Proposed McPhillamys Gold Mine

ABORIGINAL CULTURAL HERTIAGE QUERIES

CONTACT: DANIEL SUTTON 0423 936 019 OR LISA PATON 0428 975 367

Belubula Headwaters PROTECTION GROUP

Contents

New Evidence

Artefacts near proposed pit

Location: Lot 10, DP 1063244 Kings Plains NSW

1. Tony Cashen, a previous owner of this lot found 4 artefacts some years ago whilst farming on the site.
2. Tony Cashen also identified 2 Aboriginal Camp Oven sites within this lot.

These are remarkably close to the proposed pit and necessitate further archaeological surveys. Particularly coupled with other archaeological deposits recorded in the McPhillamys Aboriginal Cultural Heritage Assessment

Artefacts near proposed pit images

Location of finds to Mine Pit.

Image: Location of new Aboriginal Cultural Heritage evidence in proximity to the mine pit

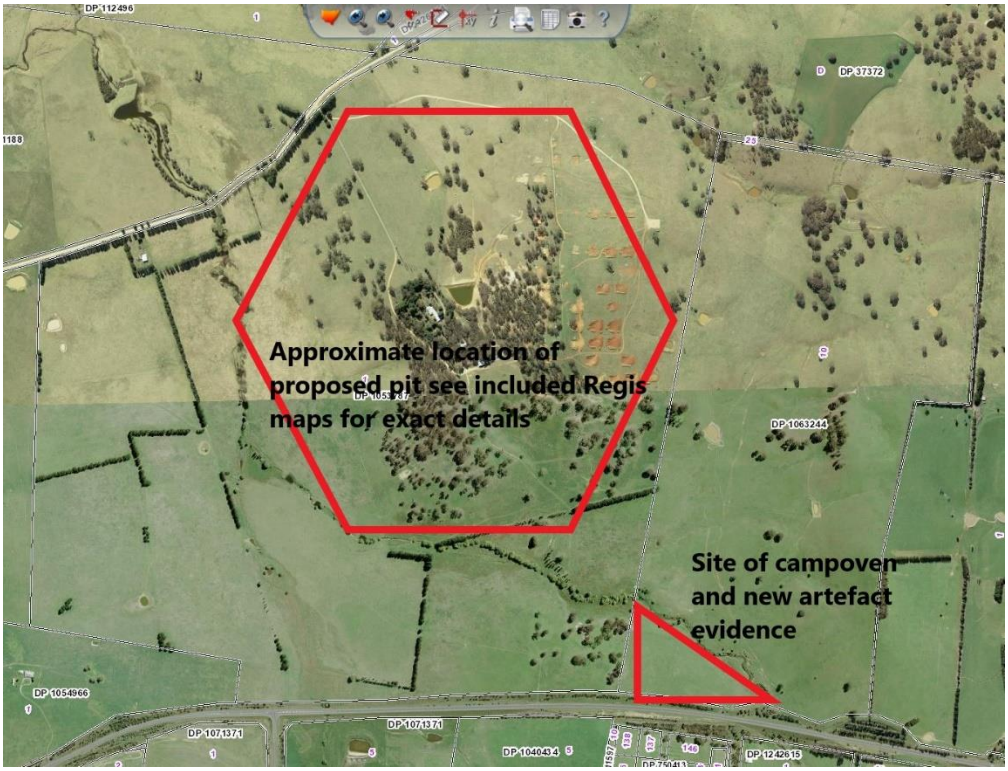
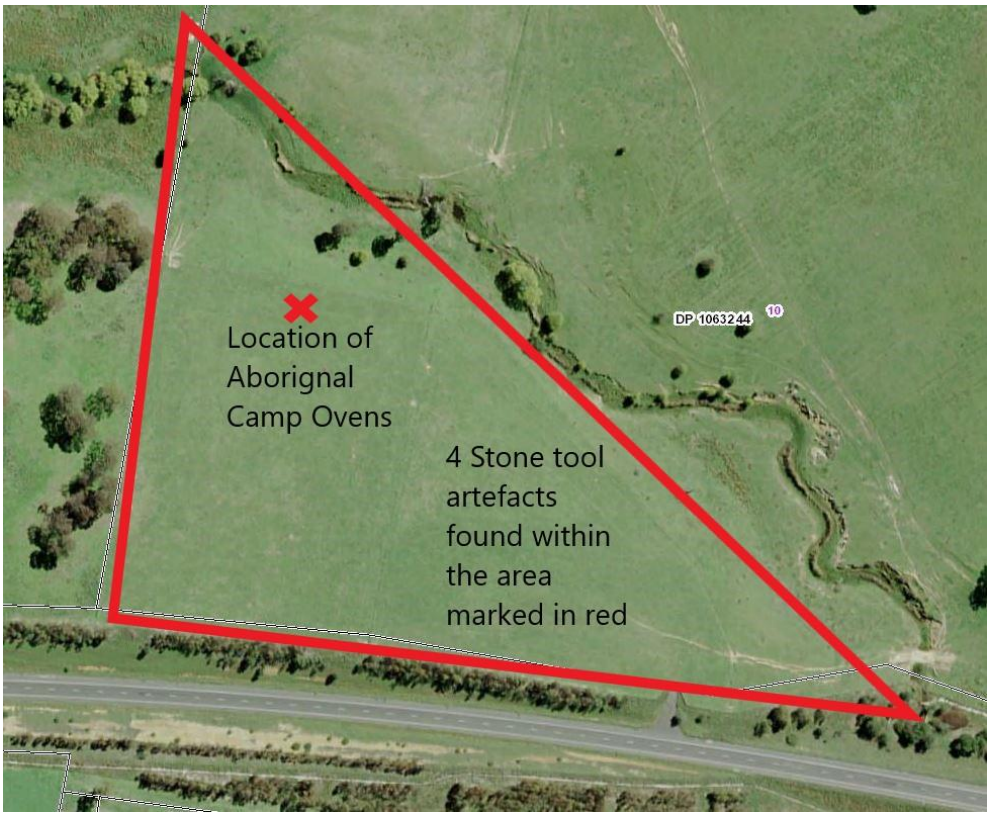


Image: Shows site of Camp oven near proposed pit



Artefact recording quantity query.

There is a discrepancy between the number of artefacts listed in the Preliminary EIS and Amended ACHA.

Preliminary EIS listed **52** artefact sites, with only **38** listed in the Amended ACHA. The artefacts listed around the open cut boundary have reduced in number in the Amended ACHA, why is this the case?

