify the PCT

Revision of vegetation mapping by EnviroKey (2017) considered several closely related PCTs (277, 654 and 1330). This PCT was mapped as PCT 1330 (over PCT 277 or 654). Although the upper stratum species of Yellow Box and Apple Box closely match PCT 654 (as mapped in the preliminary mapping by Envirokey):

- as the three PCTs under consideration have similar overstorey species, the overstorey composition cannot be used to identify the PCT conclusively on site;
- in the midstorey, no species are listed for PCT 654, while PCT 277 has Silver Wattle in the shrub storey (which is present on site). The midstorey species listed for PCT 1330 are Lissanthe strigosa and Melichrus urceolatus. These two species were not present at McPhillamys, even in ungrazed areas adjacent to the site;
- the description of ground layer species for PCT 1330 is brief, and has few identifying ground layer species. This said, analysing the plot data against the key species in the PCT descriptions gives a match of 57% for PCT 1330 versus 37% for PCT 277; and
- the Statewide Vegetation Map (OEH 2018) maps PCT 1330 across the mine development project area. PCT 654 is mapped adjacent, while PCT 277 is not mapped in the vicinity of the site (further than 20 km distance).

As the PCT on site shares greater alignment with key species (in the ground layer) and the description of landscape and soils could fit any PCT, PCT 1330 was found to be a better fit based on alignment with regional mapping and initial advice of BCD.

Status

PCT 1330 Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion represents White Box Yellow Box Blakely's Red Gum Woodland listed under the BC Act as it:

- occurs on fertile soils in the western slopes of NSW;
- is dominated by Yellow Box, a representative canopy species;
- has an understorey comprising grasses and herbs; and
- has a sparse shrub layer.

The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (DECCW 2010) describes the listed community (under the EPBC Act) as a woodland or derived native grassland, characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, that is dominated by White Box, Yellow Box and/or Blakely's Red Gum. To be considered part of the listed community, remnants must also:

- have a predominantly native understorey (i.e. more than 50% of the perennial ground layer must comprise native species); and
- be 0.1 ha or greater in size and contain 12 or more native understorey species (excluding grasses), including one or more identified important species; or
- be 2 ha or greater in size and have either natural regeneration of the overstorey species or an average of 20 or more mature trees per ha.

Using the above criteria, polygons of PCT 1330 in moderate/good (high) and moderate/good (medium) meet the criteria for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland as listed under the EPBC Act, while polygons in moderate/good (poor) and moderate/good (other) do not.

It should be noted that when entered into the BioBanking Calculator, the PCT does not show as having an EEC multiplier (though the community is listed under the BC Act). This issue is addressed further in Section 7.6.

Estimate of percent 95% cleared value of PCT across its distribution



Photograph 4.1 Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern
Highlands Bioregion within the mine development project area (moderate/good high
- plot ID EMM8Zone1)

b PCT 727 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (LA124)

PCT 727 is best described as dry open forest with a grassy understorey. A total of 48.78 ha of Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion occurs in the disturbance footprint as shown on Figure 4.1. This PCT has been heavily grazed across the mine development project area. Areas of high quality are distinguished largely by presence or absence of woody debris, and by the species composition. Table 4.5 provides a description of the vegetation zones attributed to this PCT.

Table 4.5 Vegetation zones 5-7 description

Vegetation Zones 5-7 – Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (PCT 727)			
PCT ID	727		
Common name	Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (LA124)		
Condition class	Vegetation zone 5 – moderate/good_high		
	Vegetation zone 6 – moderate/good_medium		
	Vegetation zone 7 – moderate/good_poor		
Extent within	48.78 ha		
disturbance	2.84 ha (high)		
footprint	35.54 ha (medium)		
	10.40 ha (poor)		
Description	The canopy is co-dominated by Broad-leaved Peppermint (<i>Eucalyptus dives</i>) and Long-leaved box (<i>Eucalyptus goniocalyx</i>), with occasional stands of Brittle Gum (<i>Eucalyptus mannifera</i>), Yellow Box, and Apple Box (<i>Eucalyptus bridgesiana</i>). The native midstorey comprises a sparse cover of Hoary Guinea Flower (<i>Hibbertia obtusifolia</i>).		
	About half of the ground layer cover consists of bare ground. The remaining area is dominated by native grasses, comprising of Snow Grass (<i>Poa sieberiana</i>), Purplish Wallaby Grass (<i>Rytidosperma tenuius</i>), Common Wheatgrass (<i>Anthosachne scaber</i>), Weeping Grass (<i>Microlaena stipoides</i>), Red-anthered Wallaby Grass (<i>Rytidosperma pallidum</i>) and Kangaroo Grass (<i>Themeda triandra</i>). All other species recorded occur at covers of less than 1% within the PCT.		
Survey effort	Thirteen plots/transects within the disturbance footprint.		
	Vegetation zone 5 – moderate/good_high: 3		
	Vegetation zone 6 – moderate/good_medium: 6		
	 Vegetation zone 7 – moderate/good_poor: 4 		
Condition description	The community is largely in moderate to poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. Areas of higher condition occur along the eastern boundary of the mine development mine development project area and to the east.		
	The midstorey (shrub layer) is largely absent, with a sparse cover of Hoary Guinea Flower present. Half the ground cover consists of bare ground, with the remaining area dominated by native grasses. The community has not been subject to pasture improvement, however numerous exotic grasses and herbs have invaded. Most stands are subject to heavy grazing impacts and native species richness is low.		
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that align with the dominant species listed as characteristic of this PCT include Broad-leaved Peppermint and Brittle Gum. Aligning ground layer species include Snow Grass and Hoary Guinea Flower.		
Justification of evidence used to identify the PCT	The canopy species of Broad-leaved Peppermint and Brittle Gum closely match PCT 727, and the community shares three groundcover species with the NSW VIS Classification Version 2.1. The community occurs on undulating exposed and sheltered footslopes which matches the relief of the site.		
Status	Commonwealth EPBC Act: not listed		
	NSW BC Act: not listed		
Estimate of percent cleared value of PCT across its distribution	50%		



Photograph 4.2 Broad-leaved Peppermint – Brittle Gum – Red Stringybark dry open forest of the South Eastern Highlands Bioregion (moderate/good_high - plot ID EMM3Zone5)

c PCT 951 – Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)

PCT 951 is characterised by open forest and comprises of 32.73 ha within the disturbance footprint (Figure 4.1). Vegetation in this PCT is highly fragmented, occurring as small, isolated patches. The midstorey and groundcover have been heavily impacted by grazing. Table 4.6 provides a description of the vegetation zone attributed to this PCT.

Table 4.6 Vegetation zone 8 description

Vegetation Zone 8 –	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951)		
PCT ID	951		
Common name	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)		
Condition class	Vegetation zone 8 – moderate/good_poor		
Extent within disturbance footprint	32.73 ha		
Description	The canopy is dominated by Manna Gum (<i>Eucalyptus viminalis</i>). The midstorey is largely absent. Two native shrubs, Silver Wattle and White Dogwood (<i>Ozothamnus diosmifolius</i>) occur rarely. One high-threat exotic species, Blackberry complex (<i>Rubus fruticosus</i> sp. aggregate) occurs rarely.		
	The groundlayer is co-dominated by native and exotic grass, grass-like and forb species. Dominant native grasses include Wallaby Grass, Weeping Grass, Snow Grass and Kangaroo Grass (<i>Themeda triandra</i>). Dominant native grass-like plants are Tall Sedge (<i>Carex appressa</i>) and Common Rush (<i>Juncus usitatus</i>). One native forb species is co-dominant, being Slender Knot Weed (<i>Persicaria decipiens</i>).		
	Dominant exotic grasses comprise of Harding Grass (<i>Phalaris aquatica</i>), Rye Grass (<i>Lolium perenne</i>), Prairie Grass (<i>Bromus catharticus</i>), Tall Fescue (<i>Festuca arundinacea</i>), Soft Brome (<i>Bromus hordeaceus</i>), Windmill Grass and Couch Grass (<i>Cynodon dactylon</i>). Dominant exotic forbs are Burrclover (<i>Medicago</i> spp.), Flatweed (<i>Hypochaeris radicata</i>) and White Clover (<i>Trifolium repens</i>).		
Survey effort	Five plots/transects within the disturbance footprint:		
	• Vegetation zone 8 – moderate/good_poor: 5		
Condition description	The community is in poor condition with a high cover of introduced plant species due to past and current cattle grazing activities. The midstorey (shrub layer) is largely absent, with two native shrubs occurring rarely. The exotic species Blackberry also occurs rarely in the shrub layer.		
	Due to pasture improvement in the vicinity, the grassy understorey is generally dominated by exotic pasture grasses. A number of typical herbaceous weeds found in grazing areas also occur. Many of the canopy trees show signs of stress (e.g. dead/defoliated branches and a large amount of fallen woody debris). This is typical in grazing land due to soil compaction and excessive nutrients from stock manure.		
Characteristic species used for identification of PCT	According to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that aligns with the dominant species listed as characteristic of this PCT is Manna Gum, which dominates the canopy.		
	The shrub layer is sparse, but Silver Wattle occurs which is listed in the NSW VIS Classification Version 2.1 for the PCT. Aligning ground layer species include Snow Grass, Weeping Grass and Tall Sedge.		
Justification of evidence used to identify the PCT	PCT 1101 Ribbon Gum - Snow Gum grassy open forest on flats and undulating hills of the eastern tableland, South Eastern Highlands Bioregion, is better aligned for this community, being mapped on the site in the regional mapping by OEH (2018) and being closely aligned in terms of dominant canopy species (Ribbon Gum – also known as Manna Gum) and mid stratum species (Silver Wattle). However, the Biobanking Calculator does not include this as an option for selection on the site.		
	The best available fit is Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951). Although not within the relevant IBRA subregion, according to the NSW VIS Classification Version 2.1, the canopy layer species recorded within this community that aligns with the dominant species listed as characteristic of this PCT is Manna Gum, which dominates the canopy. The shrub layer is sparse, but Silver Wattle occurs which is listed in the NSW VIS Classification Version 2.1 for the PCT. Aligning ground layer species include Snow Grass, Weeping Grass and Tall Sedge.		
Status	Commonwealth EPBC Act: not listed NSW BC Act: not listed		

Table 4.6 Vegetation zone 8 description

Vegetation Zone 8 - Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (PCT 951)

Estimate of percent 80% cleared value of PCT across its distribution



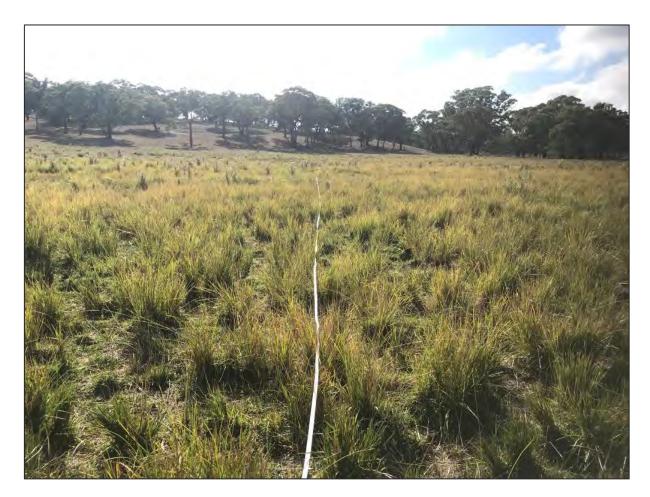
Photograph 4.3 Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (moderate/good_poor - plot ID 103_WL_2_E).

d PCT 766 – Carex sedgeland of the slopes and tablelands (LA130)

PCT 766 is characterised by wet tussock grassland, dominated by sedges, growing in low lying and infrequently inundated drainage lines. This PCT occurs as a single 3.04 ha patch of grassland within both the mine development project area and the proposed disturbance footprint (Figure 4.1). Table 4.7 provides a description of the vegetation zone attributed to this PCT.

Table 4.7 Vegetation zone 9 description

PCT ID	766
Common name	Carex sedgeland of the slopes and tablelands (LA130)
Condition class	Vegetation zone 9 – moderate/good_poor
Extent within disturbance footprint	3.04 ha
Description	The canopy and midstorey are absent, as is typical for this PCT. Over three-quarters of the groundlayer is co-dominated by three species: one native grass-like species, Tall Sedge (<i>Carex appressa</i>), one exotic grass, Tall Fescue (<i>Festuca arundinacea</i>), and one exotic forb, White Clover (<i>Trifolium repens</i>). The next most common species is an unidentified grass within the Poaceae family. The remaining area (around 10% of the PCT) is dominated by exotic grasses and forbs, being Spear Thistle (<i>Cirsium vulgare</i>), Harding Grass (<i>Phalaris aquatica</i>), Flatweed (<i>Hypochaeris radicata</i>), Prickly Lettuce (<i>Lactuca serriola</i>) and Common Dandelion (<i>Taraxicum officinale</i>). Two native forbs are also common within this remaining area, being Swamp Dock (<i>Rumex brownii</i>) and Common Rush (<i>Juncus usitatus</i>).
Survey effort	Vegetation zone 9 – moderate/good_poor: 2
Condition description	The community is in poor condition with a high cover of exotic pasture grasses and weeds. While Tall Sedge provides significant cover, grazing of these low lying areas by cattle has resulted in significant trampling and grazing of vegetation and consequent introduction of exotic species.
Characteristic species used for identification of PCT	The canopy and shrub layers are not present, consistent with the NSW VIS Classification Version 2.1 (although the VIS gives <i>Leptospermum</i> spp as species within the shrub layer, the shrub layer is absent consistent with vegetation across the site). The ground layer is dominated by Tall Sedge, consistent with the NSW VIS Classification Version 2.1.
Justification of evidence used to identify the PCT	The community is described in the NSW VIS Classification Version 2.1 as occurring on valley floors and drainage lines with poor drainage, consistent with its distribution in the mine development project area, upstream of a farm dam across a watercourse.
Status	Commonwealth EPBC Act: not listed NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	75%



Photograph 4.4 Wet tussock grasslands of cold air drainage areas of the tablelands (moderate/good_poor - plot ID EMM5Zone9).

e Open grasslands

Open grasslands occur as a single 986.79 ha patch of grassland within the disturbance footprint (Figure 4.1). Open grasslands were in a highly disturbed state, meaning that they could not be reliably assigned to a PCT. Accordingly, a conservative approach was taken and the open grasslands were assigned to each potential PCT (ie 727, 951 and 1330), to determine if their site value score exceeded the offset threshold, or otherwise. Table 4.8 provides a description of open grassland, and the three vegetation zones used to determine whether offsets were required for this area.

Table 4.8 Vegetation zone 10-12 description

PCT ID	Assigned to 727, 951 and 1330
Common name	Open grassland
Condition class	Vegetation zone 10 – PCT 1330 low
	Vegetation zone 11 – PCT 727 low
	Vegetation zone 12 – PCT 951 low
Extent within disturbance footprint	986.79 ha
	986.79 (PCT 1330 low)
	986.79 (PCT 727 low)
	986.79 (PCT 951 low)
Description	The overstorey and midstorey in these areas is absent, except for scattered paddock trees. Areas of open grassland are dominated by exotic grasses such as Harding Grass, Creeping Bentgrass, Rye Grass, Prairie Grass, Tall Fescue, Soft Brome, Windmill Grass as well as exotic forbs such as Burrclover, Flatweed and White Clover. In some areas native grasses such as Kangaroo Grass, Red-anthered Wallaby Grass and Weeping Grass and can be dominant over small areas; however, these areas are highly simplified through past grazing.
Survey effort	Vegetation zone 10 – PCT 1330 low: 15
	Vegetation zone 11 – PCT 727 low: 15
	Vegetation zone 12 – PCT 951 low: 15
Condition description	The community is in very poor to poor condition with a high cover of exotic pasture grasses and weeds. While native grass species can provide over 50% cover ins some areas, this transitions rapidly (over tens of metres) to low native cover. Exotic plant species make up to 40-92% cover.
Characteristic species used for identification of PCT	As it was problematic to delineate the boundaries of open grassland PCTs, the plot data collected from open grassland areas was inputted against all three PCTs mapped in the mine development project area.
Justification of evidence used to identify the PCT	Open grasslands were mapped as a single vegetation zone as condition and cover of native versus exotic species rapidly changed over tens of metres, making mapping of derived grasslands problematic, if not impossible.
Status	Commonwealth EPBC Act: not listed
	NSW BC Act: not listed
Estimate of percent cleared value of PCT across its distribution	Not determined



Photograph 4.5 Open grassland areas.

iii Site value scores

Four PCTs occur in the disturbance footprint, with 12 vegetation zones mapped and/or entered into the credit calculator to determine site value score. A summary of the site value score for each vegetation zone is provided in Table 4.9. The site value score is based on the transect data which is compared with benchmark values for each vegetation type.

Table 4.9 Vegetation zone summary

PCT ID	PCT name	Condition	Ancillary	Extent in disturbance footprint (ha)	Site value
727	Broad-leaved Peppermint - Brittle Gum - Red	Mod-Good	High	2.84	71.88
	Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124)		Medium	35.54	61.98
			Poor	10.40	52.08
951	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)	Mod-Good	Poor	32.73	46
766	Carex sedgeland of the slopes and tablelands (LA130)	Mod-Good	Poor	3.04	31.16
1330	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)	Mod-Good	High	1.47	16.67
			Medium	18.96	58.85
			Poor	24.65	58.85
			Other	0.76	44.27
727	Open grassland	Low	_	986.79	7.81
951		Low	_	986.79	12.00
1330		Low	_	986.79	9.38

Site value scores for wooded vegetation varied between 16.67 and 71.88. Plot data from PCT 1330 in moderate/good – high condition derived a very low site value score of 16.67, below the benchmark for offsetting and below that expected. The site value score for PCT 766 was 31.16, reflective of the level of past disturbance to this PCT.

Areas of open grassland derived a site value score of 7.81 to 12.00, indicating the level of past disturbance to these areas, and confirming that regardless of the PCT selected these areas are below the threshold for requiring offsets.

5 Threatened species

5.1 Habitat assessment

The mine development project area has an extensive history of use for agricultural purposes, particularly for grazing. As a result, the disturbance footprint provides limited refuge or habitat for fauna. Fauna habitat features were limited to areas of remnant vegetation, particularly those in higher quality, scattered trees and waterways.

Areas of remnant vegetation in moderate/good — high and moderate/good-medium condition contained a moderate level of fallen timber and a sparse to moderate litter cover; some hollow-bearing logs are present but most have been cleared through underscrubbing. The groundcover consists of a sparse to moderate cover of native grasses, including tussock grasses, and forbs. The midstorey is largely absent due to grazing. Hollows varied from largely absent in areas of regrowth and younger vegetation to abundant in some vegetation zones.

Waterways within the mine development project area are highly degraded due to stock access. During periods of low flow, the Belubula River consists of a series of disconnected pools with a gravel to muddy base and little aquatic vegetation. There is a large sediment load due to stock access. Riparian vegetation is largely absent and restricted to patches of retained trees and Willows (*Salix* sp.). There are several farm dams, which generally lack vegetation cover.

5.2 Candidate species assessment

5.2.1 Geographic habitat features

An assessment of the occurrence of geographic habitat features, in accordance with Section 6.3 of the FBA (OEH 2014) was undertaken, along with a determination of whether impacts to these habitat features will result from project. The results of this assessment, along with the species generated by the calculator associated with the FBA, are outlined in Table 5.1.

Table 5.1 Assessment of geographic habitat features within the disturbance footprint

Feature	Common name	Scientific name	Feature present in disturbance footprint?	Justification and discussion of potential for species impacts
Land within 250m of termite mounds or rock outcrops	Rosenberg's Goanna	Varanus rosenbergi	No	The mine development project area does not support termite mounds of areas of outcropping rock suitable for Rosenberg's Goanna.
Land containing a forb-rich grassy ground layer	Small Purple- pea	Swainsonia recta	Yes	Areas of PCTs 727 and 1330 in moderate/good-high and moderate/good – medium conditions tended to support a groundcover dominated by native grasses and some forbs.
Land within 100m of stream or creek banks	Booroolong Frog	Litoria booroolongensis	Yes	The mine development project area supports land within 100 m of streams and creeks, including the Belubula River and associated tributaries.

Suitable geographic features for the Small Purple-pea and Booroolong Frog were recorded in the mine development project area. These two species have been included in the species credit species assessment in Section 5.2.3.

5.2.2 Ecosystem credit species assessment

A list of ecosystem credit species predicted to occur within the disturbance footprint, based on the PCTs present and generated by the calculator associated with the FBA (OEH 2014), is provided in Table 5.2, along with a list of associated PCTs.

Table 5.2 Ecosystem credit species predicted on site and associated vegetation types

Species name	Associated vegetation type	Threatened species offset multiplier	
Little Lorikeet	PCT1330 - Yellow Box - Blakely's Red Gum grassy woodland	3.0 ¹	
Glossopsitta pusilla	on the tablelands, South Eastern Highlands Bioregion (LA276)		
Swift Parrot	PCT1330 - Yellow Box - Blakely's Red Gum grassy woodland	1.3	
Lathamus discolor	on the tablelands, South Eastern Highlands Bioregion (LA276)		

Notes:

5.2.3 Species credit species assessment

To develop a list of threatened fauna species credit species requiring assessment, the PCTs listed in Section 4 were entered into the credit calculator associated with the FBA (OEH 2014). An initial assessment was undertaken, in accordance with Section 6.5 of the FBA (OEH 2014) to develop a list of candidate species requiring further assessment and survey. This assessment is provided in Table 5.3.

Table 5.3 Candidate threatened species assessment

Scientific name	Common Name	Candidate species	Rationale
Flora			
Eucalyptus aggregata	Black Gum	No	Known to occur in the region, this species occurs on alluvial soils in low lying areas, including in association with Manna Gum. Initially considered to have potential to occur in association with PCT 951. However, all patches of this PCT were visited during vegetation mapping by EnviroKey and EMM and the species was not recorded.
Eucalyptus canobolensis	Silver-Leaf Candlebark	No	Known only from Mt Canobolas near Orange. Mine development project area is outside species range.
Eucalyptus saxicola	Mt Canobolas Box	No	This taxon is no longer considered by the Scientific Committee to represent a taxon separate from <i>Eucalyptus bridgesiana</i> , and as a consequence it has been delisted from the BC Act. Further, this species was restricted to a few scattered stands over approximately 1 km at Mt Canobolas near Orange.
Leucochrysum albicans subsp. tricolor	Hoary Sunray	Yes	Species occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. There are records of this species north and south of mine development project area.
			Presence cannot be discounted. Potential to occur in all vegetation zones not in low condition.

^{1.} To account for PCT 1330 not being able to be aligned with White Box Yellow Box Blakely's Red Gum Woodland CEEC in the BioBanking Calculator, and therefore deriving an EEC multiplier of 3.0, the threatened species offset multiplier for the Little Lorikeet was manually increased to 3.0.

Table 5.3 Candidate threatened species assessment

Scientific name	Common Name	Candidate species	Rationale
Swainsona recta	Small Purple- pea	Yes	Species occurs in a variety of woodlands, including Box Gum Woodland, generally with an understorey dominated by Kangaroo Grass (<i>Themeda triandra</i>), Poa tussocks (<i>Poa</i> spp.) and Spear-grasses (<i>Austrostipa</i> spp.). There are records south of the disturbance footprint, near Carcoar.
			Presence cannot be discounted. Potential to occur in all vegetation zones with a groundcover dominated by native grasses listed above.
Fauna			
Anthochaera phrygia	Regent Honeyeater	Yes	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia, where it feeds on the nectar from a wide range of eucalypts and mistletoes, including species present in the mine development project area. There are records from near Bathurst; however, the mine development project area does not present breeding habitat or habitat critical to the survival of the species. The species may forage in the mine development project area as a vagrant species.
			The species is considered vagrant within the mine development project area. Targeted surveys were undertaken for this species as a precaution.
Cercartetus nanus	Eastern Pygmy possum	-Yes	Found in a broad range of habitats, usually with a complex midstorey. The habitat in the mine development project area is considered marginal and the mine development project area is outside of the species range, with no recent records within proximity to the mine development project area.
			However, a precautionary assessment has been undertaken and the species has been included as a candidate species. Potential to occur in PCTs 727 and 951, excluding areas lacking tree or shrub cover.
Litoria booroolongensis	Booroolong Frog	No	The mine development project area does not support permanent streams, with all waterways declining to disconnected ponds during low flow. Further, waterways within the mine development project area do not support cobble banks or other rock substrate along stream margins that would provide breeding habitat for this species.
			The mine development project area does not provide suitable habitat for this species.
Petaurus norfolcensis	Squirrel Glider	Yes	The mine development project area supports forests and woodlands dominated by Box species, although a shrubby or <i>Acacia</i> spp. dominated midstorey is largely absent. The species has been recorded during previous surveys and is known to occur on-site.
			Species was considered likely to occur in all PCTs excluding areas lacking tree cover.
Phascolarctos cinereus	Koala	Yes	The Koala occurs in a wide variety of forests and woodlands. The Koala occurs in a wide variety of forests and woodlands. Five species listed under Koala SEPP as feed trees in the central and southern koala management area, namely Apple Box, Broad-leaved Peppermint, Bundy, Yellow Box and Ribbon Gum are present in PCT 727, 951 and 1330. There are records in proximity to the mine development project area.
			There are records in proximity to the mine development project area.

