Appendix A EPBC Act Protected Matters Report

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Protected Matters Search Tool

1 December 2006 11:50

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.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.deh.gov.au/epbc/assessmentsapprovals/index.html

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Map of Search Region including any Buffer

Search Type: Area

Buffer: 10 km

Coordinates: -33.09966,148.06760, -33.10798,148.06760, -33.10798,148.09878, -33.0996,148.09878

Thumbnail Map of Search Region

Report Contents:

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 - see http://www.deh.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	1
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	1
Threatened Species:	11
Migratory Species:	6

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 and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.deh.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit 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. Information on EPBC Act permit requirements and application forms can be found at http://www.deh.gov.au/epbc/permits/index.html.

Commonwealth Lands:	3
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	10
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	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
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance [Dataset Information] (Ramsar Sites)		
MACQUARIE MARSHES NATURE RESERVE		Within same catchment as Ramsar site
Threatened Ecological Communities [Dataset Information]	Status	Type of Presence
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area
Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Lathamus discolor * Swift Parrot	Endangered	Species or species habitat may occur within area
Polytelis swainsonii * Superb Parrot	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis * Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Xanthomyza phrygia * Regent Honeyeater	Endangered	Species or species habitat may occur within area
Mammals		
Nyctophilus timoriensis (South-eastern form) * Eastern Long-eared Bat	Vulnerable	Species or species habitat may occur within area
Ray-finned fishes		
*Maccullochella peelii peelii** Murray Cod, Cod, Goodoo	Vulnerable	Species or species habitat may occur within area
Macquaria australasica * Macquarie Perch	Endangered	Species or species habitat may occur within area
Plants		
Diuris sheaffiana * Tricolour Diuris	Vulnerable	Species or species habitat may occur within area
Stipa metatoris *	Vulnerable	Species or species habitat likely to occur within area
Stipa wakoolica *	Endangered	Species or species habitat likely to occur

		within area
Swainsona murrayana * Slender Darling-pea, Slender Swainson, Murray Swainson-pea	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Xanthomyza phrygia Regent Honeyeater	Migratory	Species or species habitat may occur within area
Migratory Wetland Species		
Birds		
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank	Migratory	Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine	Species or species habitat may occur within area

	area	
Lathamus discolor Swift Parrot	Listed - overfly marine area	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank	Listed - overfly marine area	Species or species habitat likely to occur within area
Commonwealth Lands [Dataset Information]		
Communications, Information Technology and the Arts - Australian Postal Corporation		
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Education, Science and Training - CSIRO		

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 Heritage and Register of National Estate properties, Wetlands of International 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.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution

models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

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.

Acknowledgments

This database has been compiled from a range of data sources. Environment Australia acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
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- Other groups and individuals

ANUCLIM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Last updated:

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Protected Matters Search Tool

1 December 2006 13:37

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Map of Search Region including any Buffer

Search Type: Area

Buffer: 10 km

Coordinates: -33.09842,148.06968, -33.10465,148.06926, -33.10923,148.10127, -33.10632,148.10793, -33.11047,148.12081, -33.12669,148.16530, -33.11962,148.16946, -33.10133,148.12414, -33.09759,148.10751, -33.1013,148.09920

Thumbnail Map of Search Region

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World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	1
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	1
Threatened Species:	12
Migratory Species:	6

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Commonwealth Lands:	5
Commonwealth Heritage Places:	None
Places on the RNE:	None
Listed Marine Species:	10
Whales and Other Cetaceans:	None
Critical Habitats:	None

Commonwealth Reserves:	None

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Education, Science and Training - CSIRO		
Transport and Regional Services - Airservices Australia		

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Last updated:

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Search Results

Your selection: Flora, all species, Selected Area - 148.02528,-33.15293,148.12528,-33.05294 returned a total of 48 records of 37 species.

Report generated on 14/12/2006 - 11:20 (Data valid to 08/10/2006)

View map

View map | Search for another species | Clear

Search for a

Clear

Choose up to 3 species to map.

Plants	Map	Scientific Name	Common Name	Legal Status	Count	Info
Adiantaceae						
	☐	Cheilanthes austrotenuifolia	Rock Fern	U	1	
	☐	Cheilanthes distans	Bristly Cloak Fern	U	1	
Asteraceae						
	☐	Calotis cuneifolia	Purple Burr-Daisy	U	1	
	☐	Vittadinia pterochaeta	Rough Fuzzweed	U	1	
Boraginaceae						
	☐	Echium plantagineum	Patterson's Curse	U	1	
Brassicaceae						
	☐	Lepidium pseudohyssopifolium	Peppercress	U	1	
Cactaceae						
	☐	Opuntia stricta		U	1	
Chenopodiaceae						
	☐	Atriplex semibaccata	Creeping Saltbush	U	1	
	☐	Einadia nutans	Climbing Saltbush	U	2	
	☐	Maireana enchylaenoides		U	2	
	☐	Maireana microphylla		U	2	
	☐	Sclerolaena muricata	Black Rolypoly	U	1	
Convolvulaceae						
	☐	Dichondra repens	Kidney Weed	U	2	
Cupressaceae						
		Callitris	White			

☐ glaucophylla	Cypress Pine	U	1	
Fabaceae (Faboideae)				
☐ Glycine tabacina	Glycine	U	1	
☐ Trifolium angustifolium	Narrow-leaved Clover	U	1	
☐ Trifolium glomeratum	Clustered Clover	U	1	
Lamiaceae				
☐ Marrubium vulgare	Horehound	U	1	
Lomandraceae				
☐ Lomandra patens		U	1	
Malvaceae				
☐ Sida corrugata		U	2	
☐ Sida cunninghamii		U	1	
Myoporaceae				
☐ Eremophila deserti	Turkeybush	U	1	
Myrtaceae				
☐ Eucalyptus microcarpa	Western Grey Box	U	1	
Oxalidaceae				
☐ Oxalis corniculata	Creeping Oxalis	U	2	
Poaceae				
☐ Austrodanthonia setacea		U	1	
☐ Austrostipa scabra	Speargrass	U	1	
☐ Austrostipa verticillata	Slender Bamboo Grass	U	1	
☐ Austrostipa wakoolica	A spear-grass	E1	2	Species Description PDF file
☐ Avena ludoviciana	Ludo Wild Oats	U	2	
☐ Bothriochloa decipiens	Red Grass	U	1	
☐ Bromus catharticus	Praire Grass	U	1	
☐ Bromus molliformis	Soft Brome	U	1	
☐ Elymus scaber		U	2	
☐ Enteropogon acicularis		U	2	
☐ Hordeum leporinum	Barley Grass	U	1	
☐ Lolium rigidum	Wimmera Ryegrass	U	2	
Polygonaceae				
☐ Rumex brownii	Swamp Dock	U	1	

Choose up to 3 species to map.

BioNet

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Search Results

Your selection: Fauna, all species, Selected Area - 148.02528,-33.15293,148.12528,-33.05293 returned a total of 141 records of 69 species.

Report generated on 14/12/2006 - 11:24 (Data valid to 08/10/2006)

View map

View map | Search for another species | Clear

Search for a

Clear

Choose up to 3 species to map.