Image: Preliminary EIS Aboriginal Cultural Heritage sites

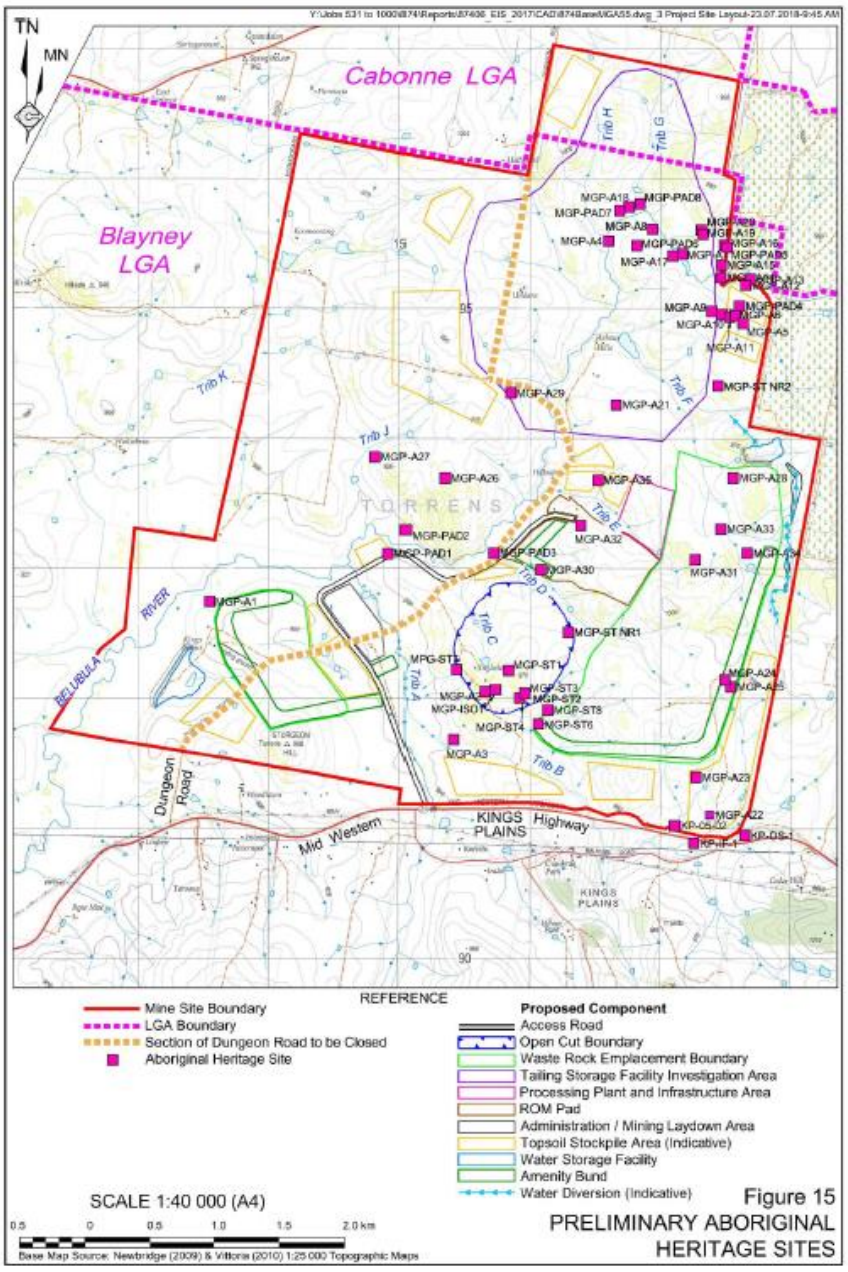
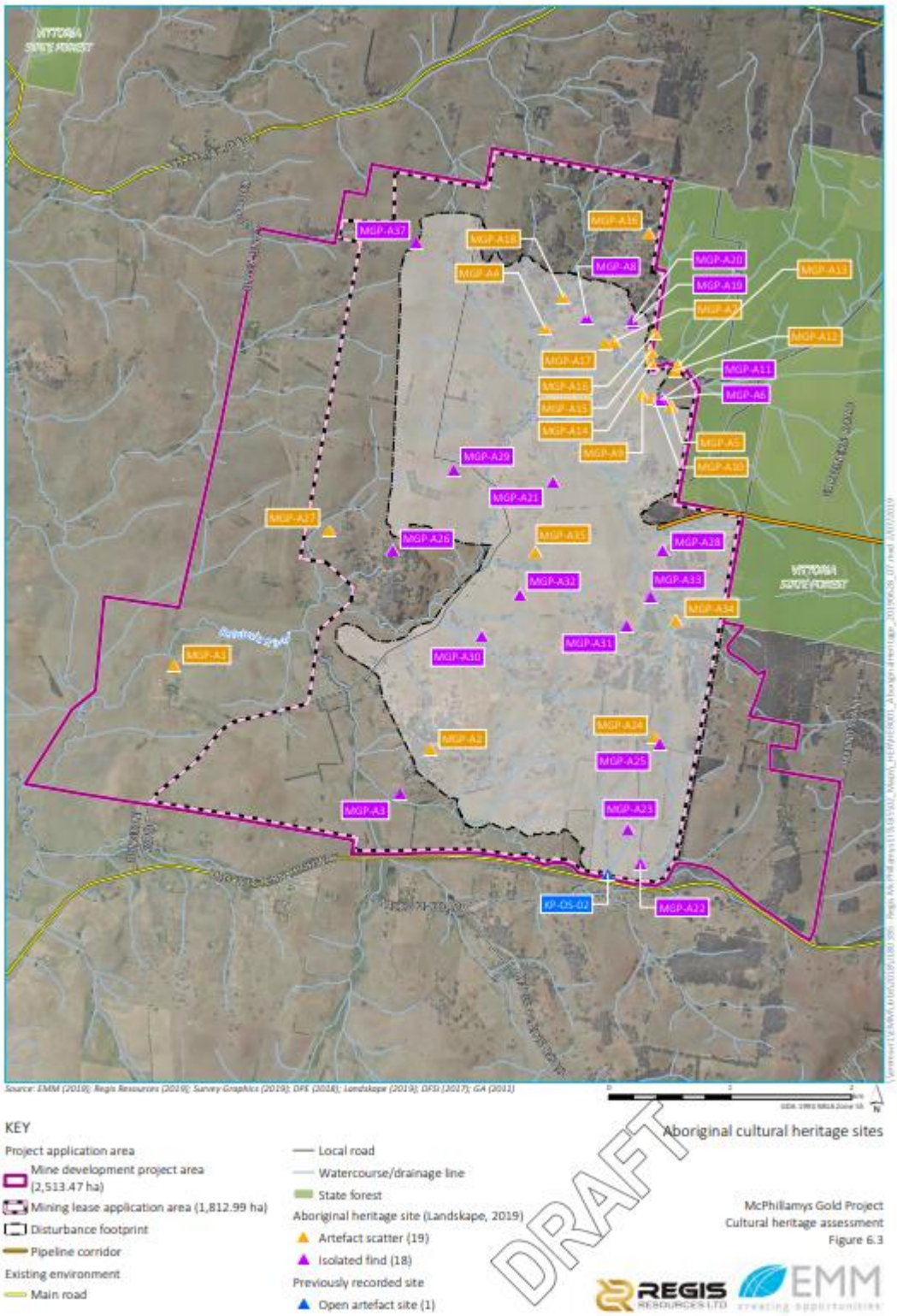


Image: Amended ACHA Aboriginal Cultural Heritage Sites



Summary of requests

1. It is imperative that an extensive Aboriginal Cultural Heritage Assessment be completed across the entire proposed mine site. Given the cumulative number of artefacts recorded in Regis ACHA and the new evidence near to the proposed open cut pit, consisting of stone tool artefacts and potential camp oven sites.
2. That the discrepancies between recorded sites within the Preliminary EIS and the Amended ACHA be explained.

ABN 28 009 174 761
www.regisresources.com

Level 2
516 Hay Street
SUBIACO WA 6008 Australia
P: 08 9442 2200
E: Perthadmin@regisresources.com

57 Adelaide St
BLAYNEY NSW 2799 Australia
P: 02 6368 4100
E: nsw_enquiries@regisresources.com

17 March 2021

Mr Stephen O'Donoghue
Director – Resource Assessments
Department of Planning, Industry and Environment
Locked Bag 5022 PARRAMATTA NSW 2124

Dear Steve,

RE: McPhillamys Gold Project (SSD 9505) – Response to Request for Additional Information [BHPG Correspondence]

This letter provides a response to the request for additional information (RFI) from the NSW Department of Planning, Industry and Environment (DPIE) dated 3 March 2021, in relation to the McPhillamys Gold Project (the Project) and the provision of a response to the correspondence from the Belubula Headwaters Protection Group (BHPG) provided to the DPIE on 25 February 2021.