This assessment identified the following species as candidate species requiring further assessment:

- Hoary Sunray;
- Small Purple-pea;
- Regent Honeyeater;
- Eastern Pygmy-possum;
- Squirrel Glider; and
- Koala.

Targeted surveys were undertaken, and the presence or absence of these species in the mine development project area determined, in accordance with Section 6.6 of the FBA (OEH 2014). Survey methods and outcomes are discussed further below.

5.3 Methods

5.3.1 Targeted flora surveys

Initial targeted threatened flora surveys were carried out by EnviroKey in 2013 during peak detection periods (spring). Threatened flora searches were undertaken in the following survey periods:

- 9 14 September 2013: targeting Small Purple-pea;
- 23 24 October 2013 targeting Small Purple-pea and Hoary Sunray;
- 6 7 November 2013 targeting Hoary Sunray; and
- 20 26 November 2013 targeting Hoary Sunray.

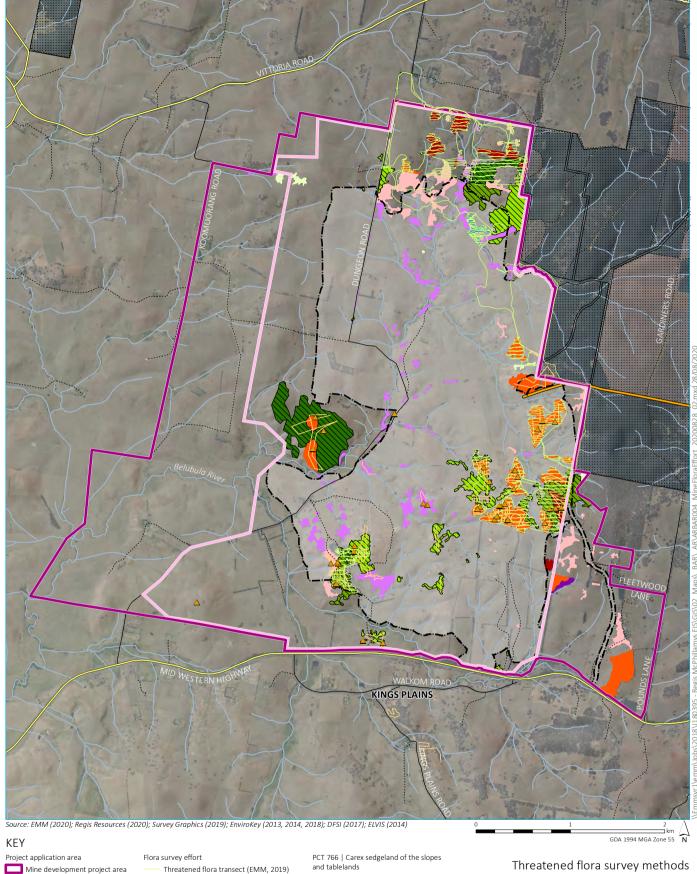
Surveys were undertaken by walking transects (either random meanders or line transects) through patches of potentially suitable vegetation by experienced personnel (EnviroKey 2017, Figure 5.1)

Further targeted flora surveys were conducted in February – March 2019 in accordance with OEH *Guide to surveying threatened plants* (OEH 2016) using transects spaced at 10 m intervals (Figure 5.1). These surveys primarily targeted the Hoary Sunray, as surveys occurred outside the survey period of September to October for the Small Purple-pea. Vegetation communities which were mapped as having a High and Medium ancillary code were targeted as they were considered to have the most potential of the targeted species being present.

EMM provided correspondence to BCD on 11 February 2019 seeking confirmation regarding EMM's proposed approach to survey for the Small Purple-Pea. BCD responded on 5 March 2019 stating that targeted surveys had been conducted for Small Purple-pea in the spring of 2013, with adequate coverage of the following PCTs:

- PCT 1330 Yellow Box Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion; and
- PCT 727 Broad-leaved Peppermint Brittle Gum Red Stringybark dry open forest on the South Eastern Highlands Bioregion.

BCD stated they were satisfied with the survey effort conducted to date in the above listed PCTs. However, they noted that no transects were conducted in the northernmost part of the mine disturbance footprint in PCT 1298 – Wet tussock grasslands of cold air drainage areas of the tablelands (re-classified by EMM to PCT 766 – Carex sedgeland of the slopes and tablelands). It was noted this area contains suitable habitat for the Silky Swainsonpea. BCD advised that the exclusion of species within this PCT will need to be fully justified in the BAR. In this regard, and to address the feedback provided by BCD, targeted surveys of Silky Swainson-pea were conducted in PCT 766 on 10 September 2019. The area was traversed via thirty-three transects spaced ten metres apart (Figure 5.1).



Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

Pipeline

Existing environment

— Major road

- Minor road

····· Vehicular track

Watercourse/drainage line ::::::: Vittoria State Forest

Threatened flora transect (EMM, 2019) △ Threatened flora search (EnviroKey, 2013) Threatened flora transect (EnviroKey, 2013)

Box Gum Woodland TEC (EMM, 2019) Plant community types

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion

Moderate/Good (High)

Moderate/Good (Medium) Moderate/Good (Poor)

Moderate/Good (Poor)

PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion

Moderate/Good (Medium) Moderate/Good (Poor)

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

Moderate/Good (High) Moderate/Good (Medium) Moderate/Good (Poor)

Moderate/Good (Other)

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 5.1





5.3.2 Targeted fauna surveys

Initial targeted fauna surveys were conducted by EnviroKey in 2013 and 2014, over six discrete sessions each five days long:

- 21 25 May 2013;
- 9 14 September 2013;
- 23 24 October 2013;
- 6 7 November 2013;
- 20 26 November 2013; and
- 24 30 March 2014.

Fauna surveys consisted of habitat assessments, bird surveys (Regent Honeyeater) including diurnal surveys (Gang-gang Cockatoo and White-bellied Sea-eagle), funnel traps (small terrestrial fauna), Elliot trapping (Eastern Pygmy-possum and Squirrel Glider), echolocation call recording (or Anabat, for Microchiropteran bats), camera trapping (Eastern Pygmy-possum), call playback (Masked Owl, Barking Owl, Squirrel Glider, Bush Stone Curlew and Koala), nocturnal searches and spotlighting (Squirrel Glider and Koala), reptile searches and tile-grid surveys (Pink-tailed Worm Lizard), frog searches (herpetological surveys), track and scat searches (Koala) (EnviroKey 2017). General surveys were also completed including rapid assessments of riparian condition (RARC) and platypus surveys.

Further targeted fauna surveys were undertaken by EMM from 18 to 22 February 2019 to ensure surveys had been undertaken in accordance with NSW (DEC 2004, DECC 2009) and Commonwealth (DEWHA 2010a, 2010b, 2010c, 2011a, 2011b) guidelines. Survey methods using included cameras, Elliott trapping, Koala SAT surveys and nocturnal transects.

A targeted survey was also completed for the Powerful Owl (*Ninox strenua*) over three days and three nights between 27 and 29 August 2019. Diurnal surveys to identify suitable hollows were conducted by meandering searches in PCT's 727 and 951, which are considered suitable to support breeding habitat for the species. Hollows identified during diurnal surveys were also surveyed after dark using call playback. Stratification units, as well as survey methods and effort are outlined for each fauna group below. Fauna survey locations are illustrated in Figure 5.2.

i Diurnal birds

Bird surveys were undertaken for the Regent Honeyeater. Stratification units and area of each survey unit in the survey area are shown in Table 5.4.

Table 5.4 Stratification units and survey area – diurnal birds

Stratification unit	Area (ha)
PCT 727 moderate/good – high, medium and poor	48.78
PCT 951 moderate/good – poor	32.73
PCT 1330 moderate/good – high, medium, other and poor	45.84

Bird survey methods and survey effort have been developed in accordance with DEC (2004) and DEWHA (2010a) guidelines. Diurnal bird surveys were conducted over five survey periods in 2013; in May, September, and October and twice in November. A further survey period was conducted in March 2014 giving a total of six survey periods.

Field surveys were completed at a variety of locations designed to cover as much of the suitable habitat in the mine development project area as possible but with a focus on suitable habitat for threatened species. Surveys were conducted in either the early morning or late afternoon to coincide with peak bird activity. Opportunistic data was also collected across during the field survey whenever traversing the mine development project area and locality.

Table 5.5 Methods and survey effort – diurnal birds

Method	Survey description	Survey effort
Area searches	• Land based areas searches in suitable habitat, conducted preferably in the morning or afternoon, to coincide with peak bird activity.	DEC (2004) has not resolved bird survey requirements. DSEWPaC (2010a)
	 All calls and habitat features were investigated. Birds observed or heard were recorded. 	specifies 20 hours of surveys over 10 days for areas of less than 50 ha. No replication of survey effort is specified.
		A total of 143 bird surveys were undertaken by EnviroKey (2017) equating to an estimated 47.7 hours of bird surveys.

ii Small terrestrial mammals

Small terrestrial mammal surveys were undertaken to target the Eastern Pygmy-possum. Stratification units and area of each survey unit in the survey area is shown in Table 5.6. Areas in lower condition were not considered suitable for this species due to a lack of suitable cover in the midstorey and groundcover as a result of grazing. Areas in high and medium condition were considered suboptimal but were surveyed as a precaution.

Table 5.6 Stratification units and survey area – small terrestrial mammals

Target species	Target species Vegetation class			
Eastern Pygmy Possum	PCT 727 moderate/good – high and medium	38.38		
	PCT 1330 moderate/good – high and medium	20.43		

Methods and survey effort have been developed in accordance with DEC (2004) and included a mix of terrestrial trapping and remote camera surveys. Methods and survey effort are outlined in Table 5.7.

Table 5.7 Methods and survey effort – small terrestrial mammals

Method	Survey description	Survey effort
Trapping	20 Elliot A traps placed 10 m apart in two parallel lines separated by 25 m (access roads) or 25 Elliot A traps placed 10 m apart in a 5×5 grid (other areas):	DEC (2004) specifies one site per 50 ha stratification unit with replication of effort for every additional 100 ha.
	 Traps baited with a mixture of peanut butter, rolled oats and honey. Traps checked early in the morning and closed for the day. Traps opened and rebaited in the late afternoon. Animals to be temporarily marked to allow mark-recapture data to be collected. 	Based on the areas above this would require two survey sites (one in PCT 727 and one in PCT 1330) equating to 200 trap nights. EnviroKey completed three trap sites in PCT 727 and one trap site in PCT 1330,
	 Surveys to be undertaken anytime except between May and August. 	equating to 400 trap nights.
Remote cameras	Remote camera surveys were undertaken in accordance with the following guidelines: Two cameras placed at least 100 m apart. Cameras are attached to tree or stake and positioned approximately 25cm above ground with bait stations placed 1.5m away. Bait stations were baited with a mixture of peanut butter, rolled oats and honey. Cameras are left in place for a minimum of 14 nights.	No guidelines are available for the Eastern Pygmy-possum. Survey effort from similar projects has been used, with one site (two cameras) per 20 ha of stratification unit. Based on the areas above this would require three survey sites (two sites in PCT 727 and one site in PCT 1330) equating to 84 camera nights. EnviroKey has completed four sites, consisting of a single camera per site, in the target habitats, with two sites in PCT 727 and two sites in PCT 1330. EMM completed an additional four sites in PCT 727.

iii Arboreal mammals

Arboreal mammal surveys were undertaken to target the Squirrel Glider and Koala. Stratification units and area of each survey unit in the survey area is shown in Table 5.8.

Table 5.8 Stratification units and survey area – arboreal mammals

Stratification unit	Area (ha)
PCT 727 moderate/good – high, medium and poor	48.78
PCT 951 moderate/good – poor	32.73
PCT 1330 moderate/good – high, medium, other and poor	45.84

Methods and survey effort have been developed in accordance with Phillips and Callaghan (2011) and Commonwealth of Australia (2014). Methods and survey effort are outlined in Table 5.9.

Table 5.9 Methods and survey effort – arboreal mammals

Method	Survey description	Survey effort
Arboreal trapping (Squirrel Glider)	Ten Elliot B or cage traps were placed at 2-4 m above the ground, 50 m apart in two parallel lines separated by 50 m: Traps were baited with a mixture of peanut butter, rolled	DEC (2004) requires a minimum of 24 trap nights over 3-4 consecutive days per 50 ha of stratification unit, with replication for every additional 100 ha (or part thereof).
	 oats and honey. A mixture of water and honey was sprayed on tree trunk. Traps were checked early in the morning and closed for the day. 	Based on the above stratification units, this would equate to 4 survey sites (one in PCTs 951 and 1330 and two in PCT 727).
	 Traps were re-opened and rebaited in the late afternoon. Animals to be temporarily marked to allow mark-recapture data to be collected. Trapping was undertaken in conjunction with terrestrial mammal trapping where suitable habitat occurs. 	EnviroKey has undertaken five arboreal trapping surveys, three sites in PCT 727 and two in PCT 1330. EMM has undertaken two additional surveys; one site in PCT 951 and one in PCT 1330.
Spotlighting (Squirrel Glider and Koala)	 DEC (2004) recommends two parallel 2 x 1km transects, conducted on two separate nights (4 transects total) per 200 ha stratification unit. No survey effort for larger sites is specified. 1km transects should be undertaken by an observer, or two 500 m transects by two observers with 25 m between transects. Observers move at a speed of 1km/h (ie one hour to complete the survey). All animals observed are recorded, including the distance of the animals from the observer. 	DEC (2004) recommends 2 transects, completed on separate nights, per 200 ha of stratification unit. This would equate to three 1 km transects (one per PCT) completed on two nights (6 transects total). EnviroKey has undertaken seven spotlighting surveys; two transects were completed in PCT 727, one in PCT 951 and three in PCT 1330. One is outside an identified PCT, and covered paddock trees and areas of PCT 951. A further five transects were completed by EMM; two in PCT 727 and three in PCT 1330.
Spot Assessment Technique (SAT) (Koala)	 The SAT method involves a radial assessment of Koala "activity" within the immediate area surrounding a tree of any species that is known to have been utilised by the species, or otherwise considered to be of some importance Centre tree is located and marked with flagging tape. The 29 nearest trees to the centre tree were also identified and marked. Koala faecal pellets were searched for beneath each of the 30 trees within a distance of 100 cm. Initial inspections were checked in undisturbed ground surface, followed by a more thorough inspection involving disturbance of leaf litter and ground cover (if no faecal pellets were initially detected). An average of approximately two person minutes per tree should be dedicated to the faecal pellet search. Activity levels can be interpreted using Table 2 from Phillips and Callaghan (2011). 	The Regularised Grid Based (RGB) SAT method was used to define survey locations. A 350 m grid was placed over the disturbance area and any points intersecting wooded areas was included for survey. This generated 24 survey locations. Twenty-four SAT surveys were completed across the mine development project area.

iv Other fauna surveys

A number of additional surveys were completed within the mine development project area during the biodiversity assessment conducted by EnviroKey. Although not strictly required under the FBA (OEH 2014), these surveys have helped define the impact footprint, ensuring impacts to all identified biodiversity values have been considered during detailed mine planning. For completeness, these surveys are outlined below (where not described above).

a Funnel trap lines

Small terrestrial fauna species such as reptiles, frogs and mammals were targeted using funnel trap lines across various locations within the mine development project area. These trap lines comprised of three pairs of funnel traps set along a 20 m long x 0.23 m tall PVC fence. Funnel traps rather than the more traditional pitfall buckets were chosen given their appropriateness for the target fauna.

b Echolocation call recording

Microchiropteran bats were targeted by using a 'Titley' Anabat SD1 Echolocation Call Recording Unit coupled to a PDA for active or mobile monitoring. Surveys were conducted across the mine development project area and the locality with an emphasis on derelict mine shafts and water sources such as dams and creeks. Further surveys were undertaken however these were static surveys, where the recorder was set up adjacent to a water source and left in place for the duration of the site surveys with recording times set up for approximately 8 hours over a night.

c Call playback

Call playback was conducted across the mine development project area to detect threatened nocturnal fauna. The target species for this assessment were Masked Owl, Barking Owl, Squirrel Glider, Bush Stone Curlew and Koala. Call playback was undertaken at across the mine development project area in potentially suitable habitat on numerous occasions and across a range of seasonal variation. At each site, the call playback survey commenced with an initial listening period of 10 minutes. The call of a target species was then transmitted intermittently over a period of five minutes, followed by a five minute listening period. This was then repeated for each target species for a total of approximately one hour per survey.

d Spotlighting

Spotlighting was undertaken at the conclusion of each call playback survey by two persons for one-person hour. Spotlighting involved walking through areas of potential habitat (i.e. native woodland or forest) with powerful spotlights and shining them into the canopy to try and identify eye-shine of active avian, mammal or reptile species. The spotlights were also periodically shone onto the ground to identify reptiles or amphibians that may be foraging on the ground surface.

e Reptile searches

Herpetofauna searches were conducted across the mine development project area and locality. Each site was systematically searched by an experienced herpetologist for a period of 30 minutes for active and inactive animals. Fallen timber, loose bark, tree and ground hollows, and loose soil were extensively searched. Rock rolling was also utilised as a search method at various locations where potential habitat was present. Each site was systematically searched for active and inactive animals by lifting loose surface rocks, signs of the presence (i.e. scats and sloughs) or ant activity underneath.

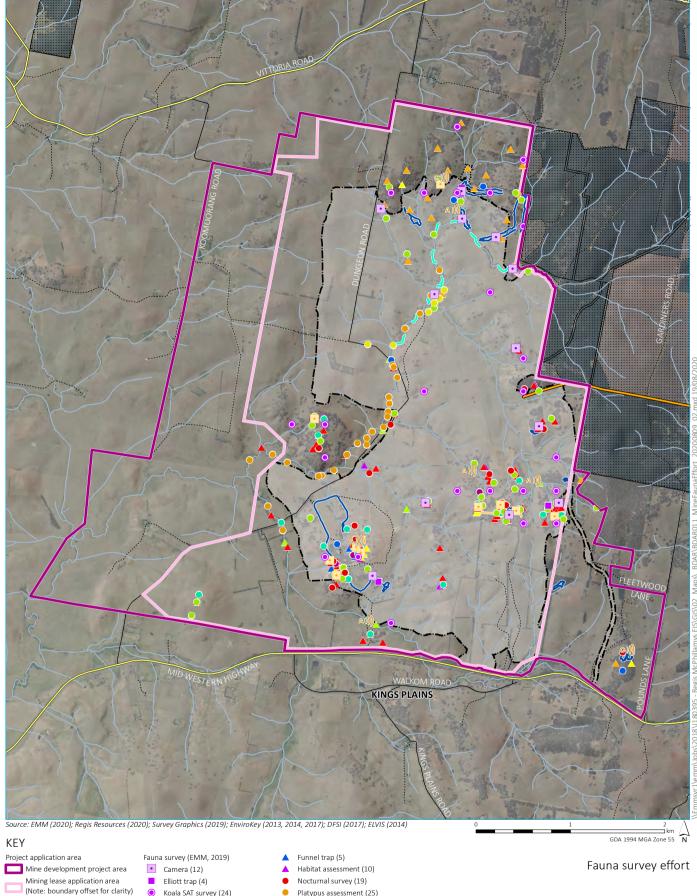
Further reptile searches were undertaken utilising roof tiles specifically targeting Little Whip Snake (*Parasuta flagellum*), but roof tiles are also known to detect the presence of Pink-tailed Worm-lizard. The tiles were set out in a 25 metre × 25 metre grid with a tile located every five metres and a total of 25 tiles for each grid (giving a total of 125 roof tiles). A resting period of six weeks was applied to allow for a sufficient period for animals to seek shelter and commence utilisation of the roof tiles.

f Frog searches

Frog searches were conducted at four locations during the late November survey to coincide with warmer weather and conditions suitable for species detection. Each site was systematically searched by an experienced herpetologist for a period of 30 minutes listening for calling frogs, undertaking sweeps for tadpoles, and searching for active animals. Call playback was also employed to elicit a response from non-calling frogs.

g Track and scat search

Track and Scat searches were conducted in May 2013 and November 2013 coinciding with diurnal bird surveys. In addition, any track and scat of interest observed during the field survey while undertaking other survey methods, were inspected.



Disturbance footprint
Additional (post-closure)
disturbance footprint

⊃ Pipeline Existing environment

Major road

Minor road ····· Vehicular track

Watercourse/drainage line

:::::: Vittoria State Forest

Koala SAT survey (24)

Nocturnal transect (EMM, 2019) Fauna survey (EnviroKey, 2013/2014)

Amabat (5)

© (2) Call-playback

Camera (11)

Bird survey (81) △ Diurnal bird survey (22)

△ Elliott trap (23)

▲ Frog survey (8)

Platypus assessment (25)

RARC (6)

Reptile survey (37) Scat and sign (19)

Spotlight survey (7)

Tile grid survey (10) Elliott trap (EnviroKey, 2013)

RARC (EnviroKey, 2017)

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 5.2





5.3.3 Limitations

Surveys undertaken by EnviroKey (2017) were completed during Autumn and Spring 2013, Autumn 2014 and Autumn 2017 when field conditions were conducive to detecting many of the flora and fauna species known to occur in the area. Surveys have been undertaken in accordance with relevant NSW and Commonwealth survey guidelines for threatened species and the requirements of the FBA (OEH 2014). Some flora species may be missed in surveys for a variety of reasons, for example: biannual flowering, poor flowering conditions, herbivory, heavy grazing pressures and drought conditions. Therefore, it may be impossible to state that a species is absent from a site based on the field surveys completed.

5.4 Targeted survey results

5.4.1 Targeted flora surveys

No threatened flora species were recorded during targeted surveys within the mine development project area. All candidate threatened flora species are considered to have a low likelihood of occurrence with the disturbance footprint following targeted surveys.

5.4.2 Targeted fauna surveys

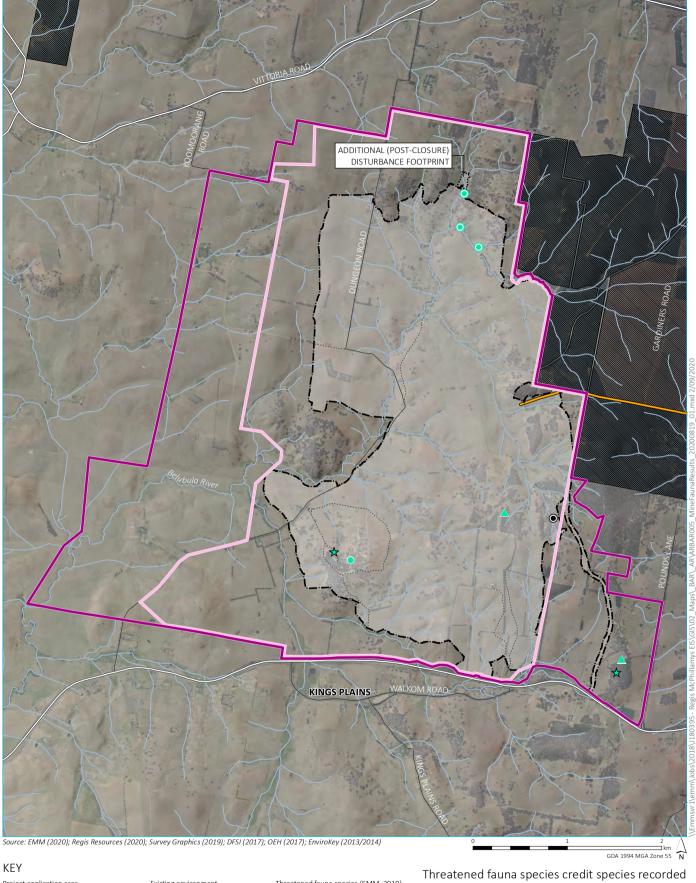
Two threatened fauna species credit species were recorded in the mine development project area (Figure 5.3):

- Squirrel Glider; and
- Koala.

There were eight records of Squirrel Glider within the mine development project area. The species was recorded in PCT 727 (moderate/good – high and moderate/good – medium), PCT 951 (moderate/good – poor) and PCT 1330 (moderate/good- medium and moderate/good – poor). Based on this, the species is predicted to utilise all treed PCTs within the mine development project area, and impacts to these PCTs were used to generate the species polygon.

A single Koala was recorded in the east of the mine development project area in February 2019. The species was not recorded during spotlighting surveys or from SAT surveys, but recorded opportunistically during diurnal surveys. Based on this, it is concluded that the mine development project area supports a low density Koala population. Koalas have been assumed to be associated with two PCTs across the site - PCT 951 and PCT 1330. PCT 951 contains Manna Gum, a primary Koala food tree in the central and southern tablelands KMA. PCT 1330 contains secondary food tree species, Apple Box and Yellow Box. Impacts to these PCTs were used to generate the species polygon.

Other candidate species, including the Eastern Pygmy-possum and Regent Honeyeater, were not recorded in the mine development project area and are considered to have a low likelihood of occurrence with the disturbance footprint following targeted surveys.