Aves	Map	Scientific Name	Common Name	Legal Status	Count	Info
Acanthizidae						
	☐	Acanthiza chrysorrhoa	Yellow-rumped Thornbill	P	3	
Accipitridae						
	☐	Circus assimilis	Spotted Harrier	P	2	
	☐	Elanus axillaris	Black-shouldered Kite	P	1	
Alaudidae						
	☐	Alauda arvensis	Eurasian Skylark	U	1	
	☐	Mirafra javanica	Horsfield's Bushlark	P	1	
Anatidae						
	☐	Anas superciliosa	Pacific Black Duck	P	1	
	☐	Chenonetta jubata	Australian Wood Duck	P	1	
Ardeidae						
	☐	Ardea pacifica	White-necked Heron	P	2	
	☐	Egretta novaehollandiae	White-faced Heron	P	3	
Artamidae						
	☐	Artamus cinereus	Black-faced Woodswallow	P	2	
	☐	Artamus superciliosus	White-browed Woodswallow	P	2	
	☐	Cracticus nigrogularis	Pied Butcherbird	P	4	
	☐	Gymnorhina tibicen	Australian Magpie	P	4	
Cacatuidae						
	☐	Eolophus roseicapillus	Galah	P	4	

	Nymphicus hollandicus	Cockatiel	P	3
Campephagidae				
	Coracina maxima	Ground Cuckoo-shrike	P	1
	Coracina novaehollandiae	Black-faced Cuckoo-shrike	P	3
	Lalage tricolor	White-winged Triller	P	1
Charadriidae				
	Vanellus miles	Masked Lapwing	P	2
Climacteridae				
	Climacteris picumnus	Brown Treecreeper	V	2
Columbidae				
	Geopelia placida	Peaceful Dove	P	1
	Ocyphaps lophotes	Crested Pigeon	P	4
Corcoracidae				
	Corcorax melanorhamphos	White-winged Chough	P	3
	Struthidea cinerea	Apostlebird	P	3
Corvidae				
	Corvus coronoides	Australian Raven	P	4
	Corvus mellori	Little Raven	P	2
Dicruridae				
	Grallina cyanoleuca	Magpie-lark	P	3
	Myiagra inquieta	Restless Flycatcher	P	2
	Rhipidura albiscapa	Grey Fantail	P	1
	Rhipidura leucophrys	Willie Wagtail	P	3
Estrildidae				
	Neochmia modesta	Plum-headed Finch	P	1
	Stagonopleura guttata	Diamond Firetail	V	1
	Taeniopygia bichenovii	Double-barred Finch	P	1
	Taeniopygia guttata	Zebra Finch	P	2
Falconidae				
	Falco berigora	Brown Falcon	P	2
	Falco cenchroides	Nankeen Kestrel	P	2
Halcyonidae				

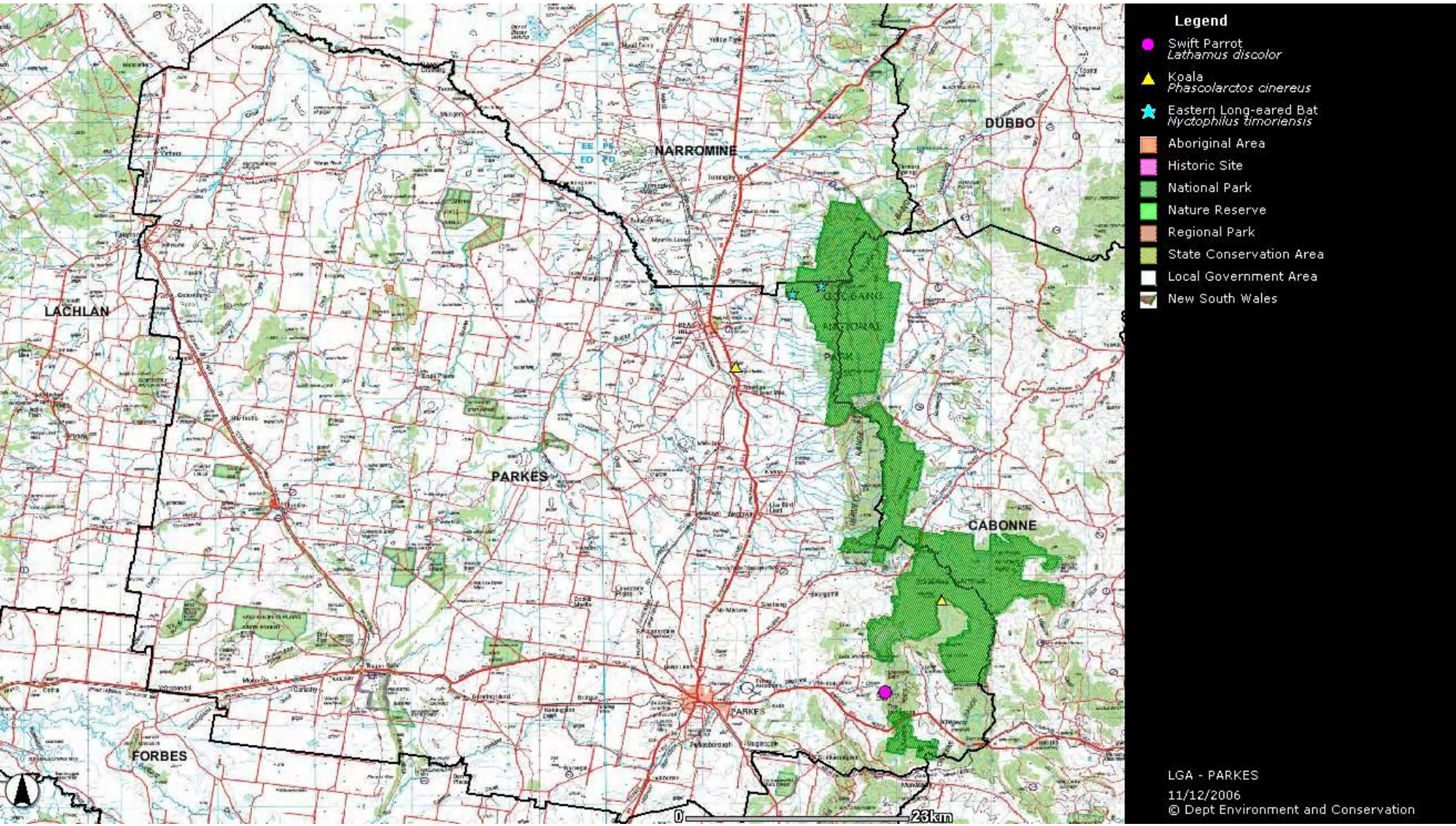
Species Description PDF file

	Dacelo novaeguineae	Laughing Kookaburra	P	2
	Todiramphus sanctus	Sacred Kingfisher	P	2
Hirundinidae				
	Hirundo neoxena	Welcome Swallow	P	3
	Petrochelidon ariel	Fairy Martin	P	1
	Petrochelidon nigricans	Tree Martin	P	1
Maluridae				
	Malurus leucopterus	White-winged Fairy-wren	P	1
Meliphagidae				
	Entomyzon cyanotis	Blue-faced Honeyeater	P	1
	Lichenostomus penicillatus	White-plumed Honeyeater	P	3
	Manorina flavigula	Yellow-throated Miner	P	3
	Manorina melanocephala	Noisy Miner	P	4
	Philemon citreogularis	Little Friarbird	P	1
	Philemon corniculatus	Noisy Friarbird	P	1
	Plectorhyncha lanceolata	Striped Honeyeater	P	1
Meropidae				
	Merops ornatus	Rainbow Bee-eater	P	1
Motacillidae				
	Anthus australis	Australian Pipit	P	1
Pachycephalidae				
	Colluricincla harmonica	Grey Shrike-thrush	P	2
	Falcunculus frontatus	Eastern Shrike-tit	P	1
	Pachycephala rufiventris	Rufous Whistler	P	1
Pardalotidae				
	Pardalotus striatus	Striated Pardalote	P	4
Petroicidae				
	Microeca fascinans	Jacky Winter	P	2
	Petroica goodenovii	Red-capped Robin	P	1
Podargidae				