New Artefactual Evidence

The correspondence provided by the BHPG refers to 'new artefactual evidence' allegedly originating from the Project area. As documented in our correspondence to the DPIE dated 1 March 2021, and in the interests of being able to respond appropriately to the matters raised in the BHPG correspondence, Regis has requested the following clarifications from BHPG:

1. When were the artefacts in the photographs first identified by Tony Cashen? The letter refers to 'some years' ago, however does not provide a specific timeframe/date.
2. Where within the "area marked in red" was each artefact identified?
3. When and why were these artefacts in the photographs removed from the land, and by whom?
4. If these artefacts were removed from the land post-2013 (i.e. post-Regis ownership), could it please be confirmed who accessed the land and under what authority?
5. Where are the artefacts currently located, and who currently has custody of these items?
6. Is it correct that the artefacts have not been registered on the AHIMS (Aboriginal Heritage Information Management System) database?
7. Is there any evidence to verify that the artefacts were located within the "area marked in red"? If so, please provide this evidence.
8. Is there any further information/evidence regarding the alleged 'camp oven' sites? If so, please provide this information/evidence.

Responses to these queries are required to provide critical context and allow Regis and its consultant specialists to assess the matter accordingly. Pending response to the questions raised above, these matters are not able to be addressed further in this response.

Artefact Recording Query

The correspondence provided by the BHPG refers to a discrepancy between the number of artefacts listed in the Preliminary Environmental Assessment (PEA)[1,2] and that described in the Aboriginal and Historical Cultural Heritage Assessment Addendum – Mine Development prepared for the Amended Project (Mine AHCHA Addenda)[3].

As described in Section 5.6.2.3 of the PEA, a total of 46 sites were initially identified during surveys undertaken by Navin Officer in 2017 within the proposed mine development area at the time of the survey (including 18 isolated finds [including some with potential archaeological deposits [PADs], 19 artefact scatters [including some with PADs] and nine potential Aboriginal scarred trees). As such, the BHPG reference to a total of 52 sites is incorrect.

Notwithstanding, Regis notes the following in relation to the change in the number of sites within the proposed mine development area footprint from 46 in the PEA to 38 in the Mine AHCHA Addenda:

1. Since preparation of the PEA, the proposed disturbance footprint has been further refined, as documented in the Project Amendment Report, including changes in the north-east and south-west of the Project area. As a result, some sites located within the original proposed mine footprint considered in the PEA are no longer located within the proposed disturbance footprint associated with the Amended Project. The sites potentially affected by the Amended Project are described in detail in the Mine AHCHA Addenda.

2. The PEA refers to several PADs within the project area. While archaeologists from Navin Officer considered that a number of areas in the project area had potential for subsurface archaeological deposits, following two separate in depth peer reviews by Dr Matt Cupper (Landskape) and Dr Tim Stone, the presence of these site types within the disturbance footprint has been discounted.

   As stated in Section 15.3.2 of the EIS, Dr Matt Cupper was commissioned in 2017 and formed the view that the level of previous disturbance that has occurred at each of the possible PAD locations had been underestimated. A second peer review was commissioned in 2018, completed by Dr Tim Stone (a geo-archaeologist). Consistent with the conclusions of Dr Matt Cupper, Dr Tim Stone noted that archaeological material is likely to be present on the land surface or shallow subsurface, no deeper than 10 centimetres in the A2 soil horizon. Dr Tim Stone discounted the likelihood that all of these potential areas within the disturbance footprint were differentiated from the surrounding archaeological landscape.

   On the basis of the above, no PADs are considered likely to occur within the disturbance footprint for the proposed Project. Further, Heritage NSW did not comment any further on this matter, finding that the assessment was undertaken in accordance with the relevant guidelines:

   > *"…the proposed mitigation measures to reduce harm to Aboriginal objects are adequate and proportionate to the type of objects and the land use disturbance history and that the assessment adequately complied with the Aboriginal consultation requirements".*

[1] Prepared by RW Corkery & Co Pty Limited, dated July 2018.

[2] Referred to in the BHPG correspondence as the 'preliminary EIS'.

[3] Referred to in the BHPG correspondence as the 'Amended ACHA.

3. The PEA refers to a total of nine potential Aboriginal scarred trees being located within the project area, including some within the extent of the proposed open cut pit. Despite this reference, these nine potential Aboriginal scarred trees and an additional two other potential Aboriginal scarred trees (identified post the date of the PEA) have since been assessed and examined by numerous archaeologists, finding that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices. Furthermore, it is noted that none of these potential Aboriginal scarred trees have been listed on the AHIMS database.

   As documented in Appendix 2 of the final Mine AHCHA Addenda, archaeologists from Navin Officer (2017) examined 10 potential Aboriginal scarred trees within the project area and concluded that nine were unlikely to contain scars made by Aboriginal people and that one (MGP-ST NR1) was of possible Aboriginal origin. Subsequently, Archaeologist Dr Matt Cupper reinspected this tree (MGP-ST NR1) on 26 September 2018 and concluded this feature was also unlikely to contain a scar made by Aboriginal people and that the feature appeared to be a recent tree wound.

   Notwithstanding the above, and that extensive consideration and assessment has concluded that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices, Regis has taken a cautious approach and engaged specialists recognised as experts in the field of identification of Aboriginal scarred trees, Dr Johan Kamminga and Mr Allan Lance, to undertake a further assessment of these previously documented sites. They concluded the following:

   > *"None of the scars examined exhibited sufficient diagnostic attributes (whether weighted or unweighted) to identify any scar as evidence of Aboriginal subsistence or other cultural activity. Some of the scars are obviously too high on the tree trunk to be the likely consequence of Aboriginal bark procurement or other activity. The large majority of the scars are consistent with wounds resulting from branch or secondary stem tear, which is a common trauma sustained by trees (particularly box trees) in the region generally. Other scars are identifiable as the result of fire, storm damage, lightning strike, branch abrasion or bird and insect activity. In two instances the identified features can be attributed to natural fissuring in the bark, caused by expansion during growth".*

   Therefore, these previously documented potential Aboriginal scarred trees have not been considered in the Aboriginal cultural heritage assessments, and hence are not considered in the Mine AHCHA Addenda or the Project Amendment Report.

Further Information

If you require any further detail or wish to discuss the information provided, please do not hesitate to contact either Danielle Wallace (0402 692 588, dwallace@regisresources.com) or Andrew Wannan (0437 001 823, awannan@regisresources.com).

Yours sincerely

Rod Smith
General Manager NSW
rsmith@regisresources.com

ABN 28 009 174 761
www.regisresources.com

Level 2
516 Hay Street
SUBIACO WA 6008 Australia
P: 08 9442 2200
E: Perthadmin@regisresources.com

57 Adelaide St
BLAYNEY NSW 2799 Australia
P: 02 6368 4100
E: nsw_enquiries@regisresources.com

15 April 2021

Mr Stephen O'Donoghue
Director – Resource Assessments
Department of Planning, Industry and Environment
Locked Bag 5022 PARRAMATTA NSW 2124

Dear Steve,

RE: MCPHILLAMYS GOLD PROJECT (SSD 9505) – ABORIGINAL CULTURAL HERITAGE CONSULTATION UPDATE AND ADDITIONAL INFORMATION

This correspondence provides a summary of the Aboriginal cultural heritage consultation process undertaken for the McPhillamys Gold Project (the Project), and provides an update on a newly registered Aboriginal cultural heritage site by the Belubula Headwaters Protection Group. This letter provides further information to the previous correspondence from Regis dated 17 March 2021, in response to a request for further information from DPIE relating to Aboriginal heritage consultation for the Project.