Project application area

Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure)

disturbance footprint Pipeline

Existing environment

- Major road

 Minor road ----- Vehicular track

- Watercourse/drainage line

Vittoria State Forest

Threatened fauna species (EMM, 2019)

Squirrel Glider (3)

● Koala (1)

Threatened fauna species (EnviroKey)

May 2013 sightings Squirrel Glider (3)

November 2013 sightings ▲ Squirrel Glider (4)

March 2014 sightings Squirrel Glider (2) in the mine development project area

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 5.3



6 Groundwater dependent ecosystems

6.1 Background

An assessment was completed in the EIS, in conjunction with EMM's groundwater specialists, to identify terrestrial ecosystems which potentially utilise and/or are reliant on groundwater in the mine development project area. It included reviewing the Groundwater Dependent Ecosystem Atlas (BOM 2013), groundwater monitoring data and groundwater modelling results against biodiversity values documented in the mine development project area.

The numerical groundwater model development for the EIS (Appendix K of the EIS) has been updated to assess the potential impacts of the amended project. The results are provided in full in the McPhillamys Gold Project Groundwater Assessment Addendum, which forms Appendix H of the Amendment Report. This chapter provides an updated assessment of potential impacts on groundwater dependent ecosystems using the updated numerical groundwater model.

6.2 Method

6.2.1 Study area

The study area for the groundwater dependent ecosystem (GDE) assessment comprises the areas assessed on Figure 6.1. This chapter assesses potential impacts of groundwater drawdown on terrestrial GDEs, comprising terrestrial native vegetation and groundwater-dependent wetlands and/or estuarine/near shore ecosystems.

6.2.2 Spatial data review

The Groundwater Dependent Ecosystems Atlas (BOM 2013) was viewed to identify local terrestrial vegetation types that are potentially groundwater dependent. In addition, ecological characteristics of vegetation communities in the local area were reviewed to identify any features such as landscape position or species composition which may indicate high dependence on groundwater availability.

6.2.3 Groundwater model

EMM developed a numerical groundwater model to assess the potential change to the groundwater flow system because of the project. A detailed explanation of the model development and calibration is provided in the Groundwater Assessment report (Appendix K of the EIS), with detailed explanation of predictions for the amended project provided in the Groundwater Assessment Addendum report (Appendix H of the Amendment Report). The groundwater model includes simulation of the open cut mine development and a highly conservative simulation of tailings placement. It should be noted at the purpose of the groundwater model is not to estimate the potential seepage from the TSF under design operation nor the effectiveness of the TSF seepage management system, as this has been conducted by ATC Williams (2019 and 2020).

6.2.4 Groundwater interaction assessment

Predicted depth to groundwater was derived from the groundwater model for the mine development project area (refer to Appendix H of the Amendment Report) and was reviewed to identify where groundwater could potentially be accessible for terrestrial vegetation. Specifically, the model outputs were used to identify areas where shallow groundwater (0 to 20 m below the ground surface) is available for plants to use. The average depth at which Eucalypts draw on groundwater is 10 m below the ground surface; however, use up to 20 m has been recorded (Serov 2013) and therefore this deeper figure was used as the maximum depth that PCTs would access groundwater. Although accessible, at this maximum depth the level of groundwater uptake is typically lower than where groundwater is shallow, given the larger pressure change required to draw water to the root zone (Eamus 2006). Conversely, the level of groundwater uptake and interaction is higher at shallower depths (ie 0-2 mbgl) as groundwater is already within or close to the root zone.

Accordingly, the following categories of groundwater uptake were assigned:

- very high interaction: 0 m;
- high interaction: 0 0.5 m;
- moderate interaction: 0.5 2 m;
- low interaction 2 5 m; and
- very low interaction 5 20 m.

Recorded PCTs and regional vegetation mapping (OEH 2018) between the edge of the mine development project area and the groundwater model boundary were then overlaid on the shallow groundwater distribution maps in GIS, to determine which patches could potentially access groundwater. Vegetation in the mine development mine development project area was excluded from the assessment as it would be cleared. Areas of overlap; that is where native plant communities coincided with shallow groundwater, were identified as 'potential GDEs', requiring further investigation to understand their level of groundwater dependence (or otherwise). Ecosystems identified with potential for reliance on groundwater are identified in Section 6.2.5.

Following the *Risk Assessment Guidelines for Groundwater Dependent Ecosystems* (DPI 2016), potential GDEs were categorised, based on their degree of dependence on groundwater. GDEs are divided into three main categories, comprising:

- non-dependent (ie do not access groundwater);
- facultative (have some degree of dependence on groundwater); and
- entirely dependent/obligate (ie essential to ecosystem functioning).

Non-dependent ecosystems include drier terrestrial vegetation that does not overlie groundwater and rely solely on rainfall for ecosystem functioning. Ecosystems with a facultative dependence would rely on groundwater to support ecosystem functioning but would also rely on rainfall and surface flows. Entirely dependent/obligate ecosystems are solely dependent on groundwater for functioning (ie karst/cave ecosystems).

Ecosystems with a facultative dependence can be further divided into three sub-categories, including:

- opportunistic: these ecosystems will use groundwater where available, but can exist without the input of groundwater, if there is no prolonged drought. Examples of opportunistic ecosystems include coastal mangroves, saltmarshes and Banksia woodlands.
- proportional: these ecosystems take a proportion of their water requirements from groundwater, however there is no absolute threshold for groundwater availability below which ecosystem structure or function is impaired and can respond to changes in groundwater at any level. Examples of proportional ecosystems include glacial lakes and alpine bogs; and
- highly dependent: these ecosystems take a high proportion of their water requirements from groundwater and can only tolerate small changes in groundwater levels for short periods of time. Examples of highly dependent ecosystems include Paperbark swamps in northern Australia and wetlands of the basalt plains in Victorian.

The categories of groundwater dependency identified in the *Risk Assessment Guidelines for Groundwater Dependent Ecosystems* (DPI 2016) are summarised by the flowchart shown on Plate 6.1.

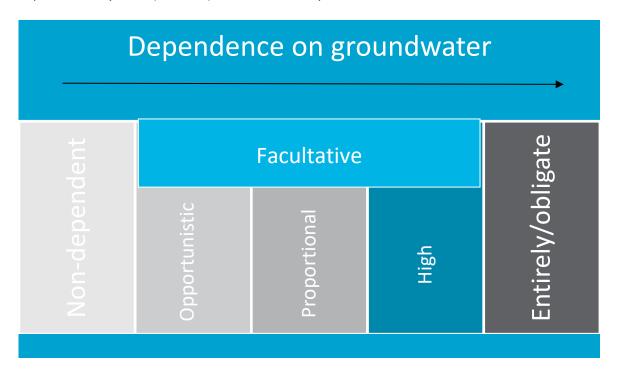


Plate 6.1 GDE categories

6.2.5 GDE identification

The proportion of each PCT with shallow groundwater access vs the proportion with no access was assessed. The proportion was combined with the level of groundwater interaction to determine the level of groundwater dependence, in accordance with the criteria in Table 6.1.

Table 6.1 Groundwater dependence categories

Dependence and risk	Proportion of PCT accessing groundwater				
	0-25% of PCT has access to shallow groundwater	25-75% of PCT has access to shallow groundwater	75-100% of PCT has access to shallow groundwater		
Groundwater dependence	Non-dependent	Facultative/opportunistic GDE	Obligate/entirely-dependent GDE		
Risk of impact	Low	Moderate	High		

The water sharing plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020 specifies 119 high priority GDEs within the Lachlan Fold Belt Murray-Darling Basin Groundwater Source. These include 65 high priority springs/wetlands and 54 karst environments.

6.2.6 Risk assessment

Ecosystems were classified in accordance with the risk matrix in Table 6.2, following Serov et al (2012).

Table 6.2 GDE risk assessment matrix

Category		Risk category	
	1 Low	2 Moderate	3 High
1 High ecological value	А	В	С
2 Moderate ecological value	D	E	F
3 Low ecological value	G	Н	1

Table 6.3 defines the ecosystems that fall within each category in Table 6.2.

 Table 6.3
 Ecological value definitions

1 High ecological value	2 Moderate ecological value	3 Low ecological value
GDEs where only slight changes in groundwater quantity and quality would result in their loss (ie obligate GDEs)	GDEs where a moderate change in groundwater availability would change their distribution, composition or condition	A highly modified GDE
GDEs located in a state or federal reserve system (eg National Park)	GDEs that provide ecological services to other ecosystems including rivers, wetlands and estuaries	A GDE that would involve a large cost to rehabilitate, in a catchment containing other GDEs in moderate to good condition
GDEs in relatively unaltered and good condition	GDEs in moderate to good condition	-

Table 6.3 Ecological value definitions

1 High ecological value	2 Moderate ecological value	3 Low ecological value	
GDEs that are habitat for critically endangered or endangered species and/or communities listed under the BC Act, FM Act and/or EPBC Act.	GDEs that are habitat for vulnerable species and/or communities listed under the BC Act, FM Act and/or EPBC Act.	-	
-	GDEs that can respond to changes in water availability and/or quality	-	
-	GDEs that only play a minor role in ecosystem functioning (ie at the end of a dry season or during extreme drought)	-	

6.3 Results

The GDE Atlas (BOM 2013) does not show any terrestrial GDEs as occurring in the mine development project area. No high priority GDEs are identified in the water sharing plan for NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020.

The groundwater dependence, ecological values and risks are assessed for each GDE in Table 6.4.

Table 6.4 Ecological values of and risks to GDEs

РСТ	Proportion accessing shallow groundwater	Groundwater dependence	Risk of impact	Ecological value	Risk category
727	0-25%	Non-dependent	Low	Moderate (contains vulnerable species habitats)	Н
951	25-75%	Facultative/opportunistic GDE	Moderate	Moderate (contains vulnerable species habitats)	E
1330	25-75%	Facultative/opportunistic GDE	Moderate	High (contains CEEC)	В

Although terrestrial GDEs are not predicted to occur in the mine development project area, parts of PCT 951 and 1330 overlie areas of predicted shallow groundwater from 0 to 20 mbgl, and would likely range from having a very high (ie 0-2 m) to very low (5-20 mbgl) interaction with groundwater (Figure 6.1). Opportunistic GDEs are mainly located north and south-west of the TSF, with smaller patches south and south-east of the TSF (Figure 6.1). All other PCTs are non-dependent as they do not have access to shallow groundwater.

These PCTs represent ecosystems with a facultative and opportunistic dependence on groundwater, in that they would use groundwater where available but can exist without its input, except for times of prolonged drought. The locality was in extended drought but has experienced heavy rainfall in early 2020. Where soil moisture cannot fulfil the opportunistic GDE's water requirements they would be supplemented by groundwater.

PCT 727 is classified as non-dependent as 0-25% of its occurrence within the study area has access to groundwater (9%).

6.3.1 Impact assessment

Plants require water to maintain their structure, to grow, to transport nutrients, to make energy (ie photosynthesis) and for protection against large temperature fluctuations (PSU 2003). The plants comprising the opportunistic GDEs (ie trees, shrubs, grasses and groundcovers) would fulfil most of their water requirements by drawing on soil moisture from shallow roots. However, the more mature roots of trees and shrubs can also extend past the soil profile to access groundwater. As mentioned above, during times of low rainfall and soil moisture, trees and shrubs supplement their water requirements with groundwater. Reductions in groundwater availability during times of drought can lead to water stress in dependent ecosystems, which affects growth, transport of nutrients, photosynthesis and reduce protection against large temperature fluctuations.

This section discusses potential impacts on groundwater availability and quality for opportunistic groundwater users, PCTs 951 and 1330, retained outside the disturbance footprint.

i Groundwater accessibility

The extent of groundwater drawdown associated with open-cut mining is predicted to be steep and localised around the void and limited in extent to the mine development mine development project area (refer Groundwater Assessment Addendum, Appendix H of the Amendment Report). As mentioned above, simulation of the TSF is simulated in the groundwater model using a highly conservative approach (the simulation of the TSF in the groundwater model is more comparable to a lined water storage dam rather than a tailings dam). Under this simulation, seepage from the TSF is predicted to result in the depth to groundwater below and around the TSF to become shallower and rise towards the ground surface. Under this unlikely scenario, this predicted change in depth to groundwater will allow terrestrial vegetation adjacent to the proposed TSF increased access to groundwater (ie increase in the extent (ha) of the three PCTs that can access groundwater).

Figure 6.1 shows the predicted changes in the extent of groundwater accessibility between the existing and end of mine conditions for PCTs 951 and 1330, which are deemed to have a facultative and opportunistic dependence on groundwater.

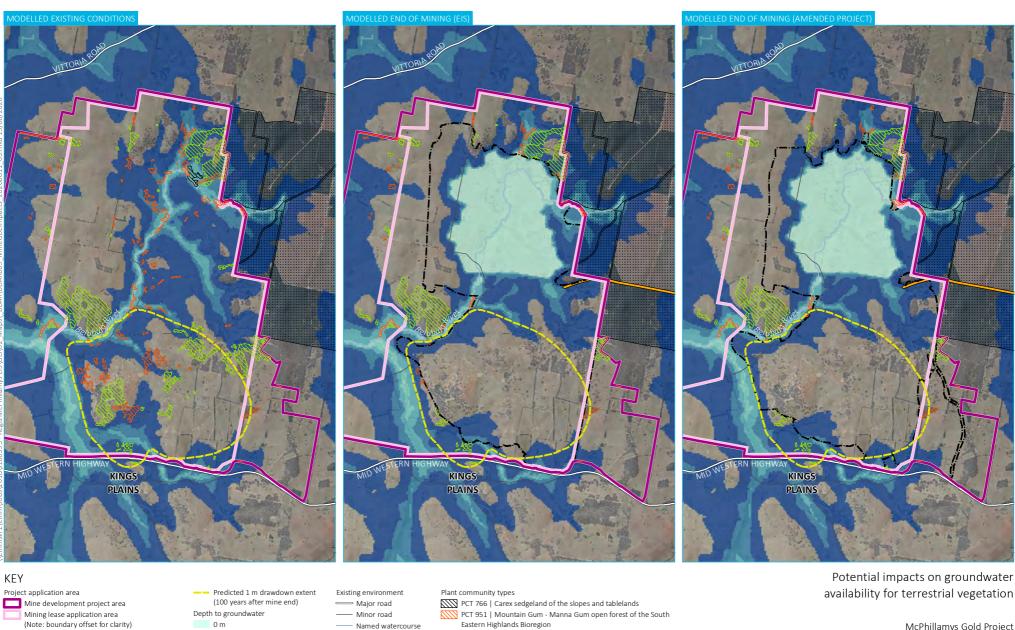
The project is predicted to result in no change to a minor increase in the extent of groundwater access for PCTs with a higher level of dependence on groundwater (ie moderate to very high groundwater interaction, or 0+ to 2 mbgl) by the end of mining and 100 years following mining (Table 6.5). This is likely to range from no impact on opportunistic GDEs in areas where no change is predicted, to a minor beneficial impact through a predicted increase to the extent of groundwater access during drought conditions under the highly conservative simulation of the TSF (eg an additional 0.69 ha of PCT 1330 with a moderate groundwater interaction will have access to groundwater at the end of mining, assisting with meeting the ecosystem's water requirements during times of low rainfall and soil moisture).

A minor reduction in the extent of groundwater access is predicted for PCT 951 (0.15 ha). Given this minor reduction in the extent of groundwater access and the very low interaction and dependence on groundwater (ie between 5-20 mbgl), water stress is not predicted to occur.

Accordingly, no negative groundwater access impacts are expected to occur for GDEs.

 Table 6.5
 Changes in access to shallow groundwater

Depth to groundwater (mbgl)		PCT 1330 (ha)			PCT 951 (ha)			
	Existing	End of mine	100 years	Change	Existing	End of mine	100 years	Change
0+ (very high interaction)	0.00	0.00	0.00	0.00	0.08	0.08	0.08	0.00
0 - 0.5 (high interaction)	0.22	0.22	0.22	0.00	2.42	2.42	2.42	0.01
0.5 - 2 (moderate interaction)	0.54	1.22	1.22	0.69	1.63	1.99	1.95	0.32
2 - 5 (low interaction)	2.65	2.73	2.94	0.29	0.90	0.66	1.14	0.24
5 - 20 (very low interaction)	20.25	20.56	22.07	1.83	2.82	2.70	2.66	-0.15



Eastern Highlands Bioregion

PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the

tablelands, South Eastern Highlands Bioregion

Named watercourse

:::::: Vittoria State Forest

Potential impacts on groundwater

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 6.1





Disturbance footprint
Additional (post-closure) disturbance footprint

— Pipeline

0 m

0 - 0.5 m

0.5 - 2 m

2 - 5 m

5 - 20 m

ii Groundwater quality

The Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report) identified the potential for groundwater quality changes because of:

- seepage from the TSF to the watertable and the Belubula River;
- seepage from stockpiles to the watertable; and
- seepage from water storage ponds to the watertable.

Potential impacts related to the last three hazard items have been assessed in the Groundwater Assessment (Appendix K of the EIS) and assessed to present minimal to no impacts on the water environment from a water quality perspective. The potential impacts of seepage from the TSF was also assessed in the Groundwater Assessment (Appendix K of the EIS), however as the TSF schedule has been adjusted for the amended project, this assessment has been revisited and is included in Groundwater Assessment Addendum (Appendix H of the Amendment Report).

a Multi-barrier approach to tailings seepage management

As reported in the EIS (Appendix K and ATC Williams 2020Table 8.6, the TSF is designed to operate effectively and efficiently, and in consideration of the requirements of the NSW Government. The TSF is designed specifically to avoid adverse impacts to the surrounding environment and contain all water during large rainfall events (no spill risk).

Regis has adopted several leading practices to produce a mine design that avoids and minimises impacts to water assets, which includes a multi-barrier approach as part of the design of the TSF. The multi-barrier approach is presented graphically on Plate 6.2.

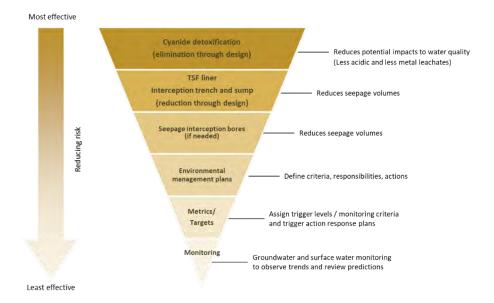


Plate 6.2 TSF multi-barrier approach

To reduce seepage volumes and rates, the TSF seepage management is proposed to comprise:

- The TSF floor will be lined using a combination of a low permeability clay liner and imported liner system. The clay liner will be constructed to a minimum 1 m thick within the existing drainage areas and a minimum 300 mm thick in areas with in-situ clay that have a permeability less than 10-9 m/sec.
- A low permeability core zone will be included as part of construction of the embankment and a deepened cut-off key extending to basement.
- A seepage interception trench located downstream of the cut-off key for the recovery of seepage and dewatering of the tailings mass.
- A downstream TSF runoff dam to intercept surface contact water from incident rainfall.
- Monitoring bores downstream to monitor groundwater quality and levels and, if required, the use of pump back bores.
- Construction of the TSF decant 770 m away from the main embankment.

b Potential TSF seepage

TSF design and assessment of the effectiveness of the TSF seepage management measures has been conducted by ATC Williams (2019 and 2020). As presented in the Groundwater Assessment (Appendix K of the EIS) and Groundwater Assessment Addendum (Appendix H of the Amendment Report), the purpose of the groundwater model is limited to assessing the potential impacts of the TSF on the groundwater flow system under an unlikely but deliberately conservative scenario (to assess potential seepage), and the purpose is not to provide an accurate estimate of TSF seepage rates. The groundwater model does not simulate the TSF embankment, cut-off key, tailings material or tailings deposition. The simulation of the TSF in the groundwater model is more comparable to a lined water storage dam rather than a tailings dam. The key difference between a lined water dam and TSF is that a TSF will consist of solid particles (eg ground and broken rock) and fluid, at a water content of around 20-30% and will therefore contain much less water than a water dam, which has 100% water content. The water held within the pore spaces between the tailings particles will drain slowly, driven by changing hydraulic pressures, the size of the tailings particles and pore space between the particles. The simulation of the TSF in the numerical groundwater model is therefore deliberately conservative.

The groundwater model predicts mounding of the watertable during and post -mining operations. The results of groundwater modelling (EIS base case and amended project) demonstrate that under a highly conservative scenario, with limited mitigation measures in place, seepage from the TSF is predicted to slowly migrate south-west and south of the TSF. Seepage from the TSF is predicted to remain within the saprock zone, flowing in a horizontal direction.

TSF seepage is very slow (moving at a rate of approximately 50 m in 100 years) with the majority of seepage being directed to the final pit void, and by the time the residual seepage migrates through the ground towards the Belubula River, the characteristics of the seepage water will have concentrations of aluminium, salinity (as EC), sulphate, selenium, cyanide and cobalt:

- below or within the range of water quality concentrations currently measured in groundwater, the Belubula River and its tributaries;
- below ANZECC (2000) livestock drinking water guideline values; and
- below ANZECC (2000) 95% protection level for freshwater aquatic ecosystem guideline values.

Table 6.6 Concentrations in groundwater following mixing with TSF seepage

	Calculated concentration following mixing		Current groundwater	Current surface water	
Parameter	EIS base case	Amended project scenario	concentration range ¹	concentration range ²	
Aluminium (mg/L)	0.03	0.02	<0.01-140	0.01-1.2	
Electrical conductivity, EC (μS/cm)	931	843	499-4,817	377-1,040	
Total Cyanide (mg/L)	0.057	0.039	<0.004	<0.004	
Weak Acid Dissociable Cyanide (mg/L)	0.04	0.024	<0.004	<0.004	
Cobalt (mg/L)	9.4	6.3	<0.001-0.31	<0.004	
Selenium (mg/L)	0.006	0.004	<0.001-0.01	0.001-0.01	
Sulphate (mg/L)	213	157	7-3,000	1-190	

Notes:

- 1. Water quality measured from samples collected from bores monitoring groundwater in the Anson Formation.
- 2. Water quality measured from samples collected from WED4061A (27 samples), which is a Belubula River monitoring location in the TSF area.

The opportunistic vegetation users (PCT 1330, 1101 and 951) are mainly located north of the TSF, with smaller patches to the south and south-west along the Belubula River, and directly south-east of the TSF. The main direction of potential seepage predicted is to the south-west and south of the TSF, toward opportunistic groundwater users along the Belubula River, south and south-west of the TSF (Figure 6.1). Although to a lesser extent, the groundwater model conservatively predicts some seepage north of the TSF, toward opportunistic groundwater users in this area. However, the quality of groundwater that these patches would access is not expected to change significantly from current baseline conditions.

As outlined in the Groundwater Assessment Addendum (Appendix H of the Amendment Report), the groundwater model will be upgraded over time and with additional baseline data and data from active mining. In order to further assess potential impacts of the TSF from a hydrogeochemical perspective as part of future improvements, Regis will consider revision of the how the tailings placement is simulated to refine seepage estimates and include a geochemical assessment to refine estimates of leachate concentrations.

6.4 Required mitigation

As negative impacts on groundwater access are not predicted, mitigation is not required. Impacts on water quality will be managed in accordance with the TSF seepage management system (Section 6.3.1ii).

Stage 2

Impact Assessment (biodiversity values)

7 Impact assessment

7.1 Impact summary

7.1.1 Direct and indirect impacts

Without any measures to avoid, minimise or mitigate impacts, the mine developments would result in the following impacts on biodiversity:

- direct impacts:
 - loss of native vegetation; and
 - loss and degradation of native fauna habitats;
- indirect impacts:
 - alteration to hydrology for groundwater dependent ecosystems (mine development only;
 - erosion and sedimentation;
 - weed introduction and spread;
 - feral animal invasion into retained habitats;
 - potential inadvertent disturbance of retained habitats;
 - removal of habitat resources for threatened fauna;
 - removal of hollow-bearing trees;
 - increased noise, vibration and dust levels resulting in disturbance of fauna species, and consequent abandonment of habitat, or changes in behaviour (including breeding behaviour); and
 - lighting for night works, resulting in disturbance to fauna species and changes in occupancy or behaviour.

Wherever possible, direct impacts have been avoided and/or minimised through the design of the mine disturbance footprint. Impacts will be further managed and mitigated through the development of a biodiversity management plan, using the measures recommended in Section 7.3. Any residual impacts will be compensated through implementation of the biodiversity offset framework (Section 7.5).

7.2 Comparison of predicted EIS impacts with amended project

Impacts on biodiversity have changed for the mine development, primarily relating to a change in the mine disturbance footprint. Table 7.1 compares the PCT predicted impacts as presented in the EIS with the amended project. Overall, the amended project will reduce impacts on PCTs by 1.97 ha.