☐ Podargus strigoides	Tawny Frogmouth	P	2	
Podicipedidae				
☐ Tachybaptus novaehollandiae	Australasian Grebe	P	1	
Pomatostomidae				
☐ Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subspecies)	V	2	Species Description PDF file
Psittacidae				
☐ Barnardius zonarius barnardi	[Mallee Ringneck]	P	2	
☐ Northiella haematogaster	Blue Bonnet	P	4	
☐ Platycercus adscitus eximius	Eastern Rosella	P	3	
☐ Psephotus haematonotus	Red-rumped Parrot	P	4	
Sylviidae				
☐ Cincloramphus cruralis	Brown Songlark	P	1	
☐ Cincloramphus mathewsi	Rufous Songlark	P	3	
Threskiornithidae				
☐ Platalea flavipes	Yellow-billed Spoonbill	P	1	
☐ Threskiornis molucca	Australian White Ibis	P	1	
☐ Threskiornis spinicollis	Straw-necked Ibis	P	2	

Choose up to 3 species to map.

DISCLAIMER: The Atlas of New South Wales Wildlife contains data from a number of sources including government agencies, non-government organisations and private individuals. These data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Find out more about the Atlas.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Swift Parrot
Lathamus discolor
Koala
Phascolarctos cinereus
Eastern Long-eared Bat
Nyctophilus timoriensis
Aboriginal Area
Historic Site
National Park
Nature Reserve
Regional Park
State Conservation Area
Local Government Area
New South Wales
NARROMINE
DUBBO
LACHLAN
PARKES
CABONNE
FORBES
0
23km
LGA - PARKES
11/12/2006
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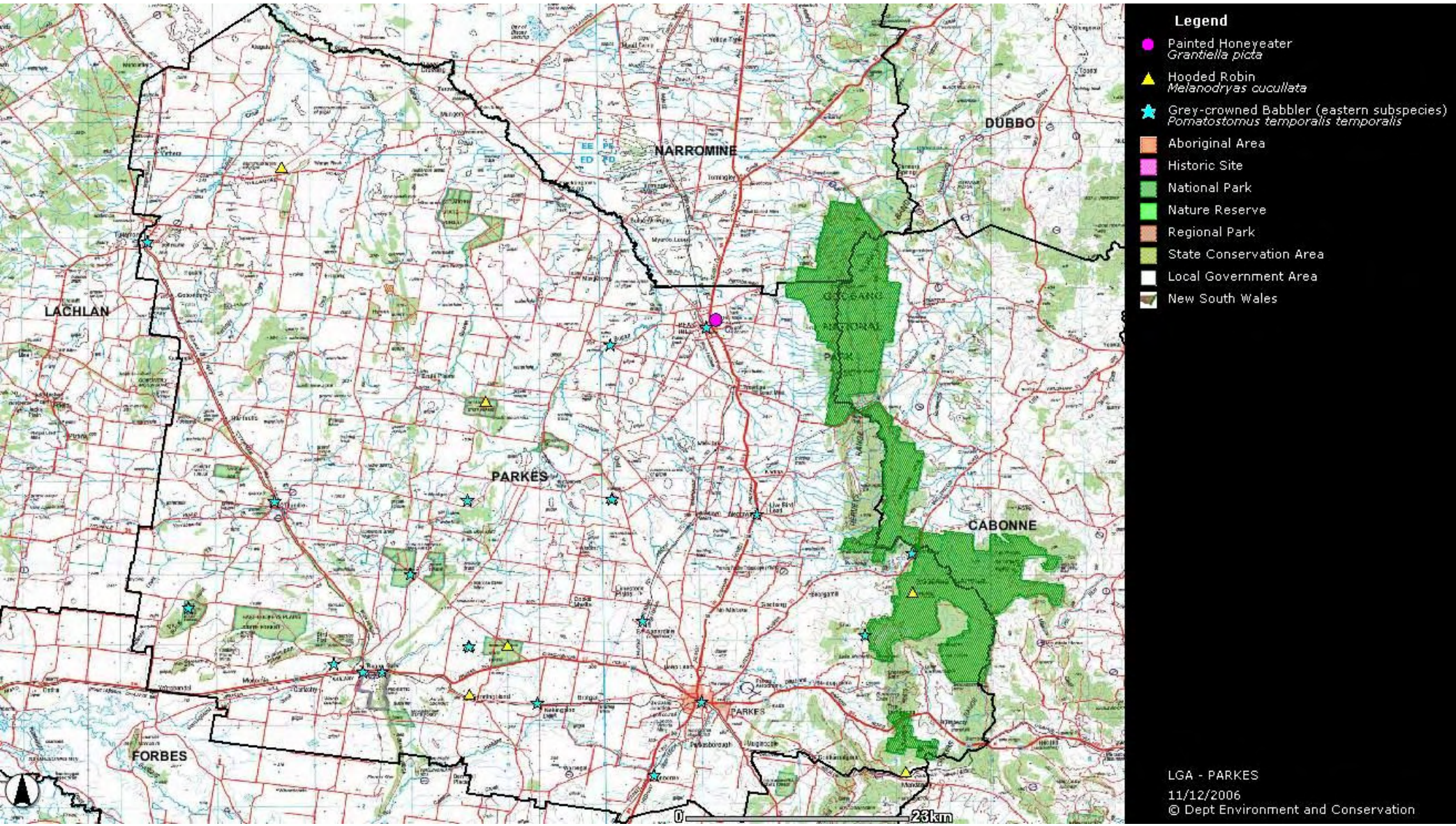
Legend
Painted Honeyeater
Grantiella picta
Hooded Robin
Melanodryas cucullata
Grey-crowned Babbler (eastern subspecies)
Pomatostomus temporalis temporalis
Aboriginal Area
Historic Site
National Park
Nature Reserve
Regional Park
State Conservation Area
Local Government Area
New South Wales
NARROMINE
DUBBO
LACHLAN
PARKES
CABONNE
FORBES
0
23km
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Appendix B Seven-Part Tests

Contents

Appendix B 7-Part Tests

B1.1 Transient, seasonal or migratory species

B1.1.1 Background Ecology

This assessment addresses threatened species that are predicted to occur within the study area, based on habitat assessments conducted during the URS (2006) field surveys and on database records. No individuals of these species were recorded. Further, no evidence such as recent records or important habitat for these species was observed. However these species may occupy the study area on a transient, seasonal or migratory basis and so Section 5A (s.5A) of the EP&A Act has been addressed.