Summary of Aboriginal Community Consultation: November 2016 – October 2020

As you would be aware, extensive Aboriginal Cultural Heritage Assessments (ACHAs) have been prepared for the Project over several years by various consultants. These assessments include:

1. McPhillamys Gold Project Aboriginal and Historical Cultural Heritage Assessment (Landskape, 2019) (provided as Appendix P to the Environmental Impact Statement [EIS]).
2. McPhillamys Gold Project: Pipeline Development Aboriginal Cultural Heritage and Historic Heritage Assessment Report (OzArk, 2019) (provided as Appendix Z to the EIS).
3. McPhillamys Gold Project Addendum to the Aboriginal and Historical Cultural Heritage Assessment (Landskape, 2020).
4. McPhillamys Gold Project Mine Access Road and Pipeline Options: Addendum Aboriginal Cultural Heritage and Historic Heritage Assessment Report (OzArk, 2020).

Copies of these reports have been provided to the Registered Aboriginal Parties (RAPs), and are publicly available on the NSW Major Projects website. Notwithstanding, copies of these reports are provided again for reference in **Appendices A to D** (respectively) of this correspondence.

As previously indicated and as described in the relevant documentation, the ACHAs and community consultation for the Project have been prepared and undertaken by suitably qualified archaeologists, having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010).

As these reports are appended to this correspondence, a detailed description of the consultation undertaken has not been reproduced in this correspondence. Notwithstanding, it is noted that all RAPs were consulted during the preparation of the EIS and Amendment Report (a list of the RAPs can be found in **Appendices A to D** of this correspondence).

Summary of Aboriginal Community Consultation: October 2020 – Present

In light of the fact that consultation with the RAPs has been ongoing for a number of years and to avoid any potential gaps in the continuity of consultation, Regis felt it appropriate to undertake further consultation with the RAPs.

This consultation process is described below, and included an additional registration process due to the length of time the consultation had been running for. The below summarised consultation represents consultation considered to be above and beyond the requirements of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW 2010).

Stage 1 – Notification and Registration

A new registration process was undertaken to identify any new or additional RAPs that may wish to be involved in ongoing Aboriginal community consultation for the Project. Note that all existing RAPs were not required to re-register, this process was simply to identify any additional stakeholders for consultation purposes. This process commenced on 27 October 2020 and the period for registrations concluded on 18 November 2020, and is summarised as follows:

- A public notice was placed in the Lithgow Mercury on 27 October 2020 inviting interested Aboriginal parties or groups to register for the consultation process (refer to **Appendix E** of this correspondence).
- A public notice was placed in the Blayney Chronicle, Central Western Daily and the Western Advocate on 29 October 2020, inviting interested Aboriginal parties or groups to register for the consultation process (refer to **Appendix E** of this correspondence).
- Record of names of RAPs (along with copies of the public notices) were provided to the Heritage NSW, the OLALC and the BLALC on 16 December 2020 in accordance with the OEH policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010a) (refer to **Appendix E** of this correspondence).

Despite the above described additional registration process, no new RAPs were registered for the Project. Rather one (1) individual (Ms Nyree Reynolds) who was previously associated with the Orange Local Aboriginal Land Council (OLALC) chose to register as an individual. Despite this, Regis continued with the additional consultation program.

Subsequent to the completion of the additional registration period described above, Regis was contacted by a further four (4) Aboriginal community members[1] located in the Cowra region, wishing to be consulted in relation to the Project. In the interests of inclusivity and positive engagement with the community Regis has included these additional individuals as 'Aboriginal Stakeholders' for the Project.

Stage 2 – Presentation of Information about the Project

Copies of the existing final ACHA reports and associated addenda for the proposed mine development and pipeline development were provided once again to all RAPs on 17 December 2020 (even though these are already publicly available – refer to **Appendices A to D** of this correspondence).

[1] A record of these names is provided in **Appendix J** of this correspondence.

Stage 3 – Gathering Information of Cultural Significance

Participants throughout the consultation process were encouraged to identify, raise and discuss any relevant cultural concerns or perspectives. In addition to this, a meeting/information session was held on 25 February 2021 with archaeologists and the RAPs to provide a project update and summary of the results as per the existing ACHA assessments. To facilitate attendance the meeting was held over three platforms – in person, via teleconference facility and via video link.

While all RAPs were invited to attend (and several attempts were made to contact each of the RAPs via email and telephone), only two (2) representatives attended, namely Darrell Fabar (Warrabinga) and Darleen Johnson (Murra Bidgee Mullangari Aboriginal Corporation). No concerns were raised during the meeting, and no further cultural information was forthcoming from the RAPs.

Separate to this meeting Regis representatives also attended numerous meetings with individual RAPs. These are summarised in **Appendix J** of this correspondence.

Stage 4 - Review of Reports

In addition to the above steps, Regis offered all RAPs an additional 28 day period in which to provide further comment on the final ACHA reports and associated addenda already prepared for the Project. This consultation period commenced on 3 March 2021 and concluded on 31 March 2021.

During this process, comments were received from only two (2) of the RAPs. The comments received and response from Regis to each of the comments are summarised below in Table 1.

Table 1
Regis Responses to Additional RAP Comments on Final ACHA Reports

RAP Comment	Regis Response
25 March 2021, Wiradjuri Traditional Owners Central West Aboriginal Corporation	
"…due to the significant number of Aboriginal Cultural Heritage sites recorded within the mines footprint, recommend an extensive Cultural Heritage Values survey which encompaces [sic] *the tangible and intangible aspects of this culturally significant area."*	As described in the ACHA reports provided in **Appendices A to D** of this correspondence, Regis is committed to commissioning a social and cultural mapping study with relevant Traditional Owners for the Project area. This mapping study would be undertaken should Development Consent be granted for the Project, and would form part of the requirements of the Aboriginal Cultural Heritage Management Plan that would ultimately be developed.
29 March 2021, Orange Local Aboriginal Land Council	
"It is still the opinion of the Orange Local Aboriginal Land Council that we require a "Full Cultural Heritage Values Survey" to be carried out across the whole site, the survey should encompass activities such as sub surface testing, ground surveys, Ground Imaging Radar (GIR) and other activities as deemed warranted by the OLALC Cultural Heritage Advisory Committee. *Given the extent of archaeological deposits found in the minimal area*	In relation to the 'full cultural heritage values study', please refer to the response provided above. In relation to subsurface testing, and as further detailed in **Appendix H** of this correspondence, while some archaeologists initially considered that some areas in the Project area had potential for subsurface archaeological deposits, following two (2) separate in depth peer reviews by Dr Matt Cupper (Landskape) and Dr Tim Stone, the presence of these site types within the disturbance footprint has been discounted. Further, it is noted that OLALC has previously provided correspondence to the then NSW Office of Environment and Heritage (dated 12 March 2018) describing that "*any activities with the potential to disturb Aboriginal cultural material, should only occur if it is unavoidable*" and that "*…it is OLALC's opinion that… subsurface investigations*

surveyed by Regis coupled with other tangible and intangible evidence for the site it is imperative that a Full Cultural Heritage Values Survey be carried out to thoroughly record all aspects of this significant site to Aboriginal and European history."	*should only be undertaken if and when McPhillamys is approved*." A copy of this letter is reproduced in **Appendix F** of this correspondence. In relation to Ground Imaging Radar, and as described in **Appendices A and C** of this correspondence, the use of geophysical techniques to locate graves is problematic in both archaeological and forensic contexts. As described by Landskape (2019, 2020), geophysical techniques are extremely unsuited to finding burials in the mine project area. Notwithstanding, In the unlikely event that an Aboriginal burial is encountered, strategies for its management would need to be developed with the involvement of the local Aboriginal community.
"The OLALC has requested this on multiple occasions with no official response from Regis".	Regis has outlined the company position on this matter in numerous forums including several meetings held on 1 October 2020, 20 October 2020 and 29 March 2021, as well as follow up correspondence on 16 December 2020 and 17 December 2020.

Complete copies of the above comments are provided in **Appendix G** of this correspondence.