 Table 7.1
 Comparison of mine development PCT impacts

Plant community type/species credit species	Residual impact - EIS (ha)	Residual impact - Amended project (ha)	Change
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (High)	4.75	2.84	-1.91
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Medium)	34.55	35.54	0.99
727 - Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Poor)	14.25	10.40	-3.85
951 - Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion – Moderate/Good (Poor)	31.55	32.73	1.18
766 - Carex sedgeland of the slopes and tablelands – Moderate/Good (Poor)	3.04	3.04	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion– Moderate/Good (High)	1.47	1.47	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Medium)	17.03	18.96	1.93
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Other)	0.76	0.76	0.00
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Poor)	24.96	24.65	-0.31
Total	132.36	130.39	-1.97

Table 7.1 compares the species impacts as presented in the EIS with the amended project. As the method of Koala habitat mapping has changed with the introduction of Koala Habitat Protection SEPP, the direct residual impacts of the EIS and amended project are provided for the Koala in Table 7.2, using both methods for calculating Koala habitat, comprising:

- Koala habitat as presented in the EIS, calculated based on SEPP 44 and the feed tree species for the central and southern tablelands koala management area in the Koala Recovery Plan (DECC 2008); and
- Koala habitat as presented in this BDAR, calculated based on the feed tree species for the central and southern tablelands koala management area in Koala Habitat Protection SEPP.

Accordingly, the amended project would increase direct Koala impacts by 2.8 ha using the Koala species polygon as presented in the EIS and increase by 1.89 ha using the Koala species polygon as presented in this BDAR.

In the EIS, direct impacts on the Squirrel Glider were 129.32 ha. The amended project would reduce direct Squirrel Glider impacts by 1.97 ha to 127.35 ha.

Table 7.2 Comparison of mine development species impacts

Candidate species	Residual impact - EIS (ha)	Residual impact - Amended project (ha)	Change
Koala - SEPP 44 and Koala recovery plan mapping method presented in EIS	75.77	78.57	2.80
Koala - SEPP (Koala Habitat Protection) 2019) mapping method presented in this BDAR	115.06	116.95	1.89
Squirrel Glider	129.32	127.35	-1.97

7.3 Measures implemented to avoid, minimise and mitigate impacts

The project includes the mining of a gold resource. Thus, location and design of the pit area is highly restricted. The project's associated surface infrastructure has been designed, where possible, to avoid sensitive biodiversity areas.

Regis has carried out annual biodiversity surveys within the mine development project area since acquiring Exploration Licence (EL) 5760 in 2013. These surveys have been carried out in parallel with, and have informed the evolution of, the mine development design. This process has ensured the avoidance of environmental constraints, including impacts on Box Gum Woodland and threatened species habitat, as far as practicable. As shown in Figure 1.2, the mining lease application area is relatively constrained within the mine development project area. The mining lease application area was reduced to avoid potential biophysical strategic agricultural land (BSAL) in the western portion of the mine development project area.

Iterative project planning, informed by the baseline studies outlined above, has allowed a range of impacts to be avoided and others to be minimised throughout the life of the project. To compensate for unavoidable disturbance, biodiversity offsets will be provided.

Key avoidance measures that have been implemented by Regis comprise:

- avoidance of the majority of White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands CEEC in High condition apart from a small area (1.47 ha) in the direct footprint of the open cut mine and tailings dam;
- minimisation of impacts to PCT 1330 Medium condition wherever feasible; and
- development of a tailings storage facility which avoids almost all White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands CEEC (EPBC Act) identified within the TSF investigation area identified in the Preliminary Environmental Assessment (PEA).

The anticipated impact of the mine development on a listed ecological community, namely White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands (Box Gum Woodland) CEEC (EPBC Act) at the time of the pre-referral meeting with the then DoEE was approximately 33.5 ha. This was a conservative figure based on the preliminary biodiversity assessment results. Since the pre-referral meeting, additional field work has been completed to refine the area of Box Gum Woodland in the mine development project area. Further to this, the tailings storage facility location and mine development project boundary were modified to minimise impacts on Box Gum Woodland. The optimised design will minimise impacts on Box Gum Woodland, with a residual impact of approximately 20.43 ha. Box Gum Woodland (PCT 1330) also provides habitat to the Koala (listed as a vulnerable species under the EPBC Act). Accordingly, the reduction in impact on Box Gum Woodland also reduces the impact on Koala habitat.

Figure 7.1 shows the mine development during the PEA, EIS and current mine development and demonstrates how the design has evolved to avoid and or minimise impacts on threatened biodiversity. Table 6.6 summarises the avoidance and minimisation measures already incorporated into the mine development's design and the additional measures to minimise the potential for unacceptable mine development-related impacts on biodiversity.

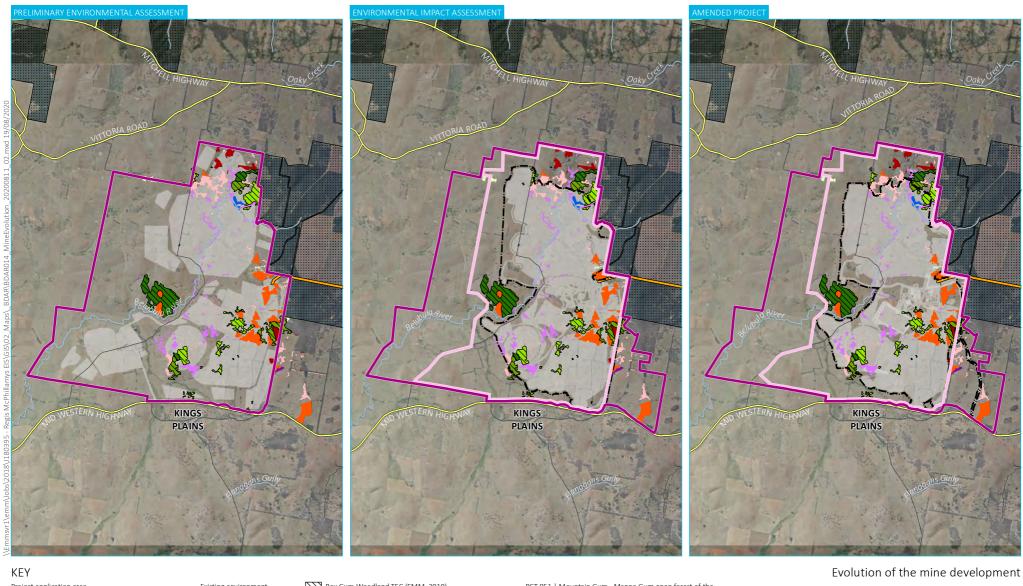
Table 7.3 details the avoidance and minimisation measures already incorporated into the mine development's design and the additional measures to minimise the potential for unacceptable impacts on biodiversity

Table 7.3 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Intended outcome	Timing	Responsibility
Reduction in habitat critical to the survival of Box Gum Woodland	Avoid majority of impacts on high condition Box Gum Woodland and minimise impacts on moderate condition areas through careful mine design	High-quality Box Gum Woodland impacts mainly avoided, impacts on moderate condition minimised (completed)	Design	Client
Reduction in habitat critical to the survival of Koala	Shift location of tailings storage facility into cleared land and minimise footprint such that Koala corridors along the Belubula River are retained	Retention of Koala habitat prioritised, minimise impact on habitat resulting from project (completed)	Design	Client
Impacts on threatened species and ecological communities	Place access roads and other infrastructure in cleared land	Impacts on threatened species and communities minimised (completed)	Design	Client
	Retain native vegetation and habitats where not required for mine infrastructure	Retention of native vegetation and threatened species habitats	Prior to and during clearing operations	Environmental manager
	Retain and protect the area of native vegetation and Koala habitat north of the waste emplacement area	Retention of native vegetation and Koala habitat	During mining	Environmental manager
	Identify the limit of approved disturbance areas on the ground through the use of suitable visible markers and ensure that all ground disturbing activities are only undertaken within approved areas	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist
	Carefully remove vegetation in such a way that avoids damage to surrounding vegetation	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist

Table 7.3 Impact avoidance and minimisation strategy – mine and pipeline development

Impact	Action	Intended outcome	Timing	Responsibility
	Undertake a pre-clearing inspection to identify and, where practicable, remove nesting or roosting fauna	Minimise impacts on threatened species and communities	Prior to and during clearing operations	Environmental manager, Project ecologist
	Develop specific procedures for Koala pre-clearing inspections and safe relocation outside the clearing area	Prevent injury and mortality of Koalas during clearing operations by relocating into adjacent retained habitat	Prior to and during clearing operations	Environmental manager, Project ecologist
	Undertake a revegetation project targeted at Koalas	Increase the connectivity of fragmented patches of Koala habitat within the mine project area, and outside the mine disturbance footprint	To be determined as part of BMP development	Environmental manager, Project ecologist
	Undertake a staged clearing of native vegetation and fauna habitat to minimise impacts to native fauna species	Allow fauna to gradually self-relocate outside of project footprint	During clearing operations	Environmental manager, Project ecologist
	Stockpile vegetation onsite for use during rehabilitation operations, where practicable. Larger vegetation may be retained whole for use in rehabilitation operations on site	project area for use in rehabilitation and/or at	During clearing operations	Environmental manager, Project ecologist
	implement a weed and pathogen monitoring program	Monitor weed impacts to retained vegetation outside the mine disturbance footprint, but within the mine project area to target weed control efforts	Prior to and during clearing operations and mine operation	Environmental Manager, weed contractor
	Undertake weed management and pest control programs in consultation with surrounding landholders, based on the results of the weed and pathogen monitoring program	Maintain or improve condition of retained native vegetation	Prior to and during clearing operations and mine operation	Environmental Manager, weed contractor
	Undertake progressive rehabilitation	Retain native vegetation and fauna habitats for as long as possible	In stages as the mine progresses	Environmental Manager, rehabilitation consultant and restoration ecologist



Box Gum Woodland TEC (EMM, 2019) Project application area Existing environment Mine development project area Plant community types — Major road Mining lease application area Minor road PCT 727 | Broad-leaved Peppermint - Brittle Gum - Red (Note: boundary offset for clarity) Stringybark dry open forest on the South Eastern Highlands Named watercourse Disturbance footprint Bioregion :::::: Vittoria State Forest Additional (post-closure) disturbance footprint — Pipeline Project general arrangement PCT 766 | Carex sedgeland of the slopes and tablelands Design lines Design polygons

PCT 951 | Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion Medium PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion High Medium Poor Other

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 7.1





The above avoidance, minimisation and mitigation measures were developed with consideration of recovery strategies and actions for Box Gum Woodland and the Koala and other threatened species that would be impacted by the mine. The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Woodland (DECCW 2010a) identifies the protection of key sites as a recovery strategy. The patches of PCT 1330 in moderate to good (High) condition and moderate to good (Medium) condition represent key sites for the community. Accordingly, the avoidance and minimisation of clearing these areas for the project aligns with the recovery strategy to protect key sites.

The Commonwealth's Approved Conservation Advice for Koala (TSSC 2012) identifies a priority management action applicable to the project: develop and implement options of vegetation recovery and re-connection in regions containing fragmented koala populations, including inland regions in which Koala populations were diminished by drought and coastal regions where development pressures have isolated Koala populations.

A Koala revegetation project is proposed in areas of retained Koala habitat. The revegetation project will aim to reconnect fragmented patches of Koala habitat surrounding the mine and create links with larger areas of native vegetation to the north and east. The Koala revegetation project directly addresses the priority management action of re-connecting fragmented Koala populations.

7.4 Residual impacts

Following the implementation of design measures to avoid and minimise biodiversity impacts, the project will result in the residual impact of 130.39 ha of native vegetation clearing (127.35 ha of which comprises habitat for the species credit species, Squirrel Glider, and 116.95 ha of which comprises habitat for the species credit species, Koala). Table 7.4 provides the breakdown of clearing impacts on each PCT and its associated ecosystem credit species, and species credit species.

Table 7.4 Residual project impacts

Plant community type/species credit species	Associated ecosystem credit species (species with highest credit requirement)	Residual impact (ha)
727 - Broad-leaved Peppermint - Brittle Gum - Red	Ecosystem credit species: N/A	2.84
Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (High)	Species credit species: Squirrel Glider and Koala	
727 - Broad-leaved Peppermint - Brittle Gum - Red	Ecosystem credit species: N/A	35.54
Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Medium)	Species credit species: Squirrel Glider and Koala	
727 - Broad-leaved Peppermint - Brittle Gum - Red	Ecosystem credit species: N/A	10.40
Stringybark dry open forest on the South Eastern Highlands Bioregion – Moderate/Good (Poor)	Species credit species: Squirrel Glider	
951 - Mountain Gum - Manna Gum open forest of the	Ecosystem credit species: N/A	32.73
South Eastern Highlands Bioregion – Moderate/Good (Poor)	Species credit species: Squirrel Glider and Koala	
766 - Carex sedgeland of the slopes and tablelands –	Ecosystem credit species: N/A	3.04
Moderate/Good (Poor)	Species credit species: N/A	

Table 7.4 Residual project impacts

Plant community type/species credit species	Associated ecosystem credit species (species with highest credit requirement)	Residual impact (ha)
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion— Moderate/Good (High)	Ecosystem credit species: Little Lorikeet Species credit species: Squirrel Glider and Koala	1.47
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Medium)		18.96
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Other)	_	0.76
1330 - Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion – Moderate/Good (Poor)		24.65
Total		130.39 ¹

Notes: 1. Impacts will occur to 127.35 ha of habitat for the Squirrel Glider and 116.95 ha of habitat for the Koala.

7.5 Thresholds for assessment and offsetting

7.5.1 Impacts requiring further consideration

No impacts requiring further consideration were identified in the SEARs. This section provides an assessment of impacts requiring further consideration in accordance with Section 9.2 of the FBA.

Table 7.5 Impacts requiring further consideration

Feature	Description
Landscape features	The mine development project area does not support any estuarine areas, important wetlands, or state biodiversity links. The mine development project area does not support any important wetlands.
	The project will impact on a regional biodiversity link, being the buffer either side of a 5th order stream (eg. the Belubula River). Vegetation along these 4th and 5th order sections of the Belubula River and the associated tributary consists of PCT 951 - Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164). This vegetation occurs as scattered patches of vegetation isolated through clearing for agriculture. Vegetation is in poor condition, with the midstorey absent and groundcover heavily impacted by grazing with 2-40% native cover and 36-94% exotic plant cover. This PCT derives a vegetation integrity score of 46, demonstrating this poor condition.
	Indirect impacts on downstream environments are considered unlikely, and are discussed in the aquatic assessment, which has been provided as Appendix O to the EIS. These sections of the Belubula will be diverted and offset for impacts to key fish habitat may include rehabilitation of downstream sections of this waterway or within the broader catchment (to be confirmed).

Table 7.5 Impacts requiring further consideration

Feature	Description
Native vegetation	PCT 1330 represents White Box Yellow Box Blakely's Red Gum Woodland listed as an CEEC under the BC Act. It was not identified in the SEARs and therefor does not require further consideration.
Species and populations	Critically endangered species will not be impacted by the project. No threatened species or populations were nominated in the SEARS and as such do not require further consideration.

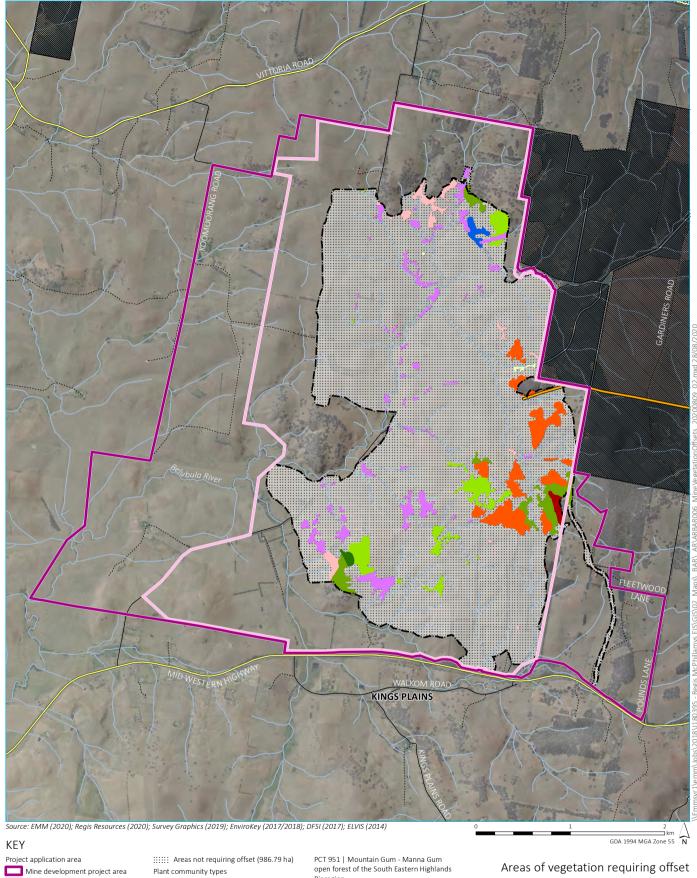
7.5.2 Impacts requiring offsets

The impacts requiring offsets are provided in Table 7.4. The areas of native vegetation requiring offset and species credit polygons are shown in Figure 7.2 and Figure 7.3, respectively.

7.5.3 Impacts not requiring offsets or not requiring further assessment

Areas comprising exotic grassland are shown on Figure 7.2 as having a site value score less than 17. These areas total 986.79 ha. As few characteristic species were present, they could not be reliably typed to a PCT. A conservative approach was taken and a zone was created in the calculator associated with the FBA to represent each PCT found on site, to determine if the site value score was greater than 17 and offsets were required.

The site value score for each entered zone was less than 17. It should be noted that the FBA calculator is stating that offsets are required for these vegetation zones. In line with Section 9.4.1 of the FBA (OEH 2014) these areas do not require further assessment or offsets.



Mine development project area Mining lease application area (Note: boundary offset for clarity)

Disturbance footprint Additional (post-closure) disturbance footprint

■ Pipeline

Existing environment

— Major road

Minor road

Vehicular track Watercourse/drainage line

Vittoria State Forest

PCT 727 | Broad-leaved Peppermint -Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion

Moderate/Good (High) Moderate/Good (Medium)

Moderate/Good (Poor) PCT 766 | Carex sedgeland of the slopes

Moderate/Good (Poor)

Bioregion

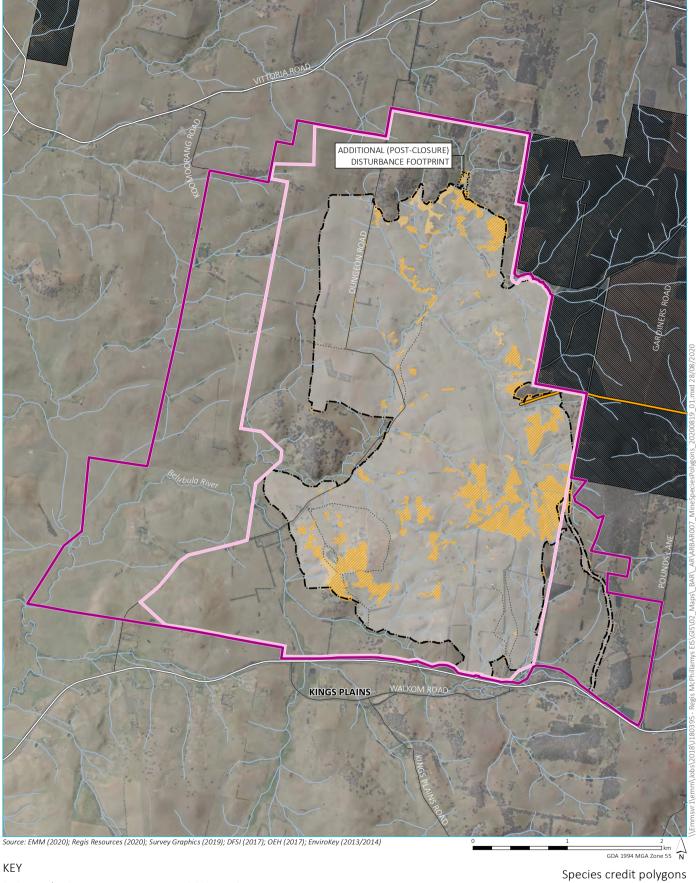
Moderate/Good (Poor) PCT 1330 | Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion

Moderate/Good (High) Moderate/Good (Medium) Moderate/Good (Poor) Moderate/Good (Other)

McPhillamys Gold Project Amendment report biodiversity assessment report Figure 7.2







Project application area

Mine development project area

Mining lease application area (Note: boundary offset for clarity)

I. Disturbance footprint

Additional (post-closure) disturbance footprint

— Pipeline

Existing environment

— Major road

--- Minor road

····· Vehicular track

— Watercourse/drainage line

Vittoria State Forest

///// Koala species polygon

Squirrel Glider species polygon

McPhillamys Gold Project Amendment report – biodiversity assessment report Figure 7.3





7.6 Biodiversity credit report

The ecosystem credits required by the project are provided in Table 7.6 and species credits required are provided in Table 7.7.

These ecosystem and species credits have been provided for the amended project in accordance with the FBA, purposes of DAWE's assessment. However, it is intended that ecosystem and species credits requirements will be in accordance with the BAM, provided in the McPhillamys Gold Project Amendment Report — Biodiversity Development Assessment Report (BDAR), provided in Appendix M of the Amendment Report.

Table 7.6 Ecosystem credits required

PCT ID	PCT name	Condition	Ancillary	Area (ha)	Loss in site value	EEC offset multiplier	TS offset multiplier	Credits required
1330	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern	Mod-Good	High	1.47	16.67	1 ¹	3.01	27
	Highlands Bioregion (LA276)		Medium	18.96	58.85			947
			Other	0.76	44.27			30
			Poor	24.65	58.85			1231
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the	Mod-Good	High	2.84	71.88	1	2.6	68
	South Eastern Highlands Bioregion (LA124)		Medium	35.54	61.98			757
			Poor	10.40	52.08			196
951	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)	Mod-Good	Poor	32.73	46	1	2.6	566
766	Carex sedgeland of the slopes and tablelands (LA130)	Mod-Good	Poor	3.04	31.16	1	1.4	41
1330	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion (LA276)	Low	-	986.79	9.38	0	0	0
727	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion (LA124)	Low	-	986.79	7.81	0	0	0
951	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion (LA164)	Low	-	986.79	12	0	0	0
Total								3,863

Notes: 1. As PCT 1330 could not be aligned with an EEC and thus did not show as having an EEC multiplier when entered into the BioBanking Calculator (when it should have a multiplier of 3), the Species multiplier for Little Lorikeet was manually edited to 3 in the calculator to reflect the correct number of credits required for this PCT (as Little Lorikeet was associated with that PCT).

Table 7.7 Species credits required

Common name Scientific name		TS offset multiplier	Credits required
Koala	Phascolarctos cinereus	2.6	3,041
Squirrel Glider	Petaurus norfolcensis	2.2	2,802

7.7 Biodiversity Offset Strategy

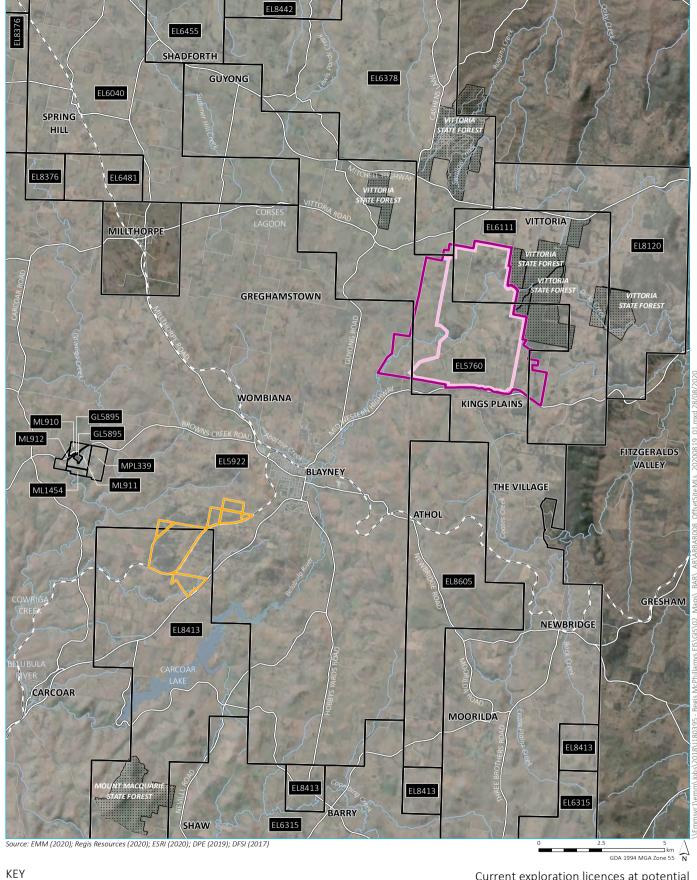
The proponent intends to meet the project's ecosystem and species credit requirements (Section 7.6) through one, or a combination of, the following:

- establishment of a biodiversity stewardship site, managed under a stewardship agreement;
- purchase and retire credits available on the biodiversity credit register; and
- payment into the Biodiversity Conservation Fund.

The aim of the offset strategy is to provide no-net loss for the PCTs and threatened species impacted by the project.