Table 2 lists threatened species that may occur within the study area along with their habitat requirements and an assessment of the likelihood of their occurrence. The following 7-part test addresses these species, which may occur within the study area at Parkes a on a transient, seasonal or migratory basis. These include:

Stagonopleura guttata	Diamond Firetail
Climacteris picumnus	Brown Treecreeper
Burhinus grallarius	Bush Stone-curlew
Cacatua leadbeateri	Major Mitchell's Cockatoo
Grantiella picta	Painted Honeyeater
Lathamus discolor	Swift Parrot
Lophoictinia isura	Square-tailed Kite
Melanodryas cucullata	Hooded Robin
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)
Ninox connivens	Barking Owl
Tyto novaehollandiae	Masked Owl
Polytelis swainsonii	Superb Parrot
Xanthomyza phrygia	Regent Honeyeater
Petaurus norfolcensis	Squirrel Glider
Pteropus poliocephalus	Grey-headed Flying-fox

B1.1.2 Seven Part Test

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

There is no evidence of, a 'viable local population' of any mobile threatened fauna species inhabiting the site on a permanent basis. Hence, the proposed development is not likely to have an adverse effect on the life cycle of any such species such that it could be placed at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

In the case of an endangered population, there is no evidence for any of the listed endangered populations that are recorded from the locality occurring within the study area. Accordingly, the proposed action is not likely to have an adverse effect on any such population such that it could be placed at risk of extinction;

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Construction of the Gas Pipeline will impact upon a 1,800m^2 of woodland habitat, comprising a 1800m^2 strip through Fuzzy Box Woodland in the road reserve adjoining Condobolin Road. This will involve a short term removal of habitat, as the area will be regenerated following completion of construction. Other habitat impacted by the proposal, including the Plant Site footprint, is extensively modified and of low importance.

(ii) The proposal will not result in a significant area of habitat becoming fragmented or isolated. Construction of the Gas Pipeline will result in the clearing of a 7m wide strip of vegetation through remnant Fuzzy Box Woodland in the Condobolin Rd road reserve. This is less than the average interval between adult trees in the Fuzzy Box Woodland and so is not likely to present a barrier to fauna movement. Other habitats within the study area are significantly modified and fragmented.

(iii) Given the extent of equivalent habitat remaining in the locality (47.5Ha) the importance of the 1,800m^2 of Fuzzy Box Woodland affected to mobile, nomadic or migratory species is likely to be low. Habitat outside the development footprint is likely to contain equivalent concentrations of feed trees, stem-hollows, fallen timber and other resources. Further, final route selection

through woodland would minimise the number of important habitat trees removed as far as is practicable.

Other habitat within the study area is present in agricultural lands throughout Central and Western NSW.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

The proposed development is not 'likely to have an adverse effect on critical habitat (either directly or indirectly)' as there is no critical habitat currently listed on the register of relevance to the site or the proposal.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

The proposed development is not likely to be inconsistent with the objectives or actions of a recovery plan for any transitory or migratory threatened fauna species as it is not likely to directly affect any of these species. Suitable environmental management measures, including regeneration of the proposed pipeline route and use of Fuzzy Box Woodland species in visual screening plantings will maintain and improve potential habitat for threatened fauna in the locality and is likely to be consistent with any relevant threat abatement plans.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Clearing of native vegetation is listed as a Key Threatening Process in Schedule 3 of the TSC Act. Clearing of native vegetation has been addressed in 'Part a' and 'Part d' of this assessment.

B1.1.3 Section 5a Assessment Conclusion

Given the considerations for the above seven factors, it is not 'likely' that construction of the peaking power plant and gas pipeline will result in 'a significant effect' on threatened fauna species that may utilise the site on a transitory, seasonal or migratory basis.

B1.2 Fuzzy Box Woodland

B1.2.1 Background Ecology

Distribution

Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions (Fuzzy Box Woodland) occurred mainly in the Dubbo - Narromine - Parkes - Forbes area. Within this region it is now found principally in the South Western Slopes

Bioregion and also occurs in parts of the Darling Riverine Plains Bioregion and Brigalow Belt South Bioregion. Less than 5% of the original extent of this community is estimated to remain intact[1].

Vegetation structure, composition and ecology

Fuzzy Box Woodland is a woodland or open forest usually dominated by Fuzzy Box *Eucalyptus conica,* which often grows with Inland Grey Box *Eucalyptus microcarpa*, Yellow Box *Eucalyptus melliodora* or Kurrajong *Brachychiton populneus*. Buloke *Allocasuarina luehmannii* is common in places. Shrubs are generally sparse and include *Acacia deanei, Dodonaea viscosa, Geijera parviflora, Acacia implexa, Senna artemisioides* sens. lat., *Myoporum montanum* and *Cassinia aculeata*. Small shrubs include *Maireana microphylla* and *Sclerolaena muricata*. The ground cover may be dense after rain but is usually moderately dense. It comprises native forbs, including *Calotis cuneifolia, Sida corrugata, Einadia hastata, Dianella revoluta* and *Bracteantha viscosa,* prostrate shrubs such as *Eremophila debilis, Maireana enchylaenoides,* and native grasses including *Austrostipa scabra, Chloris truncata, Elymus scaber, Themeda australis* and *Austrodanthonia setacea*. Weeds may be common at disturbed sites under favourable seasonal conditions[2].

The total species list of the community is considerably larger than that given above, with many species present in only one or two sites or in very low abundance. The species composition of a site will be influenced by the size of the site, recent rainfall or drought conditions and by its disturbance (including fire) history. At any one time, above ground individuals of some species may be absent, but the species may be represented below ground in the soil seed banks or as dormant structures such as bulbs, corms, rhizomes, rootstocks or lignotubers. The list of species given above is of vascular plant species, the community also includes micro-organisms, fungi, cryptogamic plants and a diverse fauna, both vertebrate and invertebrate. These components of the community are poorly documented[3].

Fuzzy Box Woodland occurs on brown loam or clay, alluvial or colluvial soils on prior streams and abandoned channels or slight depressions on the undulating plains or flats of the western slopes of the Great Dividing Range. This community often occurs upslope from River Red Gum communities, just above frequently inundated areas on the floodplain. It also occurs on colluvial soils on lower slopes and on valley flats (King 1998, Murphy and Lawry 1998)[4].

Local occurrence

Woodland surveyed in the October and December 2006 field surveys was consistent with the *TSC Act* listed EEC Fuzzy Box Woodland. Fuzzy Box woodland occurred in the road reserve adjoining Condobolin Rd on alluvial soils associated with an ephemeral drainage channel and colluvial soils on adjacent valley flats. Fuzzy Box (*E. conica)* was sub-dominant in the area surveyed, with Grey Box (*E. microcarpa*) and *Callitris glaucophylla* dominating the upper canopy. The structural description and

[1] http://www.threatenedspecies.environment.nsw.gov.au/tsprofile
[2] ibid
[3] http://www.nationalparks.nsw.gov.au/npws.nsf/Content/fuzzy_box_woodland_endangered
[4] http://www.nationalparks.nsw.gov.au/npws.nsf/Content/fuzzy_box_woodland_endangered

species composition of the shrub and groundcover layers was consistent the EEC description provided by the DEC (http://www.nationalparks.nsw.gov.au/npws.nsf/Content/fuzzy_box_woodland_endangered).