For clarity, a summary of the Aboriginal heritage consultation undertaken for the Project to date is provided in **Appendix J** of this correspondence.

Scarred Tree Investigation Report

As described in our correspondence dated 17 March 2021, and reproduced in **Appendix H** of this correspondence, a number of potential Aboriginal scarred trees have been observed across the Project area over the years. As a result of these observations, a total of 11 potential Aboriginal scarred trees have been assessed and examined by numerous archaeologists, finding that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices. Furthermore, it is noted that none of these potential Aboriginal scarred trees have been listed on the NSW Aboriginal heritage Information Management System (AHIMS) database.

Regardless of the fact that extensive consideration and assessment has concluded that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices, Regis has taken a cautious approach and engaged specialists recognised as experts in the field of identification of Aboriginal scarred trees, Dr Johan Kamminga and Mr Allan Lance, to undertake a further assessment of these previously documented sites. They concluded the following:

> *"None of the scars examined exhibited sufficient diagnostic attributes (whether weighted or unweighted) to identify any scar as evidence of Aboriginal subsistence or other cultural activity. Some of the scars are obviously too high on the tree trunk to be the likely consequence of Aboriginal bark procurement or other activity. The large majority of the scars are consistent with wounds resulting from branch or secondary stem tear, which is a common trauma sustained by trees (particularly box trees) in the region generally. Other scars are identifiable as the result of fire, storm damage, lightning strike, branch abrasion or bird and insect activity. In two instances the identified features can be attributed to natural fissuring in the bark, caused by expansion during growth".*

Therefore, these previously documented potential Aboriginal scarred trees have not been considered in detail in the ACHAs and associated addenda. A copy of this scarred tree assessment report is reproduced in **Appendix I** of this correspondence.

New Registration of AHIMS Site 44-2-0310

As indicated in previous discussions and correspondence, Regis has also become aware of a newly registered site on the AHIMS database of relevant to the Project. On 12 March 2021, Ms Lisa Paton registered the 'Kings Plain McPhillamy Camp Site' (herein referred to as AHIMS Site 44-2-0310) on a parcel of land owned by Regis. While this land is located within the extent of the Project development application area, it is however located outside of the proposed disturbance footprint associated with the Project.

As described in our correspondence dated 17 March 2021, and reproduced in **Appendix H** of this correspondence, Regis has requested a number of clarifications in relation to this new site recording. To date, Regis has not received a formal response.

Regardless, Regis staff have attended the location identified in the site card and noted that no discernible archaeological material was present at the location. Despite this, Regis has also attempted to contact both Mr Tony Cashen (who is referred to in the AHIMS site card) and Mr Tony Newman (who Mr Cashen indicated may be able to assist). However, to date no further information has been forthcoming.

Notwithstanding the above, it is noted that AHIMS Site 44-2-0310 is not located within the proposed disturbance area of the Project, would not be subject to impact associated with the currently proposed Project and hence is not considered further in this correspondence. Regis does not propose to undertake any further work in relation to this site at this time.

Further Information

We trust that this correspondence provides a sufficient summary of the Aboriginal cultural heritage consultation undertaken to date and an update on residual outstanding associated matters.

If you require any further detail or wish to discuss the information provided, please do not hesitate to contact either Danielle Wallace (0402 692 588, dwallace@regisresources.com) or Andrew Wannan (0437 001 823, awannan@regisresources.com).

Yours sincerely

Rod Smith
General Manager NSW
rsmith@regisresources.com

APPENDIX A

MCPHILLAMYS GOLD PROJECT ABORIGINAL AND HISTORICAL CULTURAL HERITAGE ASSESSMENT (LANDSKAPE, 2019)

APPENDIX B

MCPHILLAMYS GOLD PROJECT: PIPELINE DEVELOPMENT ABORIGINAL CULTURAL HERITAGE AND HISTORIC HERITAGE ASSESSMENT REPORT (OZARK, 2019)

APPENDIX C

MCPHILLAMYS GOLD PROJECT ADDENDUM TO THE ABORIGINAL AND HISTORICAL CULTURAL HERITAGE ASSESSMENT (LANDSKAPE, 2020)

APPENDIX D

MCPHILLAMYS GOLD PROJECT MINE ACCESS ROAD AND PIPELINE OPTIONS: ADDENDUM ABORIGINAL CULTURAL HERITAGE AND HISTORIC HERITAGE ASSESSMENT REPORT (OZARK, 2020)

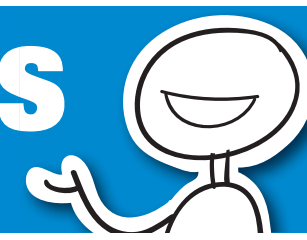
APPENDIX E

PUBLIC NOTICES AND LETTERS OF RECORD

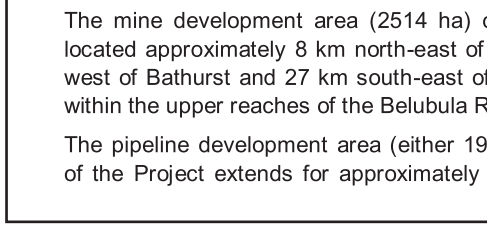
Connect with Classifieds

LITHGOW MERCURY

Phone: 02 6352 2700
classifieds@lithgowmercury.com.au



Index



Deaths & Funerals

TEONG: Alexander Herbert (Lex)

19 October, 2020 suddenly at his home in Portland. Beloved son of Len & Millie (both deceased), loved brother & brother-in-law of Garry, Robbie (deceased), Dianne & Frank (deceased) Hogan, loving uncle of his nieces and nephews.

Aged 68 years.
'Gone fishing'.

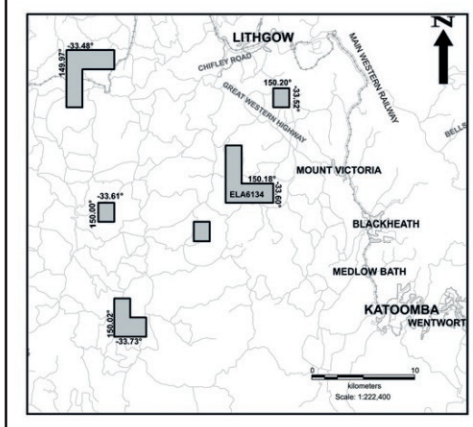
Graveside prayers for the repose of the soul of LEX will be offered in the lawn portion of Portland Cemetery **ON FRIDAY (30TH OCTOBER, 2020) AT 10.15AM.**

Michael & Jeannine Brown
(Kerry Linegar Funerals & Monuments)
157 Mort Street, Lithgow
Telephone 6351 2661
www.kerrylinegarfunerals.com.au

Auctions

Mining Notices

Exploration Licence Application 6134



Notice is given in accordance with Section 13A of the Mining Act 1992 and Clause 15 of the Mining Regulation 2016 that Exploration Licence Application (ELA) 6134 for Group 1 (Metallic Minerals) has been lodged with the Department of Planning, Industry and Environment by Western Silver Pty Ltd, ACN 643 274 471, over the area of 16 units (42 square kilometres), located approximately 14.62km south west of Lithgow.

Information regarding this application can be obtained from Shelly Zhang, Phone Number (08) 9309-0400, email shelly@austwidemining.com.au.
Information about landholder's rights is available on the Department's website: https:/ww.resourcesandgeoscience.nsw.gov.au/landholders-and-community andholders-rights

Public Notices

Public Notice—McPhillamys Gold Project:
Invitation for Aboriginal people to participate in community consultation process

REGIS RESOURCES LTD

LFB Resources NL (LFB), a wholly owned subsidiary of Regis Resources Limited, is the proponent of the proposed McPhillamys Gold Project (the Project). The contact details of LFB are set out below.