The proponent has purchased and conducted detailed studies to assess native PCTs and threatened species at a future stewardship site in Blayney (ie option 1, above). The property is approximately 388 ha and contains some of the required ecosystem and species credits (PCT 951, PCT 1330 and Koala). It is the proponent's intention to secure the property under a Biodiversity Stewardship Agreement with the Biodiversity Conservation Trust. This would provide a suitable offset for the project and satisfy the requirements for a direct offset in accordance with the EPBC Act Environmental Offsets Policy (DSEWPaC 2012).

The proponent will assess the residual ecosystem and species credits and secure these under one or a combination of options 1 to 3.



Potential stewardship site

■ Mining/exploration titles

Project application area

Mine development project area

Mining lease application area (Note: boundary offset for clarity)

Existing environment

– – Rail line

— Major road

— Minor road

Named watercourse

Named waterbody

State forest

Current exploration licences at potential stewardship site

McPhillamys Gold Project Amendment report – biodiversity assessment report Figure 7.4





8 Assessment against relevant biodiversity legislation

8.1 Environment Protection and Biodiversity Conservation Act 1999

This chapter provides an assessment of the amended project's impacts specific to species and communities listed under the EPBC Act. Protected matters are assessed separately for the mine developments as it was deemed that the mine development is a controlled action.

A likelihood of occurrence assessment is presented in Section 8.1.1.

8.1.1 Likelihood of occurrence

i Threatened ecological communities

Two PCTs were predicted to occur within the mine development project area by the Protected Matters Search Tool (PMST):

- White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland; and
- Natural Temperate Grassland of the South Eastern Highlands.

Table 8.1 assesses the likelihood of these TECs occurring within the mine development project area. White Box - Yellow Box - Blakely's Red Gum Grassy Woodland was recorded within the mine development project area. None of the PCTs recorded are consistent with the other TECs predicted to occur, and these TECs are not considered further.

One TEC listed under the EPBC Act, White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands CEEC, was recorded within the mine development project area. Impacts to this TEC are discussed further in Section 8.1.2.

Table 8.1 Likelihood of occurrence for listed ecological communities

Ecological community	EPBC	Habitat requirements	Likelihood of occurrence
	Act Status		Mine development
White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands	CE	Characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. Tree-cover is generally discontinuous and consists of widely spaced trees of medium height in which the canopies are clearly separated.	Recorded. Up to 20.43 ha directly impacted. Further assessment of this ecological community is provided in Section 8.1.2.
Natural Temperate Grassland of the South Eastern Highlands	CE	Characterised by a dominance of native perennial tussock grasses, the tallest stratum of which is typically up to 1.0 m in height, when present. There is usually a second, lower stratum of shorter perennial and annual grasses and forbs growing between the taller tussocks. The major dominant or co-dominant grass species are: Kangaroo grass, Snowgrass, River Tussock Grass, Kneed Speargrass (<i>Austrostipa bigeniculata</i>), Corkscrew Speargrass, Red grass, various Wallaby grass species (<i>Rytidosperma</i> spp.), Blowngrass (<i>Lachnagrostis filiformis</i>) and Wild Sorghum (<i>Sorghum leiocladum</i>).	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.
Temperate Highland Peat Swamps of the Sydney Basin Bioregion	Е	Temporary or permanent swamps occurring on sandstone in the temperate highlands region in NSW (DEH, 2005) from around 600–1100 m above sea level. The wetter parts of the swamps are occupied by sphagnum bogs and fens, while sedge and shrub associations occur in the drier parts (TSSC, 2005). Can occur as hanging swamps on valley sides and swamps along watercourses.	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.
Upland Basalt Forests of the Sydney Basin Bioregion	E	Tall, open eucalypt forest occurring on basalt soils and substrates, between 650 and 1050 m elevation. Contains a mix of eucalypts, most commonly Brown Barrel (<i>Eucalyptus fastigata</i>), and Narrow-leaved Peppermint (<i>E. radiata</i> subsp. <i>radiata</i>). Can also contain Messmate Stringybark (<i>E. obliqua</i>), River Peppermint (<i>E. elata</i>), White-topped Box (<i>E. quadrangulata</i>), Ironbark Peppermint (<i>E. smithii</i>), Blue Mountains Ash (<i>E. oreades</i>), Blaxland Stringybark (<i>E. blaxlandii</i>), Mountain Grey Gum (<i>E. cypellocarpa</i>), Swamp Gum (<i>E. ovata</i>) and River Peppermint (<i>E. piperita</i>).	Negligible. Does not occur – this community is not consistent with any of the PCTs identified during the field surveys.

ii Threatened species

The PMST and/or BioBanking Credit Calculator (BBCC) predicted that 30 species listed under the EPBC Act could occur within the mine development project area. An additional species, *Acacia meiantha* was also assessed as it was predicted by the Biodiversity Assessment Method Calculator (BAMC) in the McPhillamys Gold Project Amendment Report BDAR (Appendix M of the Amendment Report). The likelihood of occurrence for these species is assessed in Table 8.2.

 Table 8.2
 Likelihood of occurrence for threatened species

Scientific Name	EPBC Status	Source	Likelihood of occurrence
Plants			
Acacia meiantha	E	BAMC	Low. Not predicted by PMST but is a predicted candidate species under the BAM. Further information on the expert assessment is provided at Appendix B. Information on microhabitats from the expert report (Premise Australia 2020) completed for the pipeline were used to assess habitat for the species which was determined to be absent (Appendix E in Appendix M of the Amendment Report).
Euphrasia arguta	CE	PMST	Low.
			Unlikely to occur. Elevations in the mine development project area exceed 900 m, while this species occurs up to 700 m asl.
Austral Toadflax (Thesium australe)	V	PMST	Low.
			Kangaroo Grass, which the species requires to occur, was rarely to uncommonly recorded in the mine development project area.
Basalt Peppercress (<i>Lepidium</i> hyssopifolium)	V	PMST	Low. Known only from three populations in Bathurst, Bungendore and Crookwell. The mine development project area is outside the species known and predicted habitat range.
Black Gum	V	PMST, BBCC	Absent.
(Eucalyptus aggregata)			Not recorded during targeted surveys.
Hoary Sunray, Grassland Paper-daisy (Leucochrysum albicans var. tricolor)	Е	PMST, BBCC	Low. The species was considered during the assessment for the project, with targeted surveys undertaken for this species. The species was not recorded within the mine development project area.
Silver-leaf Candlebark (Eucalyptus	E	ВВСС	Low.
canobolensis)			Known only from Mt Canobolas near Orange. Mine development project area is outside species range.
Silver-leaved Mountain Gum, Silver-leaved Gum	V	PMST, BBCC	Low.
(Eucalyptus pulverulenta)			Potential to occur in PCT 727 and 1330 due to presence of associated species comprise Brittle Gum, Red Stringybark, Broad-leaved Peppermint and Apple Box. However, targeted surveys in accordance with NSW Guide to Surveying Threatened Plants (OEH 2016) did not record the species.
Small Purple Pea	Е	PMST, BBCC	Absent.
(Swainsona recta)			Targeted surveys failed to detect the species.

 Table 8.2
 Likelihood of occurrence for threatened species

Scientific Name	EPBC Status	Source	Likelihood of occurrence
Birds			
Australian Painted-Snipe	E	PMST	Low.
(Rostratula australis)			Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.
Curlew Sandpiper (Calidris ferruginea)	CE	PMST	Low.
			Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.
Eastern Curlew (Numenius	CE	PMST	Negligible.
madagascariensis)			Unlikely to occur given the absence of required foraging habitat types (ie mudflats, mangroves, coastal lakes).
Grey Falcon (Falco hypoleucos)	V	PMST	Negligible.
			Unlikely to occur given the absence of required habitat types (shrubland, grassland and wooded watercourses of arid and semi-arid regions).
Malleefowl	V	PMST	Negligible.
(Leipoa ocellata)			Unlikely to occur due to the absence of required habitat types.
Painted Honeyeater (Grantiella picta)	V	PMST	Low.
			Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species. In addition, trees did not contain mistletoes (ie potential foraging habitat).
Regent Honeyeater (Anthochaera	CE	PMST, BBCC	Low.
phrygia)			Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species. In addition, tree removal (ie potential foraging habitat) will be limited to saplings.
Superb Parrot (Polytelis swainsonii)	V	PMST	Moderate.
			The species was recorded by Envirokey south of the mine development project area, on Kings Plain, and is known to occur in the local area. Potential for the species to forage within the mine development project area. Breeding unlikely to occur in the locality, as the species breeds in the Riverina.
			Further assessment is provided in Section 8.1.2iii.
Swift Parrot	CE	PMST, BBCC	Low.
(Lathamus discolor)			Targeted surveys conducted in accordance with Commonwealth guidelines did not record the species.

 Table 8.2
 Likelihood of occurrence for threatened species

Scientific Name	EPBC Status	Source	Likelihood of occurrence
White-throated Needletail (Hirundapus	V	PMST	Low.
caudacutus)			Unlikely to use habitats onsite as native vegetation is heavily fragmented.
Fish			
Murray Cod (Maccullochella peelii)	V	PMST	Low.
			Aquatic habitats within the mine development project area do not provide suitable habitat for this species.
Macquarie Perch (<i>Macquaria</i>	Е	PMST	Low.
australasica)			Aquatic habitats within the mine development project area do not provide suitable habitat for this species.
Frogs			
Booroolong Frog (<i>Litoria</i>	Е	PMST, BBCC	Low.
booroolongensis)			The Belubula River within the mine development project area does not provide suitable breeding habitat for this species.
Yellow-spotted Tree Frog (<i>Litoria</i>	Е	PMST, BBCC	Low.
castanea)			Require large permanent ponds or slow flowing streams with plenty of emergent vegetation such as bulrushes. The only extant population known is in Yass.
Mammals			
Large-eared Pied Bat (Chalinolobus	V	PMST	Low.
dwyeri)			Unlikely to occur as the mine development project area does not contain and is not proximal to suitable roosting habitat (cliffs).
Spotted-tail Quoll (SE mainland	E	PMST	Low.
population) (Dasyurus maculatus maculatus)			Unlikely to occur as the species has not been recorded in the former Lachlan CMA area in which the mine development project area is located.
Greater Glider (Petaurus volans)	V	PMST	Low.
			Unlikely to occur given the highly degraded nature and open structure of tall moist eucalypt forest.
Koala (NSW, QLD and ACT) (Phascolarctos	V	PMST, BBCC	Recorded.
cinereus)			The species was recorded within the mine development project area. Assessment provided in Section 8.1.2.

 Table 8.2
 Likelihood of occurrence for threatened species

Scientific Name	EPBC Status	Source	Likelihood of occurrence
Grey-headed Flying-fox (Pteropus	V	PMST	Low.
poliocephalus)			Unlikely to occur as there are no roosting camps that intersect the pipeline corridor.
Reptiles			
Pink-tailed Worm Lizard (Aprasia	V	PMST	Low.
parapulchella)			Targeted surveys did not record the species.
Striped Legless Lizard (<i>Delma impar</i>)	V	PMST	Low.
			Unlikely as the species is not known to occur in the region.
Insects			
Golden Sun Moth (Synemon plana)	CE	PMST	Negligible.
			Preferred habitat for this species (ie natural grasslands) are absent from the mine development project area.

Notes: PMST – Protected Matters Search Tool Results, BBCC – BioBanking Credit Calculator, BAMC – Biodiversity Assessment Method Calculator.

The Koala was recorded in the mine development project area, while the Superb Parrot was recorded to the south. These species are discussed further in Section 8.1.2.

iii Migratory species

Fourteen species listed as migratory under the EPBC Act were predicted to occur in the project application area based on database searches undertaken. Table 7.3 provides an assessment of the likelihood of these species utilising habitat within the mine development area.

Two species listed as migratory under the EPBC Act (Rainbow Bee-eater and Latham's Snipe) were recorded as being present in mine development project area. These species are discussed further below.

 Table 8.3
 Likelihood of occurrence for migratory species

Scientific name	EPBC Status	Source	Potential presence – mine development
Australian Painted-snipe (Rostratula australis)	E, Ma	PMST	Low. Unlikely to occur given the absence of preferred foraging habitats including swamps and marshes.
Black-faced Monarch (Monarcha melanopsis)	Ma, Mi	PMST	
Common Sandpiper (Actitis hypoleucos)	Ма	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine development project area.
Curlew Sandpiper (Calidris ferruginea)	CE, Mi	PMST	Negligible. Unlikely to occur as suitable foraging habitat (intertidal mudflats, swamps, lakes, lagoons) are absent.
Eastern Curlew (Numenius madagascariensis)	CE, Ma, Mi	PMST	Negligible. Unlikely to occur given the absence of required foraging habitat types (i.e. mudflats, mangroves, coastal lakes).
Fork-tailed Swift (Apus pacificus)	Ma, Mi	PMST	Low.
			Recorded by EMM in Feb 2019. Unlikely to use habitats onsite as the species is almost exclusively aerial.
Latham's Snipe (Gallinago hardwickii)	Ma, Mi	PMST	Recorded.
			Observed in the mine development project area by EnviroKey (one record). Further assessment of this migratory species is provided below.
Pectoral Sandpiper (Calidris melanotos)	Ma, Mi	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine development project area.
Rainbow Bee-eater (Merops ornatus)	Mi	PMST	Recorded. Observed in the mine development project area by EnviroKey (one record). Further assessment of this migratory species is provided below.
Rufous Fantail (Rhipidura rufifrons)	Ma, Mi, B	PMST	Low. Unlikely to occur as moist, dense forests are absent from the mine development project area.
Satin Flycatcher (Myiagra cyanoleuca)	Ma, Mi, B	PMST	Low. Unlikely to occur as tall wet sclerophyll forests and rainforests are absent from the mine development project area.
Sharp-tailed Sandpiper (Calidris acuminata)	Ma, Mi, B C, J, R	PMST	Negligible. Unlikely to occur as wetlands are absent from the mine development project area.

 Table 8.3
 Likelihood of occurrence for migratory species

Scientific name	EPBC Status	Source	Potential presence – mine development
White-throated Needletail (<i>Hirundapus caudacutus</i>)	Ma, Mi, C, J, R, V	PMST	Low. May occur overhead only. Unlikely to use habitats onsite as native vegetation is heavily fragmented
Yellow Wagtail (<i>Motacilla flava</i>)	Mig (EPBC Act)	PMST	Low. Unlikely as well watered open grasslands and wetlands are absent from the mine development project area.

8.1.2 Significant impact assessment

White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland and the Koala were recorded within the mine development project area, while the Superb Parrot was considered a moderate likelihood of occurrence following targeted surveys. Two species (the Rainbow Bee-eater and Latham's Snipe) listed under the migratory provisions of the EPBC Act were also recorded within the mine development project area.

Impacts to this TEC, two threatened species and two migratory species are assessed below.

i White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

The Commonwealth Listing Advice for the critically endangered White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (TSSC 2006) provides a general description of the community and describes its current status. White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland occurs on the western slopes and tablelands of the Great Dividing Range, from southern Queensland, though NSW and central Victoria. Much of the community's original distribution has been cleared for agriculture, and remaining areas are subject to grazing and pasture improvement impacts. Consequently, remaining patches of the community have a disturbed understorey with mature trees, or occur as areas with a highly diverse understorey, sometimes without a canopy (i.e. derived native grasslands) (TSSC 2006).

The community is characterised by the dominance (or prior dominance) of White Box (*Eucalptus albens*), Yellow Box and/or Blakely's Red Gum trees. Tree cover in the community is generally discontinuous, consisting of widely spaced trees of moderate height. In optimum condition, the community contains a sparse shrub layer and a diverse understorey of native grasses and forbs (TSSC 2006). In order for an area to be included in the listed ecological community, a patch must have a predominantly native understorey (TSSC 2006).

There is no approved Conservation Advice for this ecological community. The recovery plan for the community (DECCW 2010a) lists clearing for agricultural development, urban/rural residential and urban development, and the development, maintenance and upgrade of public infrastructure as an ongoing threat, as well as conflicting management practices (grazing regimes and pasture management, changed fire regimes and increased soil nutrients) and weed invasion (particularly from pasture grasses).

EPBC Act Policy Statement 3.5 White Box Yellow Box Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands (DEH 2006) provides a flowchart to assist in determining if patches are included in the listed community (Plate 7.1).

The structure and diversity of the native plant community types (PCTs) in the project application area have been compared with the flowchart (Plate 8.1) to determine if they represent the listed community.

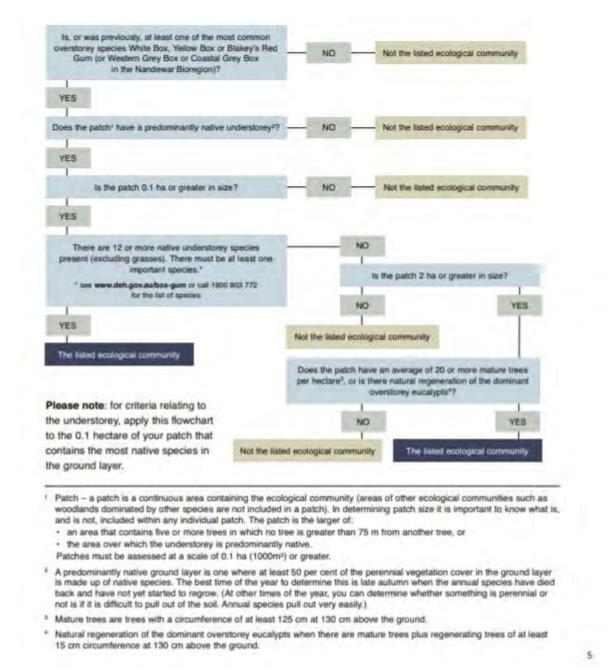


Plate 8.1 Flowchart to determine presence of the listed community (or otherwise)

Assessments of significance for White Box-Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland relevant to the mine development is provided in the following sections.

Approximately 20.43 ha of the EPBC Act listed community will be impacted by the mine development. Table 8.4 provides an assessment of significance for the removal of 20.43 ha of White Box-Yellow Box – Blakely's Red Gum Woodland and Derived Native Grassland for the project, in accordance with the assessment criteria for critically endangered ecological communities (DoE 2013).

Table 8.4 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the mine development project area

Criteria	Discussion
Conservation status	Critically endangered
1. Reduce the extent of an ecological community	Approximately 20.43 ha of the listed community will be removed as a result of the project. The listed community has also been mapped within the immediate vicinity of the mine development project area, using plant community type mapping for the central tablelands (OEH 2018). Within a 5 km buffer of the mine development project area, approximately 1,129 ha of White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland is mapped. This comprises 1,096.66 ha of PCT 1330 (including areas mapped on site), 25.67 ha of PCT 654 (Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion) and 6.68 ha of PCT 278 (Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion). Note that this does not account for the condition of vegetation mapped, and areas of these PCTs in poor condition would likely not meet the criteria for the EPBC Act listed community.
	PCT 1330 has been identified as representing Box Gum Woodland in the mine development project area. Accordingly, the project would result in a reduction of 1.8% in extent of the CEEC within a 5 km radius of the project (based on all areas of the PCTs above meeting the EPBC Act condition requirement, excluding areas ground-truthed on site as being in poor or other condition).
	The Commonwealth listing advice (TSSC 2006) estimates that 250,729 ha of the community is extant in NSW and 416,325 ha on a national scale. Accordingly, the project will result in a reduction of 0.008% in the community's NSW extent and 0.004% on a national scale, respectively. The Commonwealth listing advice states that the above estimates are conservative as they include areas in poor condition that do not represent the EPBC Act-listed community.
2. Fragment or increase fragmentation	The listed community is highly fragmented within and surrounding the mine development project area, and the vegetation within the mine lease represents the western edge of a tract of relatively contiguous, albeit fragmented, vegetation. Largely cleared land is located west and south. Several patches of the community will be removed from the mine disturbance footprint, further fragmenting some patches located to the west from areas of retained vegetation to the east and north. Accordingly, the project will increase the degree of fragmentation of the community.
3. Adversely affect critical habitat	A national recovery plan has been developed (DECCW 2010a) for this community, which states that all areas of the listed community which meet the minimum condition criteria outlined in Section 3 of the plan, should be considered critical to the survival of this listed ecological community. Approximately 20.43 ha of vegetation in the mine disturbance footprint meets the above criteria. According to the PCT mapping (OEH 2018), there is approximately 1,129 ha of PCTs that represent the listed community within a 5 km radius of the project. The project would reduce the extent of critical habitat in the locality by approximately 1.8%.
4. Modify or destroy abiotic factors necessary for survival	Abiotic factors including soil and surface hydrology will be modified in the mine development project area, and therefore represents a permanent impact. The listed community occurs directly north and south-west of the mine disturbance footprint, within the mine development project area. An assessment of changes to groundwater availability and quality that these retained patches would use opportunistically was conducted. The assessment concluded that retained patches of the community would not be adversely affected by the project.
5. Cause a substantial change in species composition	The project will remove 20.43 ha of habitat for the listed community within the mine disturbance footprint. Retained areas of the listed community outside the mine disturbance footprint will be designated as no-go zones (with the exception of entry for environmental management). Weed management measures will also be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine development project area. The condition of these areas is likely to improve in quality with this management.

Table 8.4 Assessment of significance for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the mine development project area

Criteria	Discussion								
6. Cause a substantial reduction in quality or integrity	The project will remove all areas of this community within the mine disturbance footprint; consequently, there will be no residual risk within the mine development project area. Areas outside of the mine development project area have been subjected to the indirect impacts of agriculture for a long period of time, eg the potential importation of invasive species. This does not appear to have significantly impacted the CEEC to date. The majority of weed species within the CEEC are exotic pasture species associated with previous agricultural land uses. Weed management measures will be developed and implemented in retained areas of the community outside the mine disturbance footprint, but within the mine development project area.								
7. Interfere with recovery	A national recovery plan has been developed (DECCW 2010a), with the objective to promote the recovery and minimise the risk of extinction of the ecological community through:								
	 achieving no net loss in extent and condition of the ecological community throughout its geographic distribution; 								
	 increasing protection of sites in good condition; 								
	 increasing landscape function of the ecological community through management and restoration of degraded sites; 								
	• increasing transitional areas around remnants and linkages between remnants; and								
	 bringing about enduring changes in participating land manager attitudes and behaviours towards environmental protection and sustainable land management practices to increase extent, integrity and function of Box-Gum Grassy Woodland. 								
	The clearance of up to 20.43 ha of the CEEC will directly contravene Point 1, by reducing the extent of the listed community. Section 7.3details avoidance measures implemented by Regis into the project design to minimise impacts on this community. Detailed design has avoided and minimised impacts to areas of high condition White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands within the mine development project area, apart from a small area (1.47 ha) in the direct footprint of the open cut mine. This area was impossible to avoid due to this being the location of the gold deposit targeted by the project. The location of the TSF was also moved to avoid almost all White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands identified within the TSF investigation area.								
	Management of retained areas of the community on the site will assist in protecting areas of good condition habitat to be retained								
	There is no approved Conservation Advice for this ecological community.								
Conclusion	The project is likely to result in a significant impact on the listed community as 20.43 ha of habitat critical to its survival will be removed. Impacts to the 20.43 ha of the community removed by the project are known, predictable and irreversible.								

ii Koala

The range of the combined population of Koalas (EPBC Act — vulnerable) in QLD, NSW and ACT extends from approximately the latitude of Cairns to the New South Wales-Victoria border, and includes some island populations. The Koala's distribution is not continuous across this range, with some populations isolated by cleared land or unsuitable habitat (DECC 2008). Koalas inhabit a range of temperate, sub-tropical and tropical forest, woodland and semi-arid communities dominated by species from the genus Eucalyptus. The distribution of Koalas is also affected by altitude (generally limited to <800 m asl), temperature, and at the western end of their range, leaf moisture (TSSC 2012).

A single Koala was recorded resting in Apple Box in the mine development project area. In accordance with the Koala Recovery Plan (DECC 2008), PCT 951 represents primary koala feeding habitat as it contains Manna Gum, a primary koala food tree in the central and southern tablelands KMA, in which the project is located. PCT 1330 represents secondary habitat for the species, as it contains secondary food tree species in the central and southern tablelands koala management area, Apple Box and Yellow Box (PCT 1330). Approximately 116.95 ha of Koala habitat occurs in the disturbance footprint.

An assessment has been completed for the mine development project area in accordance with the Koala habitat assessment tool in EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (Commonwealth of Australia 2014) in Table 8.5.