In the Parkes Shire Council Roadside Management Plan (2001) the area is mapped as Fuzzy Box/White Cypress Pine Woodland and Fuzzy Box/White Cypress Pine Woodland. It is recognised as being of High Conservation Significance.

The Fuzzy Box Woodland is highly fragmented in the regional landscape and features moderate to high levels of disturbance. Areas within the study area are bisected by Condobolin Rd and crossed by several gravel entrance roads and transmission line easements. Smaller fire trails and access roads also pass through the community, particularly towards the western end of the study area in the vicinity of the Integral Energy Substation. It featured minor to moderate weed infestation.

The proposed Plant Site and Alternative Section 1 will not impact upon Fuzzy Box Woodland. The proposed Gas Pipeline will require clearing along an approximately 257m length through Fuzzy Box Woodland in the road reserve adjoining Condobolin Rd. accordingly this assessment is restricted to impacts associated with the proposed Gas Pipeline.

For the purposes of this assessment "local occurrence" of the community is defined as the area of Fuzzy Box Woodland identified in the road reserve adjoining Condobolin Rd between Pat Meredith Dr in the west and extending east to approximately 200m short of the Parkes-Narromine railway. This area of Fuzzy Box Woodland is approximately 47.5 hectares in total.

B1.2.2 Seven Part Test

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Not Applicable.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not Applicable.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

(i) Construction of the proposed Gas Pipeline will require the clearing of a 7m wide strip of Fuzzy Box Woodland along 257m of its length through the road reserve adjoining Condobolin Rd. This amounts to the removal of approximately 1,800 m^2 (or 0.18 ha) of the community out of a local occurrence of 47.5Ha. This is equivalent to 0.38 %. In line with the mitigation measures outlined in this Report this area will be regenerated with species representative of the community. This degree of disturbance will not place the local occurrence of Fuzzy Box Woodland at risk of extinction.

(ii) In line with the mitigation measures outlined in this Report this area will be regenerated with species representative of the community. Over time the area disturbed by the proposed action should approach the species composition of the Fuzzy Box Woodland prior to clearing. Any short or long term alteration to the composition of the 1,800 m^2 of the community directly affected by the proposal is unlikely to affect the composition of the local occurrence of the community as a whole such that is placed at risk of extinction.

The proposed action may indirectly affect the composition of the Fuzzy Box Woodland by opening up areas for weed invasion and by transmitting weed propagules into the area during construction. The construction methods suggested in the report should minimise the risk of weed invasion. Regeneration of the Site should reduce the risk of weed invasion of disturbed areas. In line with the mitigation measures outlined in the report the local occurrence of Fuzzy Box Woodland should be monitored for weed infestation and actively managed. Provided these mitigation measures are followed the proposal will not adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Approximately 1,800 m^2 of Fuzzy Box Woodland will be cleared during construction of the Gas Pipeline. This comprises an approximately 257m long by 7m wide strip through the road reserve adjoining Condobolin Rd. This removal of the community will be short term, since the area will be regenerated after construction. Once plantings have become established the regenerated area will constitute a degraded form of Fuzzy Box Woodland as plantings will only represent a small proportion of species. The cleared area is likely to remain in a degraded state for the medium-long term until the full complement of species representative of this community re-establish naturally.

The absence of mature canopy trees in regenerated areas does not constitute significant degradation of the community as it is naturally open woodland (Specht, 1970) and intact areas

of the community contain a number of age classes. Gaps between mature trees in the vicinity of the disturbed area and throughout the local occurrence of the community are likely to be similar.

(ii) In the context of existing gaps in the local occurrence of the community clearing of woodland for the proposed Gas Pipeline is unlikely to result in significant fragmentation of habitat. The gap created by clearing for the construction of the pipeline will be small (approx 7m). Condobolin Rd effectively splits the local occurrence in two with a gap of approximately 30m between northern and southern portions of the Fuzzy Box Woodland along its entire length. Other gaps include: several unnamed road reserves and entrance roads; transmission line easements; fire and access trails in the vicinity of the Integral Energy Substation; and smaller stock and walking trails throughout the community.

Fuzzy Box Woodland in the road reserve is already isolated in the regional landscape by surrounding cleared farmland. The proposal will not increase the degree of this isolation.

(iii) The area of vegetation that will be impacted is probably of minor importance to the long term survival of Fuzzy Box Woodland in the locality. The impact is limited by:

- the relatively small area to be modified (1,800 m^2) balanced with the area remaining in the local area (47.5 ha); and
- the temporary nature of the disturbance, since the removal of habitat is restricted to the construction phase of the proposed Gas Pipeline;
- the recommended regeneration of the Site with species representative of the community; and
- the recommended monitoring and active control of weed infestation throughout the local occurrence of the community.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

The study area is not listed as critical habitat under Part 3 Division 1 of the Threatened Species Conservation Act 1995.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

There is no recovery plan or threat abatement plan for the Fuzzy Box Woodland. The DEC has identified a total of 6 recovery strategies and 9 priority actions to help recover the community. The proposal is not directly related to the majority of these as they involve research, management or raising community awareness. In line with mitigation measures outlined in the report the Proposal is consistent with the following strategy:

- Recovery strategy: Habitat management: Weed Control - Encourage land managers to employ best management practice standards in controlling noxious weed or pest species in EECs (Medium).

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

In Part 1 of the *TSC Act*, a threatening process is defined as "a process that threatens, or may have the capability to threaten the survival or evolutionary development of species, populations or ecological communities". Construction of the Gas Pipeline will result in the operation of the following Key Threatening Processes listed in Schedule 3 of the *TSC Act*, namely the clearing of native vegetation[5].

B1.2.3 Section 5a Assessment Conclusion

The clearing of approximately 1,800 m^2 of Fuzzy Box Woodland EEC will have a minor impact on the local occurrence of the community. There are 47.5 ha of extant Fuzzy Box Woodland in the local area and so the short term modification of this area is unlikely to have a significant impact in the local context. In line with the mitigation measures outlined in the attached impact assessment report, the cleared area will be regenerated and weed infestation will be actively managed throughout the local area. In light of the existing fragmentation and disturbance of the local community, the proposal is unlikely to have a significant impact on the EEC and will achieve an equivalent value to the extant community in the medium to long term.

[5] http://www.threatenedspecies.environment.nsw.gov.au

B1.3 Grey-crowned Babbler (eastern subspecies)

B1.3.1 Background Ecology

Distribution

The Grey-crowned Babbler is found throughout large parts of northern Australia and in south-eastern Australia. In NSW, the eastern sub-species occur on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Hay. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands[6].

Habitat and ecology

The Grey-crowned Babbler inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains.

The flight of this species is laborious and so birds prefer to hop to the top of a tree and glide down to the next one. This means that individuals are generally unable to cross large open areas. Babblers live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to fifteen birds. All members of the family group remain close to each other when foraging and call to keep in contact with other group members. They feed on invertebrates, either by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst litter and tussock grasses[7].

They build and maintain several conspicuous, dome-shaped stick nests about the size of a football. A nest is used as a dormitory for roosting each night. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low branches of large eucalypts. Nests are maintained year round, and old nests are often dismantled to build new ones. Breeding occurs between July and February. Usually two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group[8].