The Project

In August 2019, LFB made a State significant development application (No. SSD-9505) seeking development consent for the Project under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

LFB has recently amended the State significant development application for the Project and, on 3 September 2020, submitted an amendment report for the Project. This amendment report, as well as the August 2019 environmental impact statement for the Project, is publicly available via the following webpage on the NSW Government Planning Portal (Major Projects) website: https://www.planningportal.nsw.gov.au/major-projects/project/9821

The Project would involve the development of a greenfield open cut gold mine and associated water supply pipeline in the Central West of New South Wales.

The Project is comprised of two key components: the mine site where ore will be extracted and processed (ie the mine development) and an associated water pipeline that will enable the supply of water from near Lithgow to the site of the mine development (ie the pipeline development).

In addition to the open cut mine, the mine development component of the Project would include: the construction and use of associated infrastructure (including ore processing, stockpiling, tailings management and water management infrastructure), the construction and use of an engineered Tailings Storage Facility and the development of ancillary infrastructure.

The mine development area (2514 ha) of the Project is located approximately 8 km north-east of Blayney, 20 km west of Bathurst and 27 km south-east of Orange, and is within the upper reaches of the Belubula River catchment.

The pipeline development area (either 194 ha or 213 ha) of the Project extends for approximately 90 km from the eastern extent of the Blue Mountains near Lithgow, to the mine development area (traversing the local government areas of Lithgow, Bathurst and Blayney). The location of the Project is depicted in the below figures.

Invitation for Aboriginal people to participate in community consultation process

Aboriginal cultural heritage assessment reports have been prepared for the purpose of informing the assessment and determination of the State significant development application for the Project.

The Aboriginal cultural heritage assessment process for both the mine development component and pipeline development component of the Project continues to be informed by ongoing consultation with numerous Registered Aboriginal Parties.

LFB invites any Aboriginal person who is not already a Registered Aboriginal Party for the Project and who holds cultural knowledge relevant to determining the significance of Aboriginal objects or places in the area of the Project, to register an interest in the ongoing process of community consultation with LFB regarding the Project.

The closing date for the registration of interests is **Wednesday 18 November 2020.**

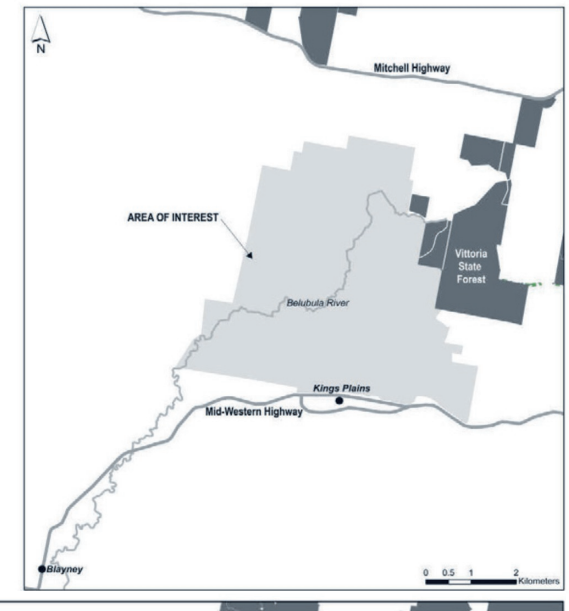
As the existing Registered Aboriginal Parties for the mine development component or pipeline development component of the Project have already been registered, **existing Registered Aboriginal Parties do not need to register an interest** and will continue to be involved in the ongoing process of community consultation with LFB regarding the Project.

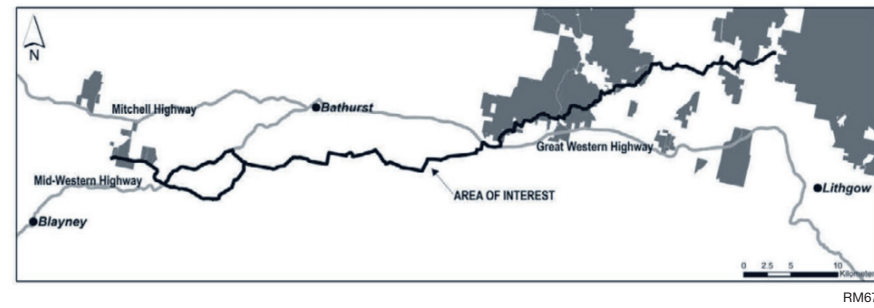
The purpose of community consultation with Aboriginal people is to assist LFB with the Aboriginal cultural heritage assessment process associated with the State significant development application for the Project, and to assist the NSW Independent Planning Commission in its consideration and determination of this application under the EP&A Act.

To register an interest in the ongoing process of community consultation or to ask any questions regarding the Project, please contact LFB via any of the following options by **Wednesday 18 November 2020.**

Email: dwallace@regisresources.com
Telephone: 02 6368 4100
Mail: PO Box 102, Blayney NSW 2799

Please note that the details of each Aboriginal person who registers an interest will be forwarded to Heritage NSW and the relevant Local Aboriginal Land Council, unless the person specifies that they do not want their details released.





RM6744746

Connect with Classifieds

Blayney Chronicle

Phone: 02 6368 2132
classifieds@blayneychronicle.com.au

In Memoriam

HOBBY, Cameron Luke
"Camo"
04.10.1992 - 04.11.2018
Thinking of you
Miss you
Best grandson ever
Love Nan and Pop
XX

For Sale

Retirement Living

CHRIST CHURCH RETIREMENT VILLAGE BLAYNEY INC.
HAS FOR LEASE, 2 X 1 Bedroom units within in the village.
Applicant must be of pensionable age.
Entrance fee applies.
For further information please phone: 0408 206 878 Julie
0422 640 395 Cathy.

Public Notices

Public Notice—McPhillamys Gold Project:
Invitation for Aboriginal people to participate in community consultation process

REGIS RESOURCES LTD

LFB Resources NL (LFB), a wholly owned subsidiary of Regis Resources Limited, is the proponent of the proposed McPhillamys Gold Project (the Project). The contact details of LFB are set out below.

The Project

In August 2019, LFB made a State significant development application (No. SSD-9505) seeking development consent for the Project under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

LFB has recently amended the State significant development application for the Project and, on 3 September 2020, submitted an amendment report for the Project. This amendment report, as well as the August 2019 environmental impact statement for the Project, is publicly available via the following webpage on the NSW Government Planning Portal (Major Projects) website: https://www.planningportal.nsw.gov.au/major-projects/project/9821

The Project would involve the development of a greenfield open cut gold mine and associated water supply pipeline in the Central West of New South Wales.

The Project is comprised of two key components: the mine site where ore will be extracted and processed (ie the mine development) and an associated water pipeline that will enable the supply of water from near Lithgow to the site of the mine development (ie the pipeline development).

In addition to the open cut mine, the mine development component of the Project would include: the construction and use of associated infrastructure (including ore processing, stockpiling, tailings management and water management infrastructure), the construction and use of an engineered Tailings Storage Facility and the development of ancillary infrastructure.

The mine development area (2514 ha) of the Project is located approximately 8 km north-east of Blayney, 20 km west of Bathurst and 27 km south-east of Orange, and is within the upper reaches of the Belubula River catchment.

The pipeline development area (either 194 ha or 213 ha) of the Project extends for approximately 90 km from the eastern extent of the Blue Mountains near Lithgow, to the mine development area (traversing the local government areas of Lithgow, Bathurst and Blayney). The location of the Project is depicted in the below figures.

Invitation for Aboriginal people to participate in community consultation process

Aboriginal cultural heritage assessment reports have been prepared for the purpose of informing the assessment and determination of the State significant development application for the Project.