Table 8.5 Koala habitat assessment tool (Commonwealth of Australia 2014) for the in the mine development project area

Attribute	Score	Data source	Habitat assessment
Koala occurrence	+2 (high)	Desktop	The NSW Atlas of Wildlife identifies one recent record (1986), east of the mine development project area. The Protected Matters Search Tool identifies that the species or its habitat is known to occur in the area.
		On ground	Vegetation communities containing Koala feed tree species for the central and southern tablelands KMA were mapped for the mine development project area. Scat searches were completed in the mine development project area using the Spot Assessment Technique (Phillips and Callaghan 2011). No scats were found. Nocturnal spotlighting was also completed, and no Koalas were recorded during this activity. However, a single Koala was found resting in an Apple Box during the day.
Vegetation structure and composition	+2 (high)	Desktop	The project is in the central and southern tablelands KMA. High regional use species identified by SEPP (Koala Habitat Protection) 2019 in the mine development project area comprise Manna Gum, Brittle Gum, Blakely's Red Gum, Apple Box and Yellow Box.
		On ground	On-ground surveys confirmed that the mine development project area contains Koala habitat, comprising the food tree species listed above.
Habitat connectivity	0 (low)	Desktop	Koala habitat in the mine development project area is highly fragmented. In addition, Koala habitat in the mine development project area does not connect to any large patches of habitat outside the mine development project area. The area of connected habitat is less than 500 ha, and therefore habitat connectivity is low.
Key existing threats	+2 (high)	Desktop	No sick, injured or dead Koalas have been recorded during the course of the biodiversity assessment. The status of Chlamydia infection in the region is unknown.
		On ground	The Koala observed in the mine development project area appeared to be healthy, with no signs of Chlamydia (eg dry bottom). A high value has been assigned due to uncertainty over local threats.
Recovery value	+1 (medium)	Desktop and on ground	Koala habitat is highly fragmented in the mine development project area and region; however, contains small, patchy woodland remnants in an agricultural setting, which is recognised by Table 1 of the referral guideline as having recovery value. Therefore, there is uncertainty whether the habitat is important for achieving the interim Koala recovery objectives.

With a total score of seven, vegetation in the mine development project area represents habitat critical to the survival of the Koala, in accordance with the referral guidelines (ie score greater than five).

Table 8.6 provides an assessment of significance for the removal of up to 116.95 ha of potential Koala habitat, in accordance with the assessment criteria for vulnerable species (DoE 2013).

Table 8.6 Assessment of significance for the Koala for the mine development project area

Criteria	Discussion
1. long-term decrease of an important population	The Koala referral guideline (Commonwealth of Australia 2014) does not identify any important populations of the species. A single Koala was opportunistically identified in the mine development project area during surveys, while targeted searches, including SAT assessments and spotlighting, did not record the species. There is only one NSW Atlas of Wildlife record of the species (from 1986), east of the mine development project area. Koala habitat is highly fragmented in the mine development project area and region but contains small, patchy woodland remnants in an agricultural setting. Considering the above, Koalas are likely to occur in low densities in the mine development project area and therefore would not represent an important population.
2. reduce area of occupancy of an important population	An important population of the Koala does not occur in the mine development project area.
3. fragment an important population	An important population of the Koala does not occur in the mine development project area.
4. adversely affect critical habitat	Following the precautionary principle, all woodland in the mine development project area was identified in the EPBC referral as representing habitat critical to the survival of the Koala. This habitat would be permanently removed from the disturbance footprint, and therefore critical habitat would be adversely affected.
	SEPP (Koala Habitat Protection) 2019 identifies 39 feed trees that occur in the Central and Southern Tablelands KMA, five of which occur in the mine development project area. These areas have been used to define Koala habitat in the mine development project area.
	Section 7.3 details avoidance measures implemented by Regis into the project design to minimise impacts on habitat for this species. Management of retained areas of species habitat on the site (see Section 7.3) will assist in protecting areas of habitat to be retained.
5. disrupt the breeding cycle of an important population	An important population of the Koala does not occur in the mine development project area.
6. decrease availability or quality of habitat	The project would decrease habitat availability in the mine development project area by approximately 116.95 ha, while areas outside the mine disturbance footprint would be retained. A project would be undertaken in retained habitat areas to reconnect fragmented patches and increase connectivity for Koalas to mitigate the removal of Koala habitat.
	Approximately 1,516.3 ha of Koala habitat occurs within a 5 km radius of the project. This habitat comprises PCTs with key feed tree species in the Central and Southern Tablelands Koala Management Area, in which the project occurs, and is a conservative estimate as the composition of key feed species within these PCTs is unknown. Accordingly, the project would result in a 5% (approximate) reduction in Koala habitat within a 5 km radius of the project.
	The species national distribution extends along much of the NSW east coast, extending from Adelaide to the east coast, and northern QLD to the coast (excluding Cape York). The project will contribute to a small reduction in Koala habitat on a national scale, however this will be mitigated by the revegetation project that will aim to reduce the fragmentation of Koala habitat in retained patches of Koala habitat in the mine development project area.

Table 8.6 Assessment of significance for the Koala for the mine development project area

Criteria	Discussion
7. result in invasive species	Domestic dogs (<i>Canis familiaris</i>) are known to prey on Koalas. As the project will not introduce domestic dogs to the area, the project will not result in invasive species that would adversely affect the Koala.
8. introduce disease	Koalas are susceptible to Chlamydia, a sexually transmitted disease. The single Koala observed in the mine development project area during surveys appeared to be in good health and free of the signs of Chlamydia.
	In general, disease outbreaks occur when animals are stressed. As Koala density in the mine development project area is low, the potential for a disease outbreak is also considered to be low.
9. interfere with recovery	The overall objective of the Recovery plan for the Koala (DECC 2008) is to reverse the decline of the Koala in NSW, to adequately protect, manage and restore Koala habitat and to maintain healthy breeding populations of Koalas throughout their current range. As the project will remove habitat critical to the survival of the species, it interferes with recovery of the Koala. The proposed Koala habitat revegetation in retained native vegetation in the mine development project area will address a priority management measure for the Koala outlined in the species conservation advice (TSSC 2012).
Conclusion	The project may result in a significant impact on the Koala as an area of habitat critical to the survival of the Koala would be removed. Impacts to the 116.95 ha of critical habitat removed by the project are known, predictable and irreversible.

iii Superb Parrot

The Commonwealth Conservation Advice for the Superb Parrot (EPBC Act – vulnerable) (TSSC 2016a) describes the conservation status, distribution, biology/ecology and threats to the survival of the Superb Parrot. The Superb Parrot occurs west of the Great Dividing Range, in Canberra, Goulburn and west to Nyngan and Swan Hill. The Superb Parrot nests in large, living or dead trees with many hollow branches, typically near watercourses. Following breeding, Superb Parrots disperse and forage on a variety woodland and other habitat types. Threats to the survival of the species comprise the loss and degradation of habitat, competition for nest hollows, roadkill, illegal collection of wild birds, Psittacine beak and feather disease and climate change.

The National Recovery Plan for the Superb Parrot (Baker-Gabb 2011) details the species biology, ecology, distribution, populations, habitat and threats. The recovery plan describes the species as nomadic, resident, dispersive and migratory, making regular seasonal movements between breeding and non-breeding areas, in response to changes in food availability. When making local foraging movements, the species usually moves through wooded corridors, rarely crossing large areas of open ground.

The breeding range of the Superb Parrot is concentrated on the NSW South Western Slopes and Riverina bioregions.

The three main breeding areas comprise:

- the area bounded by Molong, Rye Park, Yass, Coolac, Cootamundra and Young;
- along the Murrumbidgee River between Wagga Wagga and Toganmain Station to Goolgowi; and
- along the Murray and Edward Rivers, east of Barmah and Millewa State Forest to south of Taylors Bridge.

The species has also recently been recorded breeding in urban areas of Canberra (Rayner et al. 2016).

The total population of the Superb Parrot has been estimated at 5,000 to 8,000 birds, 6,500 of which comprise adults.

The recovery plan (Baker-Gabb 2011) defines habitat critical to the survival of the Superb Parrot as breeding habitat that comprises riverine forests in the Riverina and Box-Gum Woodlands on the tablelands and slopes. Tree species typically selected for nesting on the slopes and tablelands comprise River Red Gum (*E. camaldulensis*), Blakely's Red Gum, Apple Box, Grey Box (*E. microcarpa*), White Box and Red Box (*E. polyanthemos*). Of the species described above, Blakely's Red Gum and Apple Box occur in the project application area and surrounds. However, the project application area does not occur within the three main breeding areas for the species, so local records of the species are considered to be vagrant individuals.

Foraging habitat critical to the survival of the species is defined by the recovery plan (Baker-Gabb 2011) as Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland. These vegetation types do not occur in the project application area, and therefore it does not comprise foraging habitat critical to the survival of the species.

One Superb Parrot was recorded directly south of the mine development (EnviroKey 2018). Potential habitat within the mine development comprises areas of PCT 1330_high and 1330_medium.

Table 8.7 provides an assessment of significance for the removal of up to 20.43 ha of potential Superb Parrot habitat, in accordance with the assessment criteria for vulnerable species (DoE 2013).

Table 8.7 Assessment of significance for the Superb Parrot for the mine development project area

Criteria	Discussion		
1. Long-term decrease of an important population	Important populations have not been defined in the recovery plan for the Superb Parrot (Baker-Gabb 2011). A single population of the species exists, and therefore the project cannot lead to the decrease of an important population.		
2. Reduce occupancy area for important population	As above.		
3. Fragment an important population	As above.		
4. Adversely affect habitat critical to survival	Habitat critical to the survival of the species has been defined by the recovery plan (Baker-Gabb 2011) as breeding habitat that comprises riverine forests in the Riverina and Box Gum Woodlands on the tablelands and slopes and foraging habitat comprising Boree Woodlands between the Murrumbidgee and Murray Rivers, River Red Gum Forest, Box-Pine Woodland and White Cypress Pine Woodland.		
	As the project application area does not fall within the species breeding range, it does not represent habitat critical to the survival of the species.		
	Section 7.3 details avoidance measures implemented by Regis into the project design to minimise impacts on habitat for this species. Management of retained areas of species habitat on the site (see Section 7.3) will assist in protecting areas of habitat to be retained.		
5. Disrupt breeding cycle	The project application area is outside the species breeding range. Therefore, the project will not disrupt the species breeding cycle.		
6. Modify, destroy, remove, isolate or degrade habitat	The project will remove 20.43 ha of potential foraging habitat for the Superb Parrot in the mine development. The project application area is outside the species breeding range, and therefore the species is considered to be a vagrant in the region. At a national scale, the species occurs in Tasmania and between Bendigo, Victoria and north-western NSW. The removal of this potential foraging habitat in which the species is vagrant will not substantially reduce the national extent.		
7.Result in invasive species	Soil disturbance for the project has potential to result in the spread of invasive weeds to retained areas of vegetation and potential habitat. Weed control procedures will be developed during the EIS to minimise the impact on potential foraging habitat for the Superb Parrot.		

Table 8.7 Assessment of significance for the Superb Parrot for the mine development project area

Criteria	Discussion	
8. Introduce disease	Superb Parrots may be susceptible to beak and feather disease. Disease outbreaks usually occur in wild animal populations where significant stresses arise. The clearance of potential foraging habitat is unlikely to cause significant stress such that a disease outbreak would occur.	
9. Interfere with recovery	Recovery actions for the Superb Parrot aim to determine population trends, increase knowledge of the species ecological requirements, develop and implement threat abatement strategies and increase community involvement and awareness of the recovery program (Baker-Gabb 2011). As recovery actions are focused on increasing knowledge of the species, the project will not interfere with recovery.	
Conclusion	The clearance of potential Superb Parrot foraging habitat will not result in a significant impact on the species, important populations will not be adversely affected, the area to be removed does not represent habitat critical to the survival of the species and the project will not interfere with recovery of the species. Impacts are known, predictable and irreversible.	

iv Latham's Snipe

Latham's Snipe is listed as a migratory species under the EPBC Act. It was recorded directly adjacent to the mine development project area in November 2013.

Latham's Snipe breeds in Japan and in far eastern Russia during the northern summer and then migrates to Australia, where it remains for the duration of the northern winter. Latham's Snipe is a non-breeding visitor to south-eastern Australia, migrates through northern Australia to reach non-breeding areas located further south. The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia. The range extends inland over the eastern tablelands in south-eastern Queensland to west of the Great Dividing Range in New South Wales. The species is widespread in Tasmania and is found in all regions of Victoria except for the north-west. Most birds spend the non-breeding period at sites located south of the Richmond River in NSW.

The size of the Latham's Snipe population that visits Australia is estimated at 25,000 to 100,000 birds. Previous population estimates have ranged from 15,000 breeding birds to 37,000 breeding birds. The actual population size is difficult to estimate and is poorly known. In Australia, Latham's Snipe occurs in a single, dispersed non-breeding population.

Latham's Snipe occurs in permanent and ephemeral wetlands up to 2,000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies). However, they can also occur in habitats with saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity, such as where they were recorded in the mine development project area.

The Matters of National Environmental Significance Significant Impact Guidelines 1.1 (DoE 2013) defines important habitat for migratory species as areas periodically occupied by an ecologically significant proportion of the population, habitat critical to the species life cycle, habitat at the edge of their range or within an area where they are declining. The Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species (DoE 2015) defines important habitat for Latham's Snipe as areas that have previously been identified as internationally important for the species, or areas that support at least 18 individuals of the species.

Only one site in Australia, Seaford Swamp in Victoria is recognised as an internationally important wetland for the species (Bamford et al 2008). The internationally important habitat occurs outside the project application area.

An assessment of significance (Table 8.8) was prepared for Latham's Snipe in relation to the project, in accordance with the assessment criteria for migratory species (DoE 2013).

Table 8.8 Assessment of significance for Latham's Snipe in the mine development project area

Criteria Discussio	Discussion		
1. Substantially modify important habitat	The only identified important sites for Latham's Snipe (based on the DoE guidelines), are six sites located in Victoria, Tasmania and South Australia. The <i>Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species</i> (DoE 2015) defines important habitat for Latham's Snipe as areas that have previously been identified as internationally important for the species, or areas that support at least 18 individuals of the species. Only one individual was recorded adjacent to the mine development project area. Therefore, the project application area does not contain important habitat for Latham's Snipe, and will not reduce the national extent of important sites.		
2. Result in invasive species	Vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding habitat, unless adequately mitigated. Measures to control weeds in retained habitats of the project application area will be developed during preparation of the Biodiversity Management Plan.		
	As a ground-dwelling bird, Latham's Snipe are vulnerable to predation from the introduced Red Fox (<i>Vulpes vulpes</i>). These species can spread into undisturbed areas when new access roads and tracks are created. As the project will not create new tracks through undisturbed areas, it is unlikely to result in the spread of the Red Fox.		
3. Disrupt lifecycle of ecologically significant proportion of population	The project application area does not contain an ecologically significant proportion of the species. Therefore, the lifecycle of an ecologically significant proportion of Latham's Snipe will not be disrupted.		
Conclusion	The project is unlikely to result in a significant impact on Latham's Snipe as:		
	 the area does not contain important habitat for the species; and 		
	 an ecologically significant proportion of the population will not be disrupted. 		

v Rainbow Bee-eater

Rainbow Bee-eater is listed as a migratory species under the EPBC Act. A single Rainbow Bee-eater was recorded in the mine development project area. The Rainbow Bee-eater is widely distributed throughout Australia and eastern Indonesia, including Bali, the Lesser Sundas and Sulawesi, and east to Papua New Guinea, the Bismarck Archipelago and, rarely, the Solomon Islands. It is a vagrant visitor to locations further north including Palau, south-western Micronesia, Saipan, the northern Mariana Islands, and Miyako Island and the southern Ryuku Islands in Japan. The majority of the global population breeds in Australia (including on Rottnest Island and islands in the south-west Torres Strait). Breeding has also been recorded in eastern Papua New Guinea (around Port Moresby and the Ramu Valley) and may possibly occur in the Lesser Sundas.

The Rainbow Bee-eater occurs mainly in open forests and woodlands, shrublands, and in various cleared or semi-cleared habitats, including farmland and areas of human habitation. It usually occurs in open, cleared or lightly-timbered areas that are often, but not always, located in close proximity to permanent water. It also occurs in inland and coastal sand dune systems, and in mangroves in northern Australia, and has been recorded in various other habitat types including heathland, sedgeland, vine forest and vine thicket, and on beaches. The Rainbow Bee-eater occurs in open woodlands and shrublands, including mallee, and in open forests that are usually dominated by eucalypts. It also occurs in grasslands and, especially in arid or semi-arid areas, in riparian, floodplain or wetland vegetation assemblages (DoEE 2019).

An assessment of significance is provided for this species in Table 8.9.

Table 8.9 Assessment of significance for Rainbow Bee-eater in the mine development project area

Criteria	Discussion
1. Substantially modify important habitat	The Rainbow Bee-eater is a widely distributed and common migratory species. No important habitats have been identified for the species, and it occurs widely in a range of open forests and woodlands, and cleared habitats. The mine development project area is unlikely to meet the criteria for important habitat as defined in DoE (2013).
2. Result in invasive species	Vegetation clearing and topsoil stripping are likely to lead to weed invasion in surrounding habitat unless adequately mitigated. Measures to control weeds in retained habitats of the mine development project area will be developed during the EIS.
3. Disrupt lifecycle of ecologically significant proportion of population	The species was not observed regularly in the mine development project area, and the mine development project area is unlikely to support an ecologically significant proportion of the Rainbow Bee-eater.
Conclusion	The project will not result in a significant impact on the Rainbow Bee-eater as: • the area does not contain important habitat for the species; and
	 an ecologically significant proportion of the population will not be disrupted.

8.2 Environmental Planning and Assessment Act 1979

8.2.1 State Environmental Planning Policy (Koala Habitat Protection) 2019

Although the Koala Habitat Protection SEPP does not apply to the development (Section 2.2.2), feed tree species from the relevant koala management area have been used to inform the delineation of Koala habitat for the mine development. The 39 listed feed tree species for the central and southern tablelands Koala management area (KMA) were also considered when completing Koala habitat mapping for the mine developments. Of these 39 species, *A review of Koala tree use across NSW* (OEH 2018b) states that there is evidence of widespread use of Brittle Gum, Manna Gum, Broad-leaved Peppermint, Red Stringybark, Inland Scribbly Gum and Snow Gum.

Table 8.10 provides the list of feed tree species relevant to the KMA and determines which species are present in the mine development and their associated PCTs. It also identifies presence of the widely used species, which in combination with vegetated corridors, have been used for the purposes of defining 'important koala habitat' for the Koala species polygons in accordance with the BAM.

Table 8.10 Koala feed tree species for the central and southern tablelands KMA

Common name(s)	Present in mine development footprint?	Associated vegetation zones where the species is dominant/co-dominant
Blue-leaved Stringybark	Absent	-
White Box	Absent	-
Cabbage Gum	Absent	-
Blakely's Red Gum	Mine development Pipeline development	1330_High, 1330_Moderate, 1330_Poor, 1330_Other 277_Intact, 277_Moderate
۸	lue-leaved Stringybark /hite Box abbage Gum	lue-leaved Stringybark Absent /hite Box Absent abbage Gum Absent lakely's Red Gum Mine development

Table 8.10 Koala feed tree species for the central and southern tablelands KMA

Scientific name	Common name(s)	Present in mine development footprint?	Associated vegetation zones where the species is dominant/co-dominant
Eucalyptus bosistoana	Coast Grey Box	Absent	-
Eucalyptus bridgesiana	Apple Box	Mine development Pipeline development	1330_High, 1330_Moderate, 1330_Poor, 1330_Other 727_High, 727_Moderate, 727_Intact ,1330_Intact, 727_Intact, 277_Intact, 1093_Fragments, 1093_Intact
Eucalyptus camaldulensis	River Red Gum	Absent	-
Eucalyptus conica	Fuzzy Box	Absent	-
Eucalyptus cypellocarpa	Monkey Gum	Absent	-
Eucalyptus dalrympleana^	Mountain Gum	Pipeline development	1197_Intact
Eucalyptus dealbata	Tumbledown Red Gum	Absent	-
Eucalyptus dives^	Broad-leaved Peppermint	Mine development Pipeline development	727_High, 727_Medium 727_Intact, 727_Moderate, 1093_Fragments, 1093_Intact
Eucalyptus elata	River Peppermint	Absent	-
Eucalyptus eugenioides	Narrow-leaved Stringybark	Absent	-
Eucalyptus fibrosa	Broad-leaved Red Ironbark	Absent	-
Eucalyptus globoidea	White Stringybark	Absent	-
Eucalyptus goniocalyx	Bundy	Mine development Pipeline development	727_High, 727_Moderate 727_Intact, 277_Intact, 277_Moderate, 1093_Intact
Eucalyptus macrorhyncha^	Red Stringybark	Pipeline development	727_Intact, 1093_Intact, 1093_Fragments, 277_Intact
Eucalyptus maidenii	Maiden's Blue Gum	Absent	-
Eucalyptus mannifera^	Brittle Gum	Pipeline development	727_Intact, 1093_Fragment, 1093_Intact
Eucalyptus melliodora	Yellow Box	Mine development Pipeline development	1330_High, 1330_Moderate, 1330_Poor, 1330_Other 727_High, 727_Moderate
		. penne development	1330_Intact, 277_Intact, 277_Moderate

Table 8.10 Koala feed tree species for the central and southern tablelands KMA

microcarpa Eucalyptus nortonii Eucalyptus obliqua	Stringybark Grey Ironbark	Absent Absent Absent Absent Absent	-
nortonii Eucalyptus obliqua Eucalyptus	Messmate Stringybark Grey Ironbark	Absent Absent	-
Eucalyptus	Stringybark Grey Ironbark	Absent	-
, ,	Grey Ironbark		-
	·	Absent	_
Eucalyptus paniculata			
Eucalyptus pauciflora^	White Sally, Snow Gum	Pipeline development	1191_Intact, 1197_Intact
Eucalyptus piperita	Sydney Peppermint	Absent	-
Eucalyptus polyanthemos	Red Box	Absent	-
Eucalyptus punctata	Grey Gum	Absent	-
Eucalyptus quadrangulata	White-topped Box	Absent	-
Eucalyptus radiata	Narrow leaved Peppermint	Absent	-
Eucalyptus rossii^	Inland Scribbly Gum	Pipeline development	1191_Intact, 1197_Intact
Eucalyptus rubida	Candlebark		
Eucalyptus sclerophylla	Hard-leaved Scribbly Gum	Absent	-
Eucalyptus sideroxylon	Mugga Ironbark	Absent	-
Eucalyptus sieberi	Silvertop Ash	Absent	-
Eucalyptus tereticornis	Forest Red Gum	Absent	-
Eucalyptus viminalis	Ribbon Gum	Mine development Pipeline development	951_poor 1191_Fragments

8.3 Biosecurity Act 2015

One priority weed of the central tablelands was recorded in the mine development project area, namely Blackberry. Blackberry is a priority weed for all of NSW and are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. The species must not be imported into NSW or sold. In addition, there is a regional recommended measure for land managers in the central tablelands to mitigate the risk of new weeds being introduced to, and spread from, their land. The plant should not be bought, sold, grown, carrier or released into the environment. Conservation areas, natural environments and primary production lands should be protected that are free of Blackberry. The biodiversity management plan for the project would directly address the control of Blackberry.

9 Conclusion

This Biodiversity Assessment Report has been prepared in accordance with the FBA (OEH 2014), biodiversity-related SEARs and agency-specific assessment requirements. Regis has carried out annual biodiversity surveys within the mine development project boundary since acquiring EL 5760 in 2012. These surveys have been carried out in parallel with, and have informed the evolution of, the mine development design. This iterative process has resulted in a disturbance footprint that is predominantly comprised of open grassland with a long history of agricultural use and has avoided biodiversity constraints as far as practicable.

The mine development requires 3,863 ecosystem credits to compensate for impacts on native PCTs and ecosystem credit species. In addition to ecosystem credits, the project also requires 3,041 species credits for the Koala and 2,802 species credits for the Squirrel Glider. Regis will compensate for these residual impacts through the implementation of a biodiversity offset strategy.

The BAR has also considered impacts on species and ecological communities listed under the EPBC Act. The mine development is expected to result in significant impacts on White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands and the Koala. As the project is being assessed in accordance with the bilateral agreement made between the NSW and the Commonwealth under Section 45 of the EPBC Act, impacts on this listed ecological community and species will be compensated through the implementation of the biodiversity offset strategy.

As the project is being assessed under the bilateral assessment, impacts on this listed ecological community and species will be compensated through the implementation of the biodiversity offset strategy, developed in accordance with the FBA.

References

ATC Williams 2020, McPhillamys Gold Project Tailings Storage Facility Design Review and Response to submissions received in relation to the Development Application and associated EIS

Baker-Gabb D 2011, The National Recovery Plan for the Superb Parrot, www.environment.gov.au, viewed April 2019

Bamford M, Watkins D, Bancroft W, Tischler G and Wahl J 2008, *Migratory birds of the east Australian flyway:* population estimates and internationally important sites, Wetlands International, Oceania.

BOM (Bureau of Meteorology) 2013, *Groundwater Dependant Ecosystem Atlas*, http://www.bom.gov.au/water/groundwater/gde/map.shtml

Commonwealth of Australia 2014, EPBC Act referral guidelines for the vulnerable Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory), Department of the Environment, Canberra.

DEC (Department of Environment and Conservation) 2004, *Threatened Biodiversity Survey and Assessment:* Guidelines for Developments and Activities, Department of Environment and Conservation) NSW DEC, Hurstville.

DECC (Department of Environment and Climate Change) 2008, Koala Recovery Plan, NSW DECC, Hurstville.

- 2009, Threatened species survey and assessment guidelines: field survey methods for fauna: Amphibians, NSW Department of Environment and Climate ChangeSydney: NSW Department of Environment and Climate Change.

DECCW (Department of Environment, Climate Change and Water) 2010a, *The National Recovery Plan for White Box Yellow Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland*, NSW DECCW, Sydney.