Family groups occupy ranges of one to fifty hectares (usually around ten hectares) which are defended all year. Territorial disputes with neighbouring groups are frequent and may last up to several hours, with much calling, chasing and occasional fighting.

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[6] http://www.threatenedspecies.environment.nsw.gov.au/tsprofile
[7] http://www.threatenedspecies.environment.nsw.gov.au/tsprofile
[8] http://www.deh.gov.au/biodiversity/threatened/publications/action/birds2000

Local occurrence

Two individuals of the Grey-crowned Babbler were observed opportunistically during random meander searches along the pipeline route during the October 2006 field survey. They were observed foraging in the road reserve south of Condobolin Rd. Five individuals were observed during a diurnal bird survey conducted during the December 2006 field survey. This group was observed foraging in the road reserve north of Condobolin Rd (see **Figure 4**). Both observations were in Fuzzy Box Woodland near to the proposed gas pipeline route. The number of individuals and continuity of observations suggests that at least one family group of Grey-crowned Babblers occupies a home-range within Fuzzy Box Woodland along the Condobolin Rd road reserve.

The portion of the Pipeline Route that crosses the road reserve will impact upon Grey-crowned Babbler habitat in this area. The Pipeline Route through Alternative Section 1 may also contain suitable habitat for the species, however it is likely to be of lower grade due to the lower tree density and degraded understorey. It is unlikely that Grey-crowned Babblers occupy the Plant Site footprint or the remainder of the Pipeline Route and as these areas do not contain suitable habitat. Impacts associated with Alternative Section 1 are likely to be similar in nature to those along the proposed route, with a marginal reduction in the severity of impacts on the species due to the lower grade habitat in this area. This difference in impacts was not considered necessary to warrant a separate assessment. Accordingly this 7-Part test assesses impacts associated with the proposed Gas Pipeline.

B1.3.2 Seven Part Test

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Grey-crowned Babblers construct conspicuous nests that they maintain year-round in core breeding habitat. As part of the detailed design process it is recommended that an ecologist supervise the final route selection and ensure that the Gas Pipeline does not pass within the vicinity of Grey-crowned Babbler nests if they have been built in the area during the intervening period.

The life cycle of birds may also be impacted through the loss of foraging habitat. Bird species are mobile; however they must balance the expenditure of energy travelling to obtain food with the value of food resources. This becomes critical during breeding since additional resources must be obtained to feed young. Therefore adequate foraging provisions in the local area are essential for the life cycle of a viable local population of a species. The proposal will result in the modification of approximately 1,800 m^2 of woodland foraging habitat from an estimated 47.5 ha of extant woodland within the road reserve in the vicinity. The potential loss of foraging habitat will have an adverse effect; however the magnitude of the impact is unlikely to place a local population of the species at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not Applicable.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not Applicable.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Approximately 1,800 m^2 of Grey-crowned Babbler habitat will be cleared during construction of the Gas Pipeline. This comprises an approximately 257m long by 7m wide strip through Fuzzy Box Woodland. This loss of habitat will be short term, since the area will be regenerated after construction. In the medium term the quality of habitat will be decreased until plantings have grown sufficiently to close the gap created in the habitat and provide an equivalent amount of foraging resources. Long term the impact will be negligible since the number of mature trees removed will not affect the vegetation structure of the community. The Fuzzy Box Woodland community is Open Woodland which features gaps greater than 7m between trees in its natural state (Specht, 1975).

(ii) Clearing of Fuzzy Box Woodland for the proposed Gas Pipeline is unlikely to result in isolation or significant fragmentation of habitat. The species is a weak flyer and cannot cross open country. However the gaps created by clearing for the construction of the pipeline will be small (approx 7m) and contained within an area of extant treed vegetation. This is unlikely to prevent the species from utilising remaining habitat.

Grey-crowned Babbler habitat in woodland in the road reserve is already isolated in the regional landscape by surrounding cleared farmland. The proposal will not increase the degree of this isolation.

(iii)The habitat that will be removed is of minor importance to the long term survival of the Grey-crowned Babbler in the locality as impact is limited by:

- the relatively small area to be modified (1,800 m^2) balanced with the area remaining in the local area (47.5 ha);
- the temporary nature of the disturbance, since the removal of habitat is restricted to the construction phase of the proposed Gas Pipeline; and

- the character of the extant vegetation. Due to the open structure and disturbed state of surrounding Fuzzy Box Woodland it is likely that regenerated areas will have similar habitat values to extant vegetation in the medium to long term.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

The study area is not listed as critical habitat under Part 3 Division 1 of the Threatened Species Conservation Act 1995.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

A total of 5 recovery strategies have been identified to help recover the eastern subspecies of the Grey-crowned Babbler. The Project is broadly consistent with these strategies:

- Community and land-holder liaison/ awareness and/or education: Increase understanding of woodland birds through promotion of the DEC website and other educational material.
- Habitat management: Other: Develop habitat identification, management and enhancement guidelines for woodland birds; Implement habitat management guidelines in conservation reserves, council reserves and crown reserves containing suitable habitat.
- Habitat Rehabilitation/Restoration and/or Regeneration Identify key habitats or areas on a regional basis for protection and enhanced management through management agreements and incentives.
- Research: general biological and ecological studies Conduct ecological research to determine habitat and resource requirements, threats and conservation issues.
- Survey and/or Mapping Undertake surveys for threatened woodland birds in new and existing conservation reserves containing suitable habitat to assess the species' conservation status and identify key breeding and foraging habitat.

  The DEC lists recommended actions for the conservation and recovery of the species. Mitigation measures proposed for the Parkes Peaking Power Plant are consistent with the following:

  - Retain dead timber on the ground in open woodland areas.
  - Encourage regeneration of habitat by fencing remnant stands.

It is recommended that landscaped areas of the Plant Site and adjoining remnant Fuzzy Box Woodland be replanted with understorey species and excluded from grazing. Also it is recommended that woody debris disturbed during construction of the Gas Pipeline be retained and reinstated (**Section 6**).

However the proposal is not consistent with the following actions:

- Retain existing woodland vegetation.

(http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx).

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

In Part 1 of the *TSC Act*, a threatening process is defined as "a process that threatens, or may have the capability to threaten the survival or evolutionary development of species, populations or ecological communities".

Construction of the Gas Pipeline will result in the operation of the following Key Threatening Processes listed in Schedule 3 of the *TSC Act* namely the clearing of native vegetation.

B1.3.3 Section 5a Assessment Conclusion

The removal of approximately 1,800 m^2 of habitat will have a minor impact on the foraging resources available to the Grey-crowned Babbler in this locality. Significant areas of equivalent grade habitat are available in the local area, including 47.5Ha of extant Fuzzy Box Woodland in the local area.

Adjacent and surrounding resources containing high quality habitat will not be impacted by the proposal. It is concluded that that there is unlikely to be a significant impact on local populations of the Grey-crowned Babbler as a result of the proposed development.