The Aboriginal cultural heritage assessment process for both the mine development component and pipeline development component of the Project continues to be informed by ongoing consultation with numerous Registered Aboriginal Parties.

LFB invites any Aboriginal person who is not already a Registered Aboriginal Party for the Project and who holds cultural knowledge relevant to determining the significance of Aboriginal objects or places in the area of the Project, to register an interest in the ongoing process of community consultation with LFB regarding the Project.

The closing date for the registration of interests is **Wednesday 18 November 2020.**

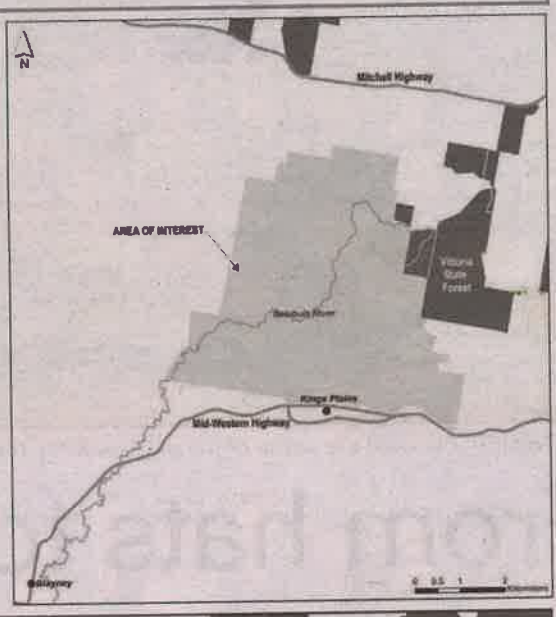
As the existing Registered Aboriginal Parties for the mine development component or pipeline development component of the Project have already been registered, **existing Registered Aboriginal Parties do not need to register an interest** and will continue to be involved in the ongoing process of community consultation with LFB regarding the Project.

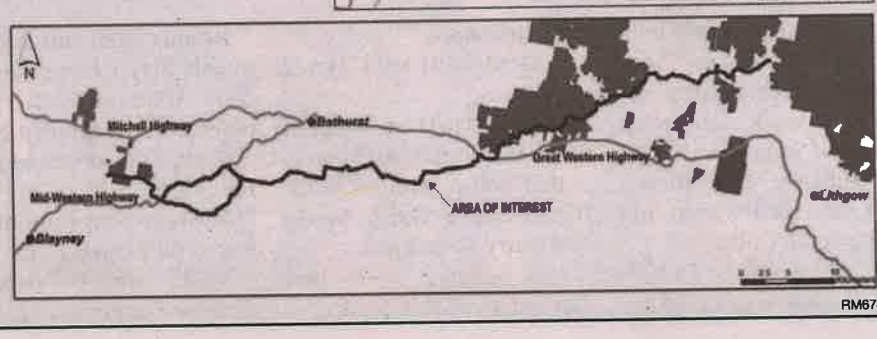
The purpose of community consultation with Aboriginal people is to assist LFB with the Aboriginal cultural heritage assessment process associated with the State significant development application for the Project, and to assist the NSW Independent Planning Commission in its consideration and determination of this application under the EP&A Act.

To register an interest in the ongoing process of community consultation or to ask any questions regarding the Project, please contact LFB via any of the following options by **Wednesday 18 November 2020.**

Email: dwallace@regisresources.com
Telephone: 02 6368 4100
Mail: PO Box 102, Blayney NSW 2799

Please note that the details of each Aboriginal person who registers an interest will be forwarded to Heritage NSW and the relevant Local Aboriginal Land Council, unless the person specifies that they do not want their details released.





RM6744746

Public Notices

orange credit union

ORANGE CREDIT UNION LIMITED
ABN 34 087 650 477

NOTICE OF ANNUAL GENERAL MEETING

The 56th Annual General Meeting of Orange Credit Union Limited will be held on Thursday 26th November, 2020 in the Hotel Canobolas Ballroom, Summer Street, Orange, commencing at 6:00pm. Members and non-members are invited to attend.

BUSINESS OF THE MEETING

- Receive and accept the Minutes of Annual General Meeting held 6th November 2019.
- To receive and consider the Directors' Report, Financial Report and Auditor's Report for the year ended 30/06/20. Copies can be obtained from our registered office or on our website www.orangecu.com.au
- Appoint Directors.
- Consideration of Special Resolutions proposed by the Board
- Confirmation of Directors' Remuneration.

APPOINTMENT OF DIRECTORS

In accordance with the Rules, three (3) member elected Directors (M Catlin, M Kemp and A Kent) retire and are eligible for re-election. As there are three (3) candidates for three (3) vacant member elected positions no election is required. The meeting will vote on the appointment of M Catlin, M Kemp and A Kent as Directors by seperate ordinary resolution.

SPECIAL RESOLUTION - AMENDING CONSTITUTION

To consider and, if thought fit, to pass the following resolutions as special resolutions to amend the Constitution:

That the Credit Union's Constitution be replaced by the Constitution, a copy of which is tabled at the Meeting and signed by the Chair of the Meeting for the purposes of identification.

A copy of the proposed Constitution and the Explanatory Notes are available on our website at www.orangecu.com.au or by contacting the Credit Union on 6362 4466 or via email to michelle.johnson@orangecu.com.au. A copy will also be available to view at the Annual General Meeting.

PROXY VOTING

A member entitled to attend and vote at this meeting of the Credit Union is entitled to appoint a proxy to vote on their behalf. A proxy need not be a member of Orange Credit Union.
To be effective, proxy forms must reach the registered office of Orange Credit Union no later than 6.00pm Tuesday 24th November 2020.
If you require a proxy form or would like clarification of your membership status please contact Michelle Johnson on (02) 6362 4466, call into the registered office at 288 Summer St, Orange, or visit our website www.orangecu.com.au.

PLEASE NOTE

Due to Covid-19 restrictions registration of your attendance is required via the Orange Credit Union website www.orangecu.com.au/annualgeneralmeeting by 12th November 2020 or by calling on (02) 6362 4466 or via email michelle.johnson@orangecu.com.au.

By order of the Board of Directors
A.E.R. de Graaff, Secretary/CEO
Orange Credit Union Limited
288 Summer Street ORANGE NSW 2800

Adult Services

Adult Services

Public Notices

Public Notice—McPhillamys Gold Project:
Invitation for Aboriginal people to participate in community consultation process

REGIS RESOURCES LTD

LFB Resources NL (LFB), a wholly owned subsidiary of Regis Resources Limited, is the proponent of the proposed McPhillamys Gold Project (the Project). The contact details of LFB are set out below.

The Project

In August 2019, LFB made a State significant development application (No. SSD-9505) seeking development consent for the Project under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

LFB has recently amended the State significant development application for the Project and, on 3 September 2020, submitted an amendment report for the Project. This amendment report, as well as the August 2019 environmental impact statement for the Project, is publicly available via the following webpage on the NSW Government Planning Portal (Major Projects) website: https://www.planningportal.nsw.gov.au/major-projects/project/9821

The Project would involve the development of a greenfield open cut gold mine and associated water supply pipeline in the Central West of New South Wales.

The Project is comprised of two key components: the mine site where ore will be extracted and processed (ie the mine development) and an associated water pipeline that will enable the supply of water from near Lithgow to the site of the mine development (ie the pipeline development).

In addition to the open cut mine, the mine development component of the Project would include: the construction and use of associated infrastructure (including ore processing, stockpiling, tailings management and water management infrastructure), the construction and use of an engineered Tailings Storage Facility and the development of ancillary infrastructure.

The mine development area (2514 ha) of the Project is located approximately 8 km north-east of Blayney, 20 km west of Bathurst and 27 km south-east of Orange, and is within the upper reaches of the Belubula River catchment.