- 2010b, *National Recovery Plan for* Prasophyllum petilum, Department of Environment and Climate Change and Water (NSW), Hurstville, http://www.environment.gov.au/biodiversity/threatened/recovery-plans/national-recovery-plansprasophyllum-petilum.

DEH (Department of the Environment and Heritage) 2006, EPBC Act Policy Statement 3.5 White Box Yellow Box Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands, Department of the Environment and Heritage, Canberra.

DAWE (Department of Agriculture, Water and the Environment) 2020, Species Profile and Threat Database, www.environment.gov.au/sprat

DoE (Department of the Environment) 2013, Matters of National Environmental Significance Significant Impact Guidelines 1.1, DoE, Canberra

- 2014, EPBC Act Referral Guideline for the vulnerable Koala, Department of the Environment, Canberra.
- 2015, The Industry Guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species, Department of the Environment, Canberra.

DEWHA (Department of the Environment, Water, Heritage and the Arts) 2010a, Survey guidelines for Australia's threatened frogs, DEWHA, Canberra

- 2010b, Survey guidelines for Australia's threatened birds, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra.
- 2010c, Survey guidelines for Australia's threatened bats, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra.

- 2011a, Survey guidelines for Australia's threatened mammals, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra.
- 2011b, Survey guidelines for Australia's threatened reptiles, Department of the Environment, Water, Heritage and the Arts.DEWHA, Canberra.

EMM 2019, McPhillamys Gold Project Mine Development Biodiversity Assessment Report, prepared for Regis Resources by EMM Consulting Pty Ltd.

EMM 2020a, *McPhillamys Gold Project Amendment Report*, prepared for Regis Resources by EMM Consulting Pty Ltd.

- 2020b, *McPhillamys Gold Project Submissions Report,* prepared for Regis Resources LFB Resources by EMM Consulting Pty Ltd.

EnviroKey 2013, *A regional assessment,* prepared for R.W. Corker & Co. Pty Ltd on behalf of Regis Resources Regis Resources by Envirokey Pty Ltd.

- 2017, Local setting and biodiversity constraints analysis (draft), prepared for R.W. Corker & Co. Pty Ltd on behalf of Regis Resources Regis Resources by Envirokey Pty Ltd.

OEH (Office of Environment and Heritage) 2014, Framework for Biodiversity Assessment NSW Offsets Policy for Major Projects, Office of Environment and Heritage.

- 2015, State Vegetation Type Map: Central West / Lachlan Region Version 1.4. VIS_ID 4468.
- 2016, Threatened flora survey guidelines,
 https://www.environment.nsw.gov.au/resources/threatenedspecies/160129-threatened-plants-survey-guide.pdf.
- 2017, Biodiversity Assessment Methodology, Office of Environment and Heritage.
- 2018a, State Vegetation Type Map: Central Tablelands Region Version 0.1. VIS_ID 4778, Office of Environment and Heritage.
- 2018b, A review of Koala tree use across NSW, Office of Environment and Heritage.

OzArk (OzArk Environmental & Heritage Management Pty Ltd) 2019, *McPhillamys Gold Project Mine Development Biodiversity Development Assessment Report*, prepared for Regis Resources by OzArk Environmental & Heritage Management Pty Ltd.

Phillips S and Callaghan 2011, The Spot Assessment Technique: a tool for determining localised levels of habitat use by Koalas Phascolarctos cinereus, *Australian Zoologist*, 35(3), 774-780.

Premise Australia 2020, *McPhillamys Gold Project Water Pipeline, Acacia meiantha expert report*, prepared for EMM Consulting by Premise Australia.

Rayner L, Stojanovic D, Heinsohn R and Manning A 2016, *Breeding ecology of the superb parrot Polytelis swainsonii in northern Canberra: 2016 Nest Monitoring Report*. Report to Environment, Planning and Sustainable Development Directorate Australian Capital Territory Government, Australian National University, Canberra.

Royal Botanic Gardens and Domain Trust 2020, *PlantNet (The NSW Plant Information Network System)*, http://plantnet.rbgsyd.nsw.gov.au/.

TSSC (Threatened Species Scientific Committee) 2006, Commonwealth listing advice for White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grasslands, www.environment.gov.au, viewed April 2019.

- 2012, Commonwealth listing advice for the Koala, QLD, NSW and ACT populations, www.environment.gov.au, viewed April 2019.
- 2016a, Commonwealth Conservation Advice for the Superb Parrot, www.environment.gov.au.





EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about <u>Environment Assessments</u> and the EPBC Act including significance guidelines, forms and application process details.

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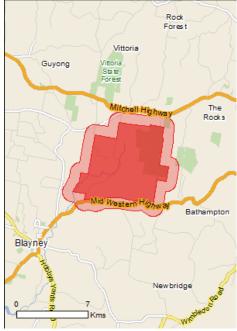
Summary

Details

Matters of NES
Other Matters Protected by the EPBC Act
Extra Information

Caveat

<u>Acknowledgements</u>



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 1.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	5
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	29
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A <u>permit</u> may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	30
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	800 - 900km upstream
Hattah-kulkyne lakes	600 - 700km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	300 - 400km upstream

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Natural Temperate Grassland of the South Eastern	Critically Endangered	Community likely to occur
Highlands White Box Vellow Box Blakely's Bod Cum Crossy	Critically Endangered	within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area
Listed Threatened Species		[Resource Information
Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Falco hypoleucos		
Grey Falcon [929]	Vulnerable	Species or species habitat
		likely to occur within area
Crontialla piata		
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat
Tainted Honeyeater [470]	Valificiable	known to occur within area
Hirundapus caudacutus	V/ I I I I	
White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
		incly to occur within area
<u>Lathamus discolor</u>		
Swift Parrot [744]	Critically Endangered	Species or species habitat
		likely to occur within area
Leipoa ocellata		
Malleefowl [934]	Vulnerable	Species or species habitat
• •		likely to occur within area
Niver entire production at		
Numenius madagascariensis Factors Curlow [947]	Critically Endangered	Species or species habitat
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Polytelis swainsonii		
Superb Parrot [738]	Vulnerable	Species or species

Name	Status	Type of Presence
Rostratula australis		habitat known to occur within area
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria booroolongensis		
Booroolong Frog [1844]	Endangered	Species or species habitat likely to occur within area
<u>Litoria castanea</u> Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area
Insects		
Synemon plana		
Golden Sun Moth [25234]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland populati	on)	
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld,	NSW and the ACT)	
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants <u>Eucalyptus aggregata</u>		
Black Gum [20890]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pulverulenta Silver-leaved Mountain Gum, Silver-leaved Gum	Vulnerable	Species or species habitat
[21537]		likely to occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area
<u>Lepidium hyssopifolium</u> Basalt Pepper-cress, Peppercress, Rubble Peppercress, Pepperweed [16542]	Endangered	Species or species habitat may occur within area
<u>Leucochrysum albicans subsp. tricolor</u> Hoary Sunray, Grassland Paper-daisy [89104]	Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area
<u>Delma impar</u> Striped Legless Lizard, Striped Snake-lizard [1649]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on t	the EPBC Act - Threatened	
Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the	he EPBC Act - Threatened Threatened	
Name Birds	Inreatened	Type of Presence
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat likely to occur within area
Rostratula benghalensis (sensu lato)		
Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Mammals

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis		
Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis		
European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus		
House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus		
Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis		
Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris		
Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula		
Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Bos taurus		
		Species or species habitat
Domestic Cattle [16]		
		likely to occur within area
Canis lupus familiaris		
Domestic Dog [82654]	;	Species or species habitat
-	I	likely to occur within area
		·
Capra hircus		
Goat [2]		Species or species habitat
Odat [2]		likely to occur within area
	'	iikely to occur within area
Falls sature		
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat
		likely to occur within area
Feral deer		
Feral deer species in Australia [85733]	;	Species or species habitat
		likely to occur within area
		,
Lepus capensis		
		On a sing on an a sing babitat
Brown Hare [127]		Species or species habitat
		likely to occur within area
Mus musculus		
House Mouse [120]	;	Species or species habitat
		likely to occur within area
		,
Oryctolagus cuniculus		
•		Species or species habitat
Rabbit, European Rabbit [128]		Species or species habitat
	· ·	likely to occur within area
D " "		
Rattus rattus		
Black Rat, Ship Rat [84]	;	Species or species habitat
	1	likely to occur within area
		•
Sus scrofa		
Pig [6]	:	Species or species habitat
9 [0]		likely to occur within area
	'	incry to occur within area
Vulpes vulpes		
		0
Red Fox, Fox [18]		Species or species habitat
		likely to occur within area
Plants		
Cytisus scoparius		
Broom, English Broom, Scotch Broom, Common	;	Species or species habitat
Broom, Scottish Broom, Spanish Broom [5934]	I	likely to occur within area
		,
Genista sp. X Genista monspessulana		
Broom [67538]		Species or species habitat
B100111 [07 330]		
	'	may occur within area
Lucium famadadus un		
Lycium ferocissimum		-
African Boxthorn, Boxthorn [19235]		Species or species habitat
		likely to occur within area
Nassella neesiana		
Chilean Needle grass [67699]	:	Species or species habitat
		likely to occur within area
	'	incry to occur within area
Nassella trichotoma		
		On a single series of the first
Serrated Tussock, Yass River Tussock, Yass Tussock		Species or species habitat
Nassella Tussock (NZ) [18884]		likely to occur within area
Pinus radiata		
Radiata Pine Monterey Pine, Insignis Pine, Wilding	:	Species or species habitat
Pine [20780]		may occur within area
11		<i>y</i> = = = = = = = = = = = = = = = = = = =
Rubus fruticosus aggregate		
		Species or species hebitet
Blackberry, European Blackberry [68406]		Species or species habitat
		likely to occur within area

Name	Status	Type of Presence
Salix spp. except S.babylonica, S.x calodendron	& S.x reichardtii	
Willows except Weeping Willow, Pussy Willow a	nd	Species or species habitat
Sterile Pussy Willow [68497]		likely to occur within area
Ulex europaeus		
Gorse, Furze [7693]		Species or species habitat
		likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

 $-33.44557\ 149.36545, -33.44562\ 149.36538, -33.45164\ 149.36417, -33.45361\ 149.3646, -33.4661\ 149.36237, -33.47319\ 149.36126, -33.47448\ 149.36932, -33.48501\ 149.36727, -33.48379\ 149.35911, -33.50319\ 149.35576, -33.49925\ 149.34855, -33.49832\ 149.34521, -33.49939\ 149.34109, -33.49846\ 149.33568, -33.49725\ 149.32667, -33.49775\ 149.31139, -33.49918\ 149.30727, -33.49954\ 149.30538, -33.49868\ 149.29873, -34.49896\ 149.29551, -33.49417\ 149.29637, -33.49259\ 149.28523, -33.48679\ 149.28918, -33.48522\ 149.29124, -33.4787\ 149.29193, -33.47921\ 149.29871, -33.45096\ 149.30506, -33.45375\ 149.32377, -33.44199\ 149.32606, -33.44493\ 149.35292, -33.44385\ 149.35318, -33.44557\ 149.36545$

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- -Office of Environment and Heritage, New South Wales
- -Department of Environment and Primary Industries, Victoria
- -Department of Primary Industries, Parks, Water and Environment, Tasmania
- -Department of Environment, Water and Natural Resources, South Australia
- -Department of Land and Resource Management, Northern Territory
- -Department of Environmental and Heritage Protection, Queensland
- -Department of Parks and Wildlife, Western Australia
- -Environment and Planning Directorate, ACT
- -Birdlife Australia
- -Australian Bird and Bat Banding Scheme
- -Australian National Wildlife Collection
- -Natural history museums of Australia
- -Museum Victoria
- -Australian Museum
- -South Australian Museum
- -Queensland Museum
- -Online Zoological Collections of Australian Museums
- -Queensland Herbarium
- -National Herbarium of NSW
- -Royal Botanic Gardens and National Herbarium of Victoria
- -Tasmanian Herbarium
- -State Herbarium of South Australia
- -Northern Territory Herbarium
- -Western Australian Herbarium
- -Australian National Herbarium, Canberra
- -University of New England
- -Ocean Biogeographic Information System
- -Australian Government, Department of Defence
- Forestry Corporation, NSW
- -Geoscience Australia
- -CSIRO
- -Australian Tropical Herbarium, Cairns
- -eBird Australia
- -Australian Government Australian Antarctic Data Centre
- -Museum and Art Gallery of the Northern Territory
- -Australian Government National Environmental Science Program
- -Australian Institute of Marine Science
- -Reef Life Survey Australia
- -American Museum of Natural History
- -Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
- -Tasmanian Museum and Art Gallery, Hobart, Tasmania
- -Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.



B.1 Plot and transect data

Table B.1 Plot and transect data

Transect / Plot	Native plant species*	Native over- storey cover*	Native mid- storey cover*	Native ground cover (grass)*	Native ground cover (shrubs)*	Native ground cover (other)*	Exotic plant cover*	Number of trees with hollows*	Over-storey regen*	Total length of fallen logs*	Easting	Northing	Zon
103_WL_1	3	25	0	12	0	2	54	2	1	7	715611	6291879	55
103_WL_2_E	4	7	0	0	2	0	94	1	1	32	715226	6292502	55
103_WL_3	3	30	0	36	0	6	32	2	1	60	716678	6291837	55
103_WL_5	25	13	0	56	0	10	24	0	1	20	717082	6292932	55
103_WL_6_E	7	32	0	26	0	4	70	1	0	35	716102	6296068	55
124_For_1_E	7	19	0	50	0	6	34	12	1	120	717502	6294366	55
124_For_2_E	7	25	0	48	0	2	0	7	1	80	717735	6293570	55
124_For_3_E	7	25	1	30	0	0	0	4	1	95	717637	6293966	55
124_For_4	7	33	0	30	0	2	18	8	1	37	715821	6292214	55
124_For_5_E	7	25	0	52	0	0	34	3	1	25	717172	6292569	55
124_For_6_E	9	31	0	44	0	8	2	3	1	100	717446	6292954	55
124_For_8_E	9	18	0	14	0	0	0	6	1	15	718598	6291129	55
164_For_1	7	35	0	30	2	2	36	1	1	15	715654	6292442	55
164_For_2	4	55	0	40	0	0	60	3	1	60	716025	6291781	55
164_For_3_E	3	37	0	2	0	0	88	1	1	40	716393	6293861	55

J180395 | RP7 | v1

Table B.1 Plot and transect data

Transect / Plot	Native plant species*	Native over- storey cover*	Native mid- storey cover*	Native ground cover (grass)*	Native ground cover (shrubs)*	Native ground cover (other)*	Exotic plant cover*	Number of trees with hollows*	Over-storey regen*	Total length of fallen logs*	Easting	Northing	Zon
164_For_5_E	4	26	0	2	0	16	80	3	1	70	716486	6295054	55
EK_103_DG_1	5	0	0	54	0	0	46	0	0	0	716906	6292803	55
EK_103_DG_17	7	0	0	48	0	2	32	0	0	0	716614	6291579	55
EK_103_DG_18	6	0	0	52	0	2	46	0	0	0	717189	6292229	55
EK_103_DG_2	3	0	0	52	0	0	48	0	0	0	716911	6293048	55
EK_103_DG_4	9	0	0	28	0	6	66	0	0	0	717836	6293190	55
EK_103_DG_5	3	0	0	42	0	0	58	0	0	0	716647	6291540	55
EK_103_DG_8	1	0	0	14	0	0	86	0	0	0	717171	6293556	55
EK_103_DG_9	5	0	0	36	0	0	64	0	0	0	717448	6293531	55
EK_124_DG_6	6	0	0	42	0	1	40	0	0	0	717363	6294388	55
EK_164_DG_1	3	0	0	34	0	0	66	0	0	0	716527	6292844	55
EK_164_DG_2	6	0	0	52	0	2	46	0	0	0	716768	6292639	55
EK_164_DG_3	5	0	0	60	0	0	40	0	0	0	717093	6294057	55
EK_Cultiv3	1	0	0	8	0	0	90	0	0	0	716513	6293817	55
EK_Cultiv6	1	0	0	18	0	0	82	0	0	0	716232	6292446	55
EK_Cultiv7	1	0	0	8	0	0	92	0	0	0	715883	6292746	55
EMM1	10	26	0	38	0	12	0	1	0	71	715480	6292156	55

J180395 | RP7 | v1

Table B.1 Plot and transect data

Transect / Plot	Native plant species*	Native over- storey cover*	Native mid- storey cover*	Native ground cover (grass)*	Native ground cover (shrubs)*	Native ground cover (other)*	Exotic plant cover*	Number of trees with hollows*	Over-storey regen*	Total length of fallen logs*	Easting	Northing	Zon
EMM10Zone3	7	20.2	0	2	0	0	20	1	0	53	717519	6294195	55
EMM11	11	20	0	32	0	0	0	9	0	142	716340	6296182	55
EMM2Zone2	14	27.5	0	44	0	10	36	0	1	39	717912	6292888	55
EMM3	8	30	0	42	0	0	0	1	1	58	717910	6292754	55
EMM4	5	24.5	0	2	0	0	0	0	0	1	716271	6295825	55
EMM5	3	0	0	0	0	72	96	0	0	0	717013	6295643	55
EMM5_9	3	0	0	0	0	72	96	0	0	0	717013	6295643	55
EMM6Zone2	9	17.9	0	2	0	0	4	1	1	42	717061	6296016	55
EMM7Zone4	4	5	0	38	0	0	2	0	1	4	717326	6295747	55
EMM8Zone1	12	28.5	0	8	0	4	16	0	0	0	715659	6292182	55
EMM9	6	28	0	2	0	2	2	5	1	191	717799	6292125	55
EVKT4	12	40	0	48	0	2	0	2	1	60	718245	6292935	55

J180395 | RP7 | v1

entered into 5/23 PLOT 1

PCT 727

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m. b	olot: Sheet of	Survey Name	Plot Identifier		Make A service became distributed in	corders	in and a second	
to	12/3/19	McPhillamys.	727/MG/Poor)	RP 8	SW		Management of the second service	
le	Top 3 native species in All other native and ex	in each growth form group: Fu kotic species: Full species nam	ll species name mandatory ne where practicable	N, E or HTE	Cover	Abund	stratum	Vouche
Marie Con-	Eucalupaus;	dies manifement	3, 16%	"W	35	10		
-	Microlaena			N.	1.5	5000	1 1 1	
		tenuius mymil		Moses	115	>10000		
7771	Vulora Bro			E	2	>10,000	Leconic 199	
-	Anthosach			N	2	5000		
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	Einadia nuto		and the second s	N	120.1	11	17 No. 17	7
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





Biobanking Plot Sheet - Transect

Proposal ID: 5180395	Proposal Name:	Zone ID:
Veg Type: 722 MG	- POOR	
Coordinates: Start Transect Easting/Northing	:-33.48843	,149,31964
Coordinates: End Transect Easting/Northing	-35.883335	,149,319



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	SO	Avg (%
Canopy Cover (% - see Specht)	40	15	20	0	10	60	40	15	5	55	
Mid Storey Cover (shrubs > 1m)	-	1	-	-	-	-	-	-	-	-	0

50 m Transect (every 1 m)	1	-	2	3 4	5	6	7	8	9	10	11	12	13	14 1	15 1	6 1	7 1	8 1	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	5 4	6 4	48	49	50	0 9
Ground Cover (shrubs < 1m)	4	L	1	-	L		L			4	1	4	1	1	1	1	1	-	-									1	1		1	1	1	1	1	1					1	1	1	1		L		L	1
Exotic shrubs (<1m)			L											1																																			
Ground Cover (grasses)	1		L	1	4		1	1	1	1	1		1				1		1	1						1		1				1	1	1	1		1				1		1	1				L	1
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Ground Cover (other)									1			1	1	1			1																		1	1							1	1		1			
xotic other																								1			1			1			1			1								1	1				

Hollow-bearing trees - 1 Logs - 71 Ready to enter Entered into 3123

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GF Code	Top 3 native species in All other native and exc	each growth form grou otto species: Full specie	ip: Full species name mandatory s name where practicable	N, E or HTE	Cover	Abund	stratum	vouche
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ... 100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Proj 2

(251. CV)	MACO	-
Veg Type: 074 110	1161)	
Coordinates: Start Transect Easting/Northing		

-33,481572 149.345737



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	00	99	75	45	-		-	-	15	30	0
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)	- 13	2 2	3	4	5	6	7	8	9 10	11	12	13	14	15	16	17	18	19	20 2	1 2	2 2	3 2	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41 4	42 4	13	44	45	16 4	7 4	8 49	9 50	0 5
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

P6+ 3

Biobanking Plot Sheet - Transect

Proposal ID: 180395	Proposal Name:	Zone ID:
Veg Type: 7 2 7		
Coordinates: Start Transect Easting/North	ing: - 33.48 25	5, 199,34527
Coordinates: End Transect Easting/Northin	18: -33.4829	1,149.34544



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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF = circle code if top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





Biobanking Plot Sheet - Transect

Proposal ID :	Proposal Name:	Zone ID
Veg Type: 727 PCT		
Coordinates: Start Transect Easting	Northing:	
Coordinates: End Transect Easting/I	Northing -	

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Canopy Cover (% - see Specht)	20	40	40	15	5	20	30	15	20	40	
Mid Storey Cover (shrubs > 1m)	-		-	-	-	-	-	-		-	0.



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READY TO ENTER.
ENTERED INTO SURVEY 123

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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...





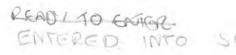
Biobanking Plot Sheet - Transect

Proposal ID: 18039	Proposal Name:	Zone ID:
Veg Type:		



0 m Transect (every 5 m)		5	10	1	15	-	20	1	25	3	0	35	5	40	-	45	+	50	Av	g (%)	1																								
Canopy Cover (% - see Specht)			1	+		-					-					-				0	1	C		Te	29	0	r	5	hr	1	58														
Aid Storey Cover (shrubs > 1m)			-					-		-								-		0																									
					_		_																																						
0 m Transect (every 1 m)	1	2	3	4	5	6	7 8	3 9	10	11	12	13	14	15	16	17	18 1	9 20	21	22	23	24	25 2	6 2	7 28	29	30	31	32 3	3 3	4 35	36	37	38 3	39 4	0 41	42	43	44	45	46	47 4	8 49	9 50	,
round Cover (shrubs < 1m)				1	1	1							1		1	1	1	L	L				1	1				1					1	1	1										
xotic shrubs (<1m)					1			L					1	1	1													1							1								1	1	
round Cover (grasses)																																													
notic grasses		1			1	1	1	1	1	1	1	1	1	١					1	1	-	1		1	13	1	1)	1	1	1	1	1	1			1	1	1	1	1				
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Notes				
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5123 PCT 654

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400 m²	plot: Sheet \ of \	Survey Name	Plot Identifier		ADDRESS OF THE PARTY OF THE PAR	ocorders	-	
Date	13/03/19	J180395	6,	564	JARF	CONTRACTOR OF THE PARTY OF THE	error arrord amount for	-
GF Code	Top 3 native species i All other native and ex	n each growth form group: Ful cotic species: Full species nam	l species name mandato e where practicable	N, E or HTE	Cover	Abund	stratum /	Vouch
TG:	AND DESCRIPTION OF THE PARTY OF	US MELLODORA	V.	2	25	2	- Company of the Parish	
TG		BRIDGESIANIA	Market Control of the	N.	1	The state of the s		113
GG		GRIMA TENUIUS		N	0	200		Spiriters and the second
GG	And the second s	HNE SCABER		N	-	1000	100	- Annual Market
G G		JA STIPOIDES		N	.8	1600	-	
GG	VULPIA	St		E	.3	1600	300 = 20	GHAD.
66	JUNCUS	SP.	And the state of t	and applications	100 100	To prove	AND THE	en pla
(36)	CAREX	St.	Sold			30	587	Sta She
FG	CHONDERT			E	D	4		101 127
GG	LOMANDA		taka beriata akan ini makan akan di sebuah kentan kentan di sebuah sebuah sebuah sebuah sebuah sebuah sebuah s	W him	1	12	27.00	and the same of th
GG	PHALARUS	AOVATICA		E	- 1	3		
FG	POLYGONU	Activation of the first of the		N	-1	12	A grantish	/ 3
GG	Participate from the property of the participate of	ATHARTICUS	A Company of the Comp	8		400	2500	1
00	12,000,000	The second secon		ENTRANCE CONTRACTOR STATE OF THE PARTY OF TH	1		1717	
and the second	NATIVE RICH	WES SUC	NATIVE COVER					
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	GG = 74		.]		7		1790	
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- in	S. Employed			. Self to			the stines	100
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Walter or the supplement	TG - 0	The second secon	0	S W V C			77.47	
-	66-0	C. C. C.	O NO LONG THE					
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		and the second s	part on Marie (Marie 124) - 1 - 12	1,4,Vel 700				
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V				30				
***************************************				No.				
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Introduction of the same				and the second little second little second little second				
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GF Code: see Growth Form definitions in Appendix 1 N: native, E: exotic, HTE: high threat exotic GF = circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 6 13/3/19



Proposal ID :	180	395	Proposal Name:	Zone ID:
Veg Type:				
Coordinates: Sta	t Transect Eas	ting/Northin	g :	
Coordinates: Fno	Transact East	ing/Northine		

50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	15	25	5	5	28	20	1	20	20	30	0
Mid Storey Cover (shrubs > 1m)	-	-	-	-	-	-	-	-	-		0

50 m Transect (every 1 m)	-	1	2	3	4	5	6	7 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	4 3	5 3	6 3	7 3	8 3	39 4	40 4	41	42	43	44	45	46	47	48	49	50
Ground Cover (shrubs < 1m)		1	1	1	1	1																																1	1	1		1	1							1	
(xotic shrubs (<1m)		1	1	1	1	1																										L								1	1										
Ground Cover (grasses)		1	1	-	1	1	1					1																			L											1	1							1	
ixotic grasses	_	-	1	1		-		1																										L			1	L				1	1	1	1		1		1		
iround Cover (other)			-	-	1	1	-	L					-		-	1																						1		1	1	1	1			1		1	1		
xotic other						1		-																																1						1	1	1	1		

mostly little & bore ground. Hollows - 1 Logs - 42

READY TO ENTERED TITO \$123

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00 m² s	olot: Sheet 1 of 1	Survey Name	Plot Identifier		A STATE OF THE PARTY OF THE PAR	corders	quidament in	
Date	13-03-2019	A STATE OF THE PARTY OF THE PAR		RP+	561			
GF Code	The Market Pale	each growth form group: Ful tic species: Full species nam	I species name mandatory is where practicable	N, E or HTE	Cover	Abund	stratum "	voucher
TG	EUCALIPTUS	THE REPORT OF THE PARTY OF THE		H	22			
36		MA TENONS		14	8	2000	110	14.7
F 6	HYPOCHAER			E	8	3000	-	Million American American American
3G		NA STIPOIDES	with the second control of the second contro	N	4	2000	12	
36		SPHAGRICUS		N	• \	10	-	-
G(TRISTACHYA		É		1		
GG	PHALARUS	AQUATICA	Consideration of the Constitution of the Const	E	Almi to	60	tractile of the	earth !
7(0		TICOSA AGGI	PACATE	HTE	1		11/1/2019	ets, chieses
10	the state of the west threatens.	(100 8 01010)	Associated and the second	16.)	War 10 (20)			***************************************
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-		AND EXPLORED THE PROPERTY OF T					118120	-
territorio policino e				71			Committee	
	NATING RICHOL	859 SUM	OF NATIVE COVER	14.			0.38	S. Hors
	TG - 1	Alleman en alle en all				and the same of the same of	sories	-
	GG - 3	The state of the s	3	377				-
AND DESCRIPTION OF PERSONS ASSESSMENT	FG - 0		Ò	15.	Will the C	1000	Many and a second	1 (3.48) - 16(3.16) 1 (2.48)
	and and an included the contract of the same of the sa							
	HTE RICHNO	ss, Sum	OF HIE COVER	ale agente and a second	-		"metrical	-
	FG - 81	0.	1	100		-	per action	12 196
-American Spirot			Problem See System 18-199	provide the	-		(51)	-
All the same of th		1997 - Carlo	N/ Enth	1	-	-		
		() () () () () ()	The state of the state of the state of					
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apolisis propolyapoglamanyyaplor		•	And the second second second	4	Lane Land			-
THE PERSON NAMED IN COLUMN TWO		villa Mariana Santa	recommendation of the second	17			****	-
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Market Assessment	A CONTROL OF THE PARTY OF THE P							1
			The state of the s				1	-
mental management			, A.A.		- 1		-	
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			and the second s				-	-
- Comment of the Comm	1	1		,				-
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		7746-0-17					-	
Principal of the ballions		A STATE OF THE PARTY OF THE PAR				GF - clr		

GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m.