B1.4 Greater Long-eared Bat (south eastern form)

B1.4.1 Background Ecology

Distribution

The Greater long-eared Bat (*Nyctophilus timoriensis)* is known from disjunct populations on mainland Australia and Tasmania. The south eastern form has a broad distribution which coincides approximately with the Murray Darling Basin. The Pilliga Scrub, in the northeast of this region, is a distinct stronghold for the species[9].

[9] http://www.threatenedspecies.environment.nsw.gov.au

Habitat and ecology

The ecology of this species is poorly known, which is recognized as a potential constraint to its conservation (http://www.deh.gov.au/biodiversity/threatened/publications/action/bats/16.html).

The greater long-eared Bat inhabits a variety of vegetation types, including mallee, *Allocasuarina luehmannii* and box dominated woodland communities. It is distinctly more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. In New South Wales 75% of the eastern part of the species range has been cleared[10].

The species occupies diurnal roosts in tree hollows, crevices, and under loose bark. It is a slow flying agile bat, utilising the understorey to hunt non-flying prey - especially caterpillars and beetles - and will even hunt on the ground. Mating takes place in autumn with one or two young born in late spring to early summer. Precise details of its reproductive biology and ecology, including its preferences for maternal roosts, are not known (Parnaby, 1995).[11]

Local occurrence

A search of the DEC Threatened Species Atlas revealed two records of the Greater Long-eared Bat in the Parkes LGA. Both observations were in the northern portion of Goobang National Park, approximately 60km north-east of the study area (http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/). This reserve continues south and provides a comparable area of habitat as close as 30km to the east of the study area.

Suitable habitat for the species occurs in the Fuzzy Box Woodland in the road reserve along Condobolin Rd. Other potential areas of habitat include disturbed woodland remnants to the west of the Plant Site, Alternative Section 1 and the eastern portion of the Gas Pipeline. These are likely to constitute lower-grade foraging habitat due to the sparse to absent understorey. Areas of ungrazed cleared land within close proximity to treed communities may also provide foraging habitat.

The Plant Site, Gas Pipeline and Alternative Section 1 each contain areas of these habitat types. The significance of impacts associated with each of these Sites is assessed below.

B1.4.2 Seven Part Test

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

The precise requirements for maternity colonies for the species are no known. Maternity colonies for other south-eastern Australian micro bats are typically found in areas such as caves, large rock

[10] http://www.threatenedspecies.environment.nsw.gov.au
[11] http://www.deh.gov.au/biodiversity/threatened/action/bats/43.html

outcrops and cliff lines. The topography in the study area does not provide any such areas. There is a low hill with outcropping sandstone approximately 1km to the south. Potential sites for maternity roosts are also likely in the Goobang National Park - 30km to the east of the study area. The proposal will not impact upon either of these areas.

Reductions in the number of diurnal roost sites or area of foraging habitat may impact upon the life cycle of the Greater long-eared Bat. Less than 1 Ha of potentially suitable habitat will be impacted during the construction of the Plant Site and Gas Pipeline, compared with approximately 47.5 Ha of extant woodland habitat in the local area. These issues are addressed fully in Part (d).

In line with the mitigation measures outlined in this report, the detailed tree clearing protocol will ensure that any bats that may be temporarily roosting in areas of vegetation to be cleared will not be significantly impacted.

The potential loss of small areas of foraging habitat or diurnal roosts is unlikely to have an adverse effect on the life cycle of the species such that a viable local population of the species may be placed at risk of extinction.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not Applicable.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not Applicable.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Development at the Plant Site will impact upon up to 8700m^2 of potential foraging habitat associated with clearing of ungrazed cleared land and disturbed woodland for the construction

of the proposed access road. The recommended position for the access road will not require the clearing of any significant hollow-bearing trees. The Power Plant footprint is unlikely to impact on significant habitat as it is located entirely in ploughed cropland.

The construction of the Gas Pipeline will impact upon approximately 1,800 m^2 of significant foraging habitat associated with clearing through Fuzzy Box Woodland in the road reserve. A further 1.87 ha of potential foraging habitat may be impacted upon through disturbed remnant woodland. The remainder of the route passes through cleared farmland and is unlikely to provide significant habitat. The Gas Pipeline may require the clearing of a number of hollow-bearing trees, particularly in the section that passes through the road reserve. In line with the mitigation measures outlined in this report, the detailed design phase for the pipeline route will involve consultation with an ecologist to avoid as many significant habitat trees as is practicable. Low-impact construction methods will be used through this section, which will allow the area impacted to be reduced to 7m. This will allow the retention of the majority of habitat trees identified in **Figure 5b.** A detailed tree clearing protocol will ensure that any bats that may be occupying diurnal roosts in areas of vegetation to be cleared will not be significantly impacted.

Alternative Section 1 would impact upon an area of approximately 2247m^2 of potential foraging habitat in disturbed remnant woodland. This is directly equivalent to the same length along the Gas pipeline route however the density of trees is lower and so it is likely to involve the removal of fewer adult trees including hollow bearing trees. The precise route will be finalised in consultation with an ecologist and will involve the removal of as few significant habitat trees as is practicable.

(ii) Development at the Plant Site and proposed access road will not cause significant isolation or fragmentation of habitat as it is restricted to previously cleared land.

Clearing of intact woodland for the proposed Gas Pipeline is unlikely to result in isolation or significant fragmentation of habitat. The Greater Large-eared Bat is a highly mobile species and gaps created by clearing for the construction of the pipeline through Fuzzy Box Woodland will be small (approx 7m) and contained within an area of extant treed vegetation. This is unlikely to prevent the species from utilising remaining habitat.

Clearing of disturbed woodland for the proposed gas Pipeline and Alternative Section 1 will involve relatively small (<25m) gaps in extant treed vegetation. This is equivalent to existing gaps between trees and is unlikely to prevent the species from utilising remaining habitat.

Greater Large-eared Bat habitat in woodland in the road reserve is already isolated in the regional landscape by surrounding cleared farmland. The proposal will not increase the degree of this isolation.

(iii) Impacts associated with the Plant Site are restricted to previously cleared land and relatively low-grade foraging habitat. This will not have a significant impact on the long term survival of the Greater Long-eared Bat in the locality.

The removal of 1,800 m^2 of foraging habitat associated with construction of the Gas Pipeline is probably of minor importance to the long term survival of the Greater Long-eared Bat in the locality. The significance of this area is low in the context of other areas of suitable foraging habitat in the local area, including 47.5 ha of woodland within the road reserve that will not be impacted by the proposal.

It will also result in the removal of roosting habitat for the Greater Long-eared Bat in the form of tree hollows. Surrounding woodland is likely to contain an equivalent density of hollow-bearing trees and so the 4200m^2 that will be impacted upon is not highly significant. The actual number of hollow-bearing trees that will be removed will be reduced to as low as is practicable through the final route selection process.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat for the species has been listed.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

There is no recovery or threat abatement plan for the Greater Long-eared Bat. However listings for these species identify the following management recommendations:

- Retain hollow-bearing trees and provide for hollow tree recruitment.
- Retain foraging habitat.
- Minimise the use of pesticides in foraging areas.

Hollow bearing (habitat) trees have been identified as part of this assessment and the proposed route altered to avoid impacts on this habitat resource. The proposal will only use small (domestic quantities) of herbicides for maintenance at the Site.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

In Part 1 of the *TSC Act*, a threatening process is defined as "a process that threatens, or may have the capability to threaten the survival or evolutionary development of species, populations or ecological communities". Clearing of native vegetation is listed as a Key Threatening Process in Schedule 3 of the TSC Act.