The pipeline development area (either 194 ha or 213 ha) of the Project extends for approximately 90 km from the eastern extent of the Blue Mountains near Lithgow, to the mine development area (traversing the local government areas of Lithgow, Bathurst and Blayney). The location of the Project is depicted in the below figures.

Invitation for Aboriginal people to participate in community consultation process

Aboriginal cultural heritage assessment reports have been prepared for the purpose of informing the assessment and determination of the State significant development application for the Project.

The Aboriginal cultural heritage assessment process for both the mine development component and pipeline development component of the Project continues to be informed by ongoing consultation with numerous Registered Aboriginal Parties.

LFB invites any Aboriginal person who is not already a Registered Aboriginal Party for the Project and who holds cultural knowledge relevant to determining the significance of Aboriginal objects or places in the area of the Project, to register an interest in the ongoing process of community consultation with LFB regarding the Project.

The closing date for the registration of interests is **Wednesday 18 November 2020.**

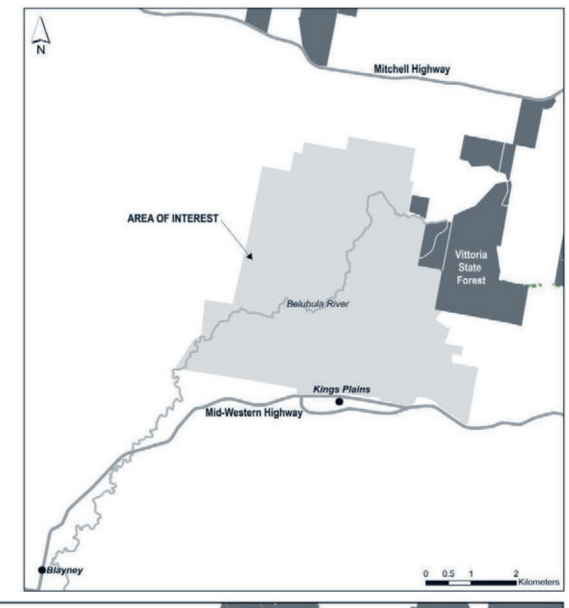
As the existing Registered Aboriginal Parties for the mine development component or pipeline development component of the Project have already been registered, **existing Registered Aboriginal Parties do not need to register an interest** and will continue to be involved in the ongoing process of community consultation with LFB regarding the Project.

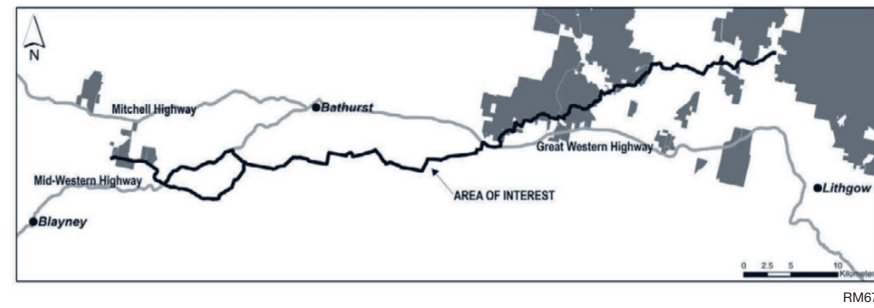
The purpose of community consultation with Aboriginal people is to assist LFB with the Aboriginal cultural heritage assessment process associated with the State significant development application for the Project, and to assist the NSW Independent Planning Commission in its consideration and determination of this application under the EP&A Act.

To register an interest in the ongoing process of community consultation or to ask any questions regarding the Project, please contact LFB via any of the following options by **Wednesday 18 November 2020.**

Email: dwallace@regisresources.com
Telephone: 02 6368 4100
Mail: PO Box 102, Blayney NSW 2799

Please note that the details of each Aboriginal person who registers an interest will be forwarded to Heritage NSW and the relevant Local Aboriginal Land Council, unless the person specifies that they do not want their details released.





RM6744746

Connect with Classifieds

Western Advocate

Phone: 02 6331 2611
Email: classifieds@westernadvocate.com.au

Index

In Memoriam

In Memoriam
COLLEY ANTHONY NORMAN (Thirsty)
Passed away 29TH October 2019
A good mate, a dear friend. You are in our thoughts and prayers.
Remembered by your friends
Thomas and Gloria.

Return Thanks

Anthony Francis Campbell
02/08/63 - 29/10/19

On the first Anniversary of our dearly departed Tony.

Tony's siblings would like to publicly recognise the loving & caring comfort given to Tony by his direct family.

Along with Tony, all four undertook the arduous task to assist him in the difficult, continuously changing task of adapting to his relentless declining physical condition.

The family team stayed the distance throughout the challenging and dark days that persisted fromTony's diagnoses until his final passing.

On behalf of the Campbell Family I would like to thank Tony's life long friends, the MNDs medical group and the community leaders of Bathurst. Tony and his family were very thankful for the services provided, the mayors attendance and the many friend visits, their sympathy's given, the well wishers and those who expressed their concerns for Tonys well being.

Further thanks are offered to the community at large for their support in the fund raising efforts for the suffers of Motor Neurones Disease.

Your very successful efforts directly contributed to Tony's comfort. You displayed the very unique qualities of 'Country People'.

Again, we thank you Bathurst.

Tony will always be with us Patrica, Stephen, Paul, Maria, Simon, Brooke & Joshua

Garage Sales

☐ VISIT ☐ VISITED
33 HAMILTON ST, EGLINTON
Sat 31ST OCT 8am - 4pm
Sun 1ST Nov 9am - 12am
Shed contents, New/ old items , furniture, etc COVID restrictions to be adhered.

Positions Vacant

Design Consultant
Required by local Joinery Business to travel within the Bathurst area to design and quote Kitchens and general joinery. Experience in Interior Design within the Building Industry an advantage. Current Drivers Licence and an ability to communicate well.
Please send your resume to:
kelso.kitchens@bigpond.com

Public Notices

WANTED
Photos of the Emelhainz family and descendants who lived in Brewongle, NSW, in the late 1800's.
Descendants living in Bathurst, Wellington, Dubbo, Port Macquarie and Sydney. Genealogy Research. Will pay for copies. Contact Phil on emelhain@bigpond.net.au for further details.

Public Notices

Public Notice—McPhillamys Gold Project:
Invitation for Aboriginal people to participate in community consultation process

REGIS RESOURCES LTD

LFB Resources NL (LFB), a wholly owned subsidiary of Regis Resources Limited, is the proponent of the proposed McPhillamys Gold Project (the Project). The contact details of LFB are set out below.

The Project

In August 2019, LFB made a State significant development application (No. SSD-9505) seeking development consent for the Project under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

LFB has recently amended the State significant development application for the Project and, on 3 September 2020, submitted an amendment report for the Project. This amendment report, as well as the August 2019 environmental impact statement for the Project, is publicly available via the following webpage on the NSW Government Planning Portal (Major Projects) website: https://www.planningportal.nsw.gov.au/major-projects/project/9821

The Project would involve the development of a greenfield open cut gold mine and associated water supply pipeline in the Central West of New South Wales.

The Project is comprised of two key components: the mine site where ore will be extracted and processed (ie the mine development) and an associated water pipeline that will enable the supply of water from near Lithgow to the site of the mine development (ie the pipeline development).

In addition to the open cut mine, the mine development component of the Project would include: the construction and use of associated infrastructure (including ore processing, stockpiling, tailings management and water management infrastructure), the construction and use of an engineered Tailings Storage Facility and the development of ancillary infrastructure.

The mine development area (2514 ha) of the Project is located approximately 8 km north-east of Blayney, 20 km west of Bathurst and 27 km south-east of Orange, and is within the upper reaches of the Belubula River catchment.

The pipeline development area (either 194 ha or 213 ha) of the Project