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Biobanking Plot Sheet - Transect

Proposal ID: 80395	Proposal Name:	Zone ID:	-33 45569	449.33787
Veg Type:			1000	
Coordinates: Start Transect Easting/Nor	rthing:		-371/1	11 0 77500
Coordinates End Transact Casting/Nort	thinks o		-53.456MM	1117 33616



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	0	0	80	0	0	0	0	0	0	0	0
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)		1	2	3	4	5	6	7	8	9	10 1	1 :	12 1	3	14 1	5 1	6 1	7 1	8 19	20	21	22	2 23	3 24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
Ground Cover (shrubs < 1m)	_	-	1	1	1	1	1	1	1	1	1	1	+	1	1	1	1	-	1	-	L	L	1	-	-	L	-	_	_									-	L	-					-	-	4	+	+	-
exotic shrubs (<1m)			1	1	1	1				1	1		1		1	1	1	-	1		1	L		L												L				L						-	1	1	1	
Ground Cover (grasses)	1		1	1	1	1		1	1		1	1	1		1	1	1	1	1	11)	1	1			1		1	1				1		-			-		-	-	1			1	-	+	-	1	1
xotic grasses	_	-	+	+	+	+	+	1	+	+	1	+	+	+	+	+	+	+	+	-			-	-	-											L	-	H	-	-	H				-	-	-	+	+	-
Ground Cover (other)		-	-	+	1	+	+	+	+	1	+	+	+	+	+	+	+	1	+	1	-		-	-	-		_	-						L		L		-	-	H					-	-	+	1	+	+
xotic other						1	1			1						1																																1		

MOSTER GARG GROUND + LITER.
HOLLOW BROTTING trees - 0
Logs - 4

PLOT 3 PCT 654

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100 m² i	olot: Sheet _ of _	Survey Name	Plot identifier			named and other designations and the College	corders		-
Date	19) 3 10	McPhillanys	THE RESIDENCE OF THE PERSON OF		RPE	SGL)		
GF		n each growth form group: offic species; Full species r	2012 STATE S	-	N, E or HTE	Cover	Abund	stratum	voucher
Code	NAME AND ADDRESS OF THE OWNER, WHEN PARTY AND AD	ACCESS OF THE PARTY OF THE PART	Ministracion and and an arrangement of the control		V	45	7	WIL-WOOD, COMMON TO SECURE WATER	ence menology (minches
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9	and other balance and the second seco	Confera	Mary State Comment of State St	17	N	<0.1	15	Andrews of the State of the Sta	
9	Microlaena	Sipades	W Brown Will	i Ki	E	2.5	48	17.	
9		- AVERCENTY		M NO	N	011	9	ACCESSAGE AND AND AND ADDRESS.	
	Desmodum				N	<0.1	10	194	ANATOL T
9	Rytidosparma		1 My	KM B	N	"O.K	13	Take 15 by	(a.1), t. , (b.)
9	Commo	FLAB BEDIE		1	N.	0.6	19	10734	Sh. A.C.
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5	A SECURITY CONTRACTOR	nen ovianae?		W.	31.N	0.1	35		
9	The state of the s	seed head	12 13 1	-	N	(<01)	8	118-01	1
G	Butosania				-	a december de la constante de	The second of the second	J. 1 (26,93)	7
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F	chardmia	ivorac	-		the smill beautiful	-			100
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-		and the second s				And the second second	manufacture of the second of t	-	
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ... 100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 8

Biobanking Plot Sheet - Transect

Proposal ID: 7180395	Proposal Name:	Zone ID:		
Veg Type:			-33, 488/6	149.3012
Coordinates: Start Transect Easting/Northing	:		-37 1,00 AG	1119.27180
Coordinates: End Transect Easting/Northing] 33.46201	191,29100



50 m Transect (every 5 m)	5	10	15	20	25	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	55	80	20	80	15	20	-	~	~	15	C
Mid Storey Cover (shrubs > 1m)											0

50 m Transect (every 1 m)	1	2	3	4	5	6	7	8	9	10	11	12	13	4 1	5 1	6 1	7 1	1 15	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	9
Ground Cover (shrubs < 1m)	4	L							1	1	1	1	1	1	1	-	-	1	1				_	1	4	1	1	1	1	4	4		4	1	1	-	-	1	4									Ш	L	-
exotic shrubs (<1m)										1	1	1	1	1			1	-								1	1	1	1			-		1	1	1		1										Ц	L	-
Fround Cover (grasses)		L	1			1				1	1	1	1	1													1					1			1			1											1	
xotic grasses	1	1			1					1			1	1											1				1	1						1			1						1	1				L
Ground Cover (other)								1		1	1	1	1	1		-	1			1			-	1	1		1		1		1	1	-	-	1	-	1		1											-
xotic other										1		1	1	1		1									1			1					1			-	- 1		1											

Hollow-bearing trees - 0 Logs - 0

Evalephus metiodora

ENTERED INTO 3123

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oo ma i	plot: Sheet	01	Survey Name	Plot Identifier	-	Anna Santa and American	corders	the state of the state of the state of	-
Date	10/31	10	McPLilanys		RPZ	SGL)		
Date	17131				DESCRIPTION OF THE PROPERTY OF		-		
GF Code	Top 3 native All other nati	species in	eech growth form group: Fu otic species: Full species nan	i species name mandatory ie where practicable	N, E or	Cover	Abund	stratum /	Voucher
_	CONTRACTOR AND ADDRESS OF THE PARTY OF THE P	AND PERSONAL PROPERTY OF	ocales y arministration	My L I WILL	N	39	13		
-	EUCA	dives		THE STATE OF THE S	N.	18	6		100
5	Volpia	Sp	1000 L		E	- 1	200		Militarium inspersion est
3	Rutidos	Section 1981	Andrew Control of the		N	6.3	1000	12-1-1-11	
5	Anthros	dinguine and the	ALMAND SECRETARION OF THE PARTY	W	N	40.1	7		
conference and the second	A STATE OF THE PARTY OF THE PAR	Physica proposition and mile	The state of the s		E	500	2		THE STATE
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	-	and the second s	the addition with the test to the second					novoit.	
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF = circle code if top 3.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 18, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 9

1/2/10

Biobanking Plot Sheet - Transect

Proposal ID: J180395	Proposal Name:	Zone ID:
Veg Typet, GONIO Colen	1 28 0	1:10
Coordinates: Start Transect Easting/Northing	-	0.10
Coordinates: End Transect Easting/Northing :		



50 m Transact (every 5 m)	5	10	15	20	25	-	100			1	1
Canami C	11.5	2		-	45	30	35	40	45	50	Avg (%)
Canopy Cover (% - see Specht)	143	20	20	50	10	45	25	10	95	20	110 [70]
Mid Storey Cover (shrubs > 1m)		-						7	-	20	
(Sirubs > 1m)				-	-	-	-	_		200	

50 m Transect (every 1 m)	1	2	3 4	5	6 7	8	9 1	0 11	12	13	4	1			I	T	T	T		1	T	T	T	1			-	_	-	_											
Ground Cover (shrubs < 1m)					6 7		1			-	1	16	17	18	19	20 2	1 2	2 23	24	25	26 2	7 21	3 29	30	31	32	33	34 3	5 30	5 37	38	39	40 4	1 42	43	44	45	46 4	7 48	49	Sr
xotic shrubs (<1m)							1		1	1	1	1		+	+	+	+	+	H	+	+	+	-	H		1	1	1													50
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Notes No mid Storey Verry Like larundlaner

Hollow bearing trees - 5 Logs - 191 PLOT 10

ENTERED INFO SIZZ

-This document has not been endorsed or approved by Office of Environment and Heritage or Muddy Boots Environmental Training-

00 m² r	olot: Sheet _ of _	Survey Name	Plot Identifier		R	corders		
Date	14.13.111	McPhyllam	1.10	RP	1 561)		
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF — circle code if 'top 3'.

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Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

Hollow-bearing trees - 1 Logs -53 PCT 727

-This document has not been endorsed or approved by Office of Environment and Heritage or Muddy Boots Environmental Training-

10 m² r	plot: Sheet _ of /	Survey Name	Plot Identifier		Re	corders	resident sections and two	AND DESCRIPTION OF THE PERSON
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GF Code: see Growth Form definitions in Appendix 1

N: native, E: exotic, HTE: high threat exotic

GF - circle code if 'top 3'.

Cover: 0.1, 0.2, 0.3, ..., 1, 2, 3, ..., 10, 15, 20, 25, ...100% (foliage cover); Note: 0.1% cover represents an area of approximately 63 x 63 cm or a circle about 71 cm across, 0.5% cover represents an area of approximately 1.4 x 1.4 m, and 1% = 2.0 x 2.0 m, 5% = 4 x 5 m, 25% = 10 x 10 m

Abundance: 1, 2, 3, ..., 10, 20, 30, ... 100, 200, ..., 1000, ...

PLOT 11 J180395 15/3/19

75	Proposal Name:	Zone ID
Veg Type: GON: 9CA	1.1. 41 - 3	1
coordinates: Start Transect Easting/N		167
Coordinates: End Transect Easting/No	ortrang :	

50 m Fransect (every 5 m)	s	10	15								
Canopy Cover (% - see Specht)	115	15	2	20	25	30	35	40	45	50	Ave (%
	-		-	10	20	15	0	20	40	40	
Mid Storey Cover (shrubs > 1m)			-	-					-	10	

50 m Transect (every 1 m)	1	2 3	4	5 6	7	8 9	10 1	1.		T	T	IT	T	T		-		-	-	-																			
Ground Cover (shrubs < 1m)							10 1	12	13	14 1	5 16	17	18 19	20	21	22 23	24	25 2	6 27	28	29	30 3	31 3	2 3	3 34	35	36	37	38	39	10/4			T	T	T	T	1	1
notic shrubs (<1m)						11	1	H	+	+	H	+	+	H	+	+	1	+			1	1							1		1	1 42	43	441.	45 4	6 47	48	49	50
ound Cover (grasses)	11					1	1	1		+	H	1	H	H	1	H	1	1.			1	1					1	1	1	1	1		1	1	+		H	+	+
otic grasses						+	11	1	+	+	H	+	H	+	+	H	1	1	1		111						1	1	T	1	1	H	1	1	+	H	1	1	+
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BioBanking Credit Calculator

Ecosystem credits



Proposal ID: 196/2020/5079D

Proposal name : McPhillamys Gold Project EIS

Assessor name : Katie Whiting

Assessor accreditation number: 196

Tool version: v4.0

Report created: 25/08/2020 17:16

Assessment circle name	Landsc Vegetation ape zone name score	Vegetation type name	Condition	Red Management flag zone name status	Manage ment zone area	Current site value	Future site value	Loss in site value	Credit required for bio diversity	Credit required for TS	TS with highest credit requirement	Average species loss	Species TG Value	Final credit requirement for management zone
1	23.20 LA276_Mo derate/Goo d_High	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Moderate/Goo d_High	No 1	1.47	16.67	0.00	16.67	7 0	27	7 Little Lorikeet	22.22	3.00	27
1	23.20 LA276_Mo derate/Goo d_Medium	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Moderate/Goo d_Medium	Yes 1	18.96	58.85	0.00	58.85	5 0	947	7 Little Lorikeet	33.33	3.00	947
1	23.20 LA276_Mo derate/Goo d_Poor	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Moderate/Goo d_Poor	Yes 1	24.65	58.85	0.00	58.85	5 0	1,23	I Little Lorikeet	33.33	3.00	1,231
1	23.20 LA276_Mo derate/Goo d_Other	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Moderate/Goo d_Other	Yes 1	0.76	44.27	0.00	44.27	7 0	30) Little Lorikeet	33.33	3.00	30
1	23.20 LA124_Mo derate/Goo d_High	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Moderate/Goo d_High	No 1	2.84	71.88	0.00	71.88	3 0	()	0.00	0.00	68
1	23.20 LA124_Mo derate/Goo d_Medium	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Moderate/Goo d_Medium	No 1	35.54	61.98	0.00	61.98	3 0	()	0.00	0.00	757
1	23.20 LA124_Mo derate/Goo d_Poor	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Moderate/Goo d_Poor	No 1	10.40	52.08	0.00	52.08	3 0	(0.00	0.00	196
1	23.20 LA164_Mo derate/Goo d_Poor	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	Moderate/Goo d_Poor	Yes 1	32.73	46.00	0.00	46.00) 0	()	0.00	0.00	566

As on 25/08/2020 Page 1 of 3

Assessment circle name	Landsc Vegetation ape zone name score	Vegetation type name	Condition		Management zone name	Manage ment zone area	Current site value	Future site value	Loss in site value	Credit required for bio diversity	Credit required for TS	TS with highest credit requirement	Average species loss	Species TG Value	Final credit requirement for management zone
1	23.20 LA130_Mo derate/Goo d_Poor	Carex sedgeland of the slopes and tablelands	Moderate/Goo d_Poor	No	1	3.04	31.16	0.00	31.1	6) (0.00	0.00	41
1	23.20 LA276_Low	Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Low	No	1	986.79	9.38	0.00	9.3	8) (0.00	0.00	8,037
1	23.20 LA124_Low	Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Low	No	1	986.79	7.81	0.00	7.8	1 () ()	0.00	0.00	7,650
1	23.20 LA164_Low	Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	Low	No	1	986.79	12.00	0.00	12.0	0) (0.00	0.00	8,684

As on 25/08/2020 Page 2 of 3

BioBanking Credit Calculator

Species credits



Proposal ID: 196/2020/5079D

Proposal name : McPhillamys Gold Project EIS

Assessor name : Katie Whiting

Assessor accreditation number: 196

Tool version : v4.0

Report created: 25/08/2020 17:16

Scientific name	Common name	Species Identified TG value population?	Can Id. popn. be offset?	Area / number of loss	Negligible loss	Red flag status	Number of credits
Petaurus norfolcensis	Squirrel Glider	2.20 No		127.35	9,999,999.00	No	2,802
Phascolarctos cinereus	Koala	2.60 No		116.95	9,999,999.00	No	3,041

As on 25/08/2020 Page 3 of 3

BioBanking credit report



This report identifies the number and type of credits required at a DEVELOPMENT SITE.

Date of report: 25/08/2020 Time: 5:17:37PM Calculator version: v4.0

Development details

Proposal ID: 196/2020/5079D

Proposal name: McPhillamys Gold Project EIS

Proposal address: 294 Dungeon Rd Kings Plain NSW 2799

Proponent name: Regis Resources

Proponent address: Level 2/512 Hay St Subiaco WA 6008

Proponent phone: 08 9442 2200

Assessor name: Katie Whiting

Assessor address: SUITE 1 20 CHANDOS ST St Leonards NSW 2065

Assessor phone: 02 9493 9500

Assessor accreditation: 196

Improving or maintaining biodiversity

An application for a red flag determination is required for the following red flag areas

Red flag	Reason
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	Vegetation type being > 70% cleared; or it contains an endangered ecological community;

The application for a red flag determination should address the criteria set out in the BioBanking Assessment Methodology. Please note that a biobanking statement cannot be issued unless the determination is approved.

Change to percent cleared for a vegetation type/s
Use of local benchmark

Change negligible loss	
Expert report	
Request for additional gain in site value	
Predicted threatened species not on site Change threatened species response to gain (Tg value)	
■ Little Lorikeet	Glossopsitta pusilla

Ecosystem credits summary

Plant Community type	Area (ha)	Credits required	Red flag
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion	1,035.57	8,670.15	No
Carex sedgeland of the slopes and tablelands	3.04	41.31	No
Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	986.79	8,683.75	No
Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion	32.73	566.23	Yes
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	988.26	8,064.40	No
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion	44.37	2,208.00	Yes
Total	3,090.76	28,234	

Credit profiles

1. Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion, (LA164)

Number of ecosystem credits created

8,684

IBRA sub-region

Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion, (LA206)	Orange - Lachlan and any IBRA subregion that adjoins
Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion, (LA164)	the IBRA subregion in which the development occurs
Peppermint - Mountain Gum - Brown Barrel moist open forest of the South Eastern Highlands Bioregion, (LA173)	
Ribbon Gum - Narrow-leaved Peppermint grassy open forest on basalt plateaux, Sydney Basin Bioregion and South Eastern Highlands Bioregion, (LA261)	

2. Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion, (LA164)

Number of ecosystem credits created

566

IBRA sub-region

Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Mountain Gum - Manna Gum open forest of the South Eastern Highlands Bioregion, (LA164)	Orange - Lachlan and any IBRA subregion that adjoins
Snow Gum - Mountain Gum tussock grass-herb forest of the South Eastern Highlands Bioregion, (LA206)	the IBRA subregion in which the development occurs
Peppermint - Mountain Gum - Brown Barrel moist open forest of the South Eastern Highlands Bioregion, (LA173)	
Ribbon Gum - Narrow-leaved Peppermint grassy open forest on basalt plateaux, Sydney Basin Bioregion and South Eastern Highlands Bioregion, (LA261)	

3. Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, (LA276)

Number of ecosystem credits created

8,037

IBRA sub-region

Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion, (LA103)	Orange - Lachlan and any IBRA subregion that adjoins
Black Sallee - Tussock Grass open woodland of the South Eastern Highlands Bioregion, (LA113)	the IBRA subregion in which the development occurs
Blakely's Red Gum moist sedgey woodland on flats and drainage lines of the South Eastern Highlands Bioregion and NSW South Western Slopes Bioregion, (LA121)	

Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, (LA276)

4. Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, (LA276)

Number of ecosystem credits created 2,235

IBRA sub-region Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion, (LA276)	Orange - Lachlan and any IBRA subregion that adjoins
Apple Box - Yellow Box dry grassy woodland of the South Eastern Highlands Bioregion, (LA103)	the IBRA subregion in which the development occurs
Black Sallee - Tussock Grass open woodland of the South Eastern Highlands Bioregion, (LA113)	
Blakely's Red Gum moist sedgey woodland on flats and drainage lines of the South Eastern Highlands Bioregion and NSW South Western Slopes Bioregion, (LA121)	

5. Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion, (LA124)

Number of ecosystem credits created 7,650

IBRA sub-region Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Apple Box - Broad-leaved Peppermint dry open forest of the South Eastern Highlands Bioregion, (LA101)	Orange - Lachlan and any IBRA subregion that adjoins
Apple Box - Yellow Box - Argyle Apple dry open forest of the South Eastern Highlands Bioregion and NSW South Western Slopes Bioregion, (LA102)	the IBRA subregion in which the development occurs
Blakely's Red Gum - Red Stringybark open forest on slopes and hills of the western slopes, (LA117)	
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion, (LA124)	
Broad-leaved Peppermint - Mountain Gum dry open forest of the Central Tablelands area of the South Eastern Highlands Bioregion, (LA125)	
Mugga Ironbark - Red Stringybark - Long-leaved Box dry grass forest of the NSW South Western Slopes Bioregion, (LA167)	
Red Box - Tumbledown Gum - Red Stringybark - Long-leaved Box dry woodland, upper NSW South Western Slopes Bioregion, (LA251)	
Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan catchments mainly in the western South Eastern Highlands Bioregion, (LA242)	
Brittle Gum - Broad-leaved Peppermint - Red Stringybark open forest in	

the north-western part (Yass to Orange) of the South Eastern Highlands Bioregion, (LA234)

Red Stringybark - Blakely's Red Gum hillslope open forest on meta-sediments in the Yass - Boorowa - Crookwell region of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion, (LA255)

6. Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion, (LA124)

Number of ecosystem credits created 1,020

IBRA sub-region Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Broad-leaved Peppermint - Brittle Gum - Red Stringybark dry open forest on the South Eastern Highlands Bioregion, (LA124)	Orange - Lachlan and any IBRA subregion that adjoins
Apple Box - Broad-leaved Peppermint dry open forest of the South Eastern Highlands Bioregion, (LA101)	the IBRA subregion in which the development occurs
Apple Box - Yellow Box - Argyle Apple dry open forest of the South Eastern Highlands Bioregion and NSW South Western Slopes Bioregion, (LA102)	
Blakely's Red Gum - Red Stringybark open forest on slopes and hills of the western slopes, (LA117)	
Broad-leaved Peppermint - Mountain Gum dry open forest of the Central Tablelands area of the South Eastern Highlands Bioregion, (LA125)	
Mugga Ironbark - Red Stringybark - Long-leaved Box dry grass forest of the NSW South Western Slopes Bioregion, (LA167)	
Red Box - Tumbledown Gum - Red Stringybark - Long-leaved Box dry woodland, upper NSW South Western Slopes Bioregion, (LA251)	
Inland Scribbly Gum - Red Stringybark open forest on hills composed of silicous substrates in the mid-Murrumbidgee and upper Lachlan catchments mainly in the western South Eastern Highlands Bioregion, (LA242)	
Brittle Gum - Broad-leaved Peppermint - Red Stringybark open forest in the north-western part (Yass to Orange) of the South Eastern Highlands Bioregion, (LA234)	
Red Stringybark - Blakely's Red Gum hillslope open forest on meta-sediments in the Yass - Boorowa - Crookwell region of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion, (LA255)	

7. Carex sedgeland of the slopes and tablelands, (LA130)

Number of ecosystem credits created 4

IBRA sub-region Orange - Lachlan

Offset options - vegetation types	Offset options - CMA sub-regions
Carex sedgeland of the slopes and tablelands, (LA130)	Orange - Lachlan

and any IBRA subregion that adjoins	
the IBRA subregion in which the	
development occurs	

Species credits summary

Common name	Scientific name	Extent of impact Ha or individuals	Number of species credits created
Koala	Phascolarctos cinereus	116.95	3,041
Squirrel Glider	Petaurus norfolcensis	127.35	2,802