Other threats to bats include:

- Deforestation/land clearing;
- Roost disturbance; and
- Change in fire regimes.

(http://www.deh.gov.au/biodiversity/threatened/action/bats/43.html)

B1.4.3 Section 5a Assessment Conclusion

The proposal is unlikely to have significant impact on a local population of Greater Long-eared Bat (presumed to occur on site) as there is:

- Limited clearing of potential roosting habitat (less than 0.4 ha and less than 10 hollow bearing trees);
- Adequate foraging habitat available in the area; and
- The short term nature of the disturbance to the Fuzzy Box Woodland community which is considered the better habitat for this species in the study area.

Adjacent and surrounding resources containing high quality habitat will not be impacted by the proposal. It is concluded that that there is unlikely to be a significant impact to this community as a result of the proposed development.

B1.5 Koala

B1.5.1 Background Ecology[12]

Distribution

The Koala (*Phascolarctos cinereus*) is a nocturnal species, most active during the night and at dawn and dusk. They are found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland from Queensland, New South Wales, Victoria to South Australia. Their range extends from the Atherton Tableland west of Cairns in Queensland to islands off the coast of Victoria and South Australia in the south, and west to central and western Queensland, NSW and Victoria. In NSW Koala's mainly occur on the central and north coasts with some populations in the western region.

Habitat and Ecology

Koalas are highly territorial and in stable breeding groups, individual members of koala society maintain their own "home range" areas which vary from less than two hectares to several hundred hectares. A home range varies in size depending on the habitat quality. Habitat quality can be measured in terms of the density of key food trees. A 'home range' consists of a number of 'home range trees' and 'food trees'

[12] Sources: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/index.aspx, http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp, and information from the Australian Koala Foundation.

which comprise the long-term territory of an individual koala. These trees provide the koala with food, shelter and places for social contact.

Each koala eats approximately 200 to 500 grams of leaves per day. They feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. To cope with a diet of eucalyptus leaves, koalas have a very slow metabolic rate which allows them to retain food within their digestive system for a relatively long period of time, maximising the amount of energy able to be extracted. At the same time, this slow metabolic rate minimises energy requirements and they will sleep for up to 18 hours per day in order to conserve energy.

The breeding season for koalas runs roughly from September to March. This is a time of increased activity, and sound levels increase as males bellow more frequently. This is also when the young from the previous year are weaning from their mothers. Females generally start breeding at about three or four years of age and usually produce only one offspring each year. In the average female's life span of about twelve years, this means that one female may produce only 5 or 6 offspring over her lifetime.

Local Occurrence

No individuals, scratch marks or scats were recorded during the present study. A search of the DEC Threatened Species Atlas identified two historic records of Koala in the Parkes LGA. One observation was in Goobang National Park, approximately 30km east of the study area, with a second in roadside vegetation adjacent to the Newell Hwy, approximately 40km north-west. This second record suggests that roadside vegetation in the region provides habitat for the species.[13]

Fuzzy Box Woodland observed on Site contained high densities (>75% of the total number of trees) of the Secondary Food Trees *Eucalyptus microcarpa* and *E. blakelyi* listed in the draft Recovery Plan for the koala (http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Koala+-+draft+recovery+plan). Therefore Fuzzy Box Woodland within the Study Area may provide high-quality habitat for the species. The road reserve adjacent to Condobolin Rd provides a relatively large (approximately 47.5 Ha), continuous area of this habitat. This area may support a local population of the koala.

Areas of cleared farmland, disturbed woodland and paddock trees are unlikely to support a local population of the Koala due to the low density of feed trees and small, discontinuous patches of habitat. The Plant Site and Alternative Section 1 will only impact on these habitat types. Accordingly this 7-Part Test only assesses impacts associated with the Gas Pipeline.

B1.5.2 Seven Part Test

a) in the case of a threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

[13] http://www.threatenedspecies.environment.nsw.gov.au/tsprofile

Fuzzy Box Woodland recorded on site **may** comprise part of a home range for a resident breeding koala population. The specific population ecology of this local population is not known however general threats to the life cycles of breeding koala populations are likely to include fragmentation or contraction of habitat such that there is insufficient area for koalas to interact during the active breeding phase.

The construction of the Gas Pipeline will impact upon 1,800 m^2 of Fuzzy Box Woodland in the road reserved adjoining Condobolin Rd. This will not present a barrier to successful breeding nor is it likely to constitute a significant reduction in the area of suitable habitat. It is unlikely that these impacts will place the local population at risk of extinction nor cause a significant disruption to the life cycle of individuals within this local population.

b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,

Not applicable.

Endangered populations have been listed for Hawks Nest/Tea Gardens area and for the population in the Pittwater LGA and are unrelated to this proposal.

c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Not applicable.

d) in relation to the habitat of a threatened species, population or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,

(i) Construction of the Gas Pipeline will impact upon a 1,800 m^2 of habitat, comprising an approximately 257m by 7m strip through the road reserve adjoining Condobolin Rd. This will involve the short term removal of habitat during construction, since the area will be regenerated.

In the longer term this will result in a reduction in habitat quality by reducing the concentration of food trees through the removal of a number of adult trees. The total area of Fuzzy Box Woodland along Condobolin Rd which may support a local population is 47.5 ha. The total number of adult trees to be removed will not be established until the detailed design phase, however it is likely that the proposal will result in the removal of a negligible proportion of individual feed trees. This is likely to result in a minor reduction in the concentration of food trees available in the total area of habitat.

(ii) The proposal will not result in a significant area of habitat becoming fragmented or isolated. Construction of the Gas Pipeline will result in the clearing of a 7m wide strip of vegetation through remnant Fuzzy Box Woodland in the Condobolin Rd road reserve. This is less than the average interval between adult trees in the Fuzzy Box Woodland and so will not present a barrier to koala movement.

(iii) Given the recorded variation (2ha to 10km^2) in the size of koala home ranges it is not possible to definitively assess the importance of the portion of habitat that will be modified. However given the extent of equivalent habitat remaining in the locality (47.5Ha) the significance of the 1,800 m^2 affected is likely to be low.

e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),

No critical habitat is listed for vulnerable species under the *TSC Act*.

f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,

The proposed development is generally consistent with the objectives and actions listed in the Draft Recovery Plan for the Koala (NPWS 2003) noting that the majority relate to habitat mapping, research and community education that are not directly applicable in this context.

A total of 16 strategies have been identified to help recover this threatened species under the new Priority Action Statement developed by DEC.

g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

Clearing of native vegetation is listed as a Key Threatening Process in Schedule 3 of the TSC Act. Clearing of native vegetation has been addressed in 'Part a' and 'Part d' of this assessment. Other threats to Koala's include: predation by feral and domestic dogs, intense fires that scorch or kill the tree canopy, the spread of disease such as Chlamydia and conjunctivitis and road-kills.

B1.5.3 Section 5a Assessment Conclusion

The construction of the proposed Gas Pipeline will result in the removal of small number of secondary koala feed trees within 47.5 ha of remaining habitat. This is unlikely to have a significant impact on a local population of the species.

B1.6 References

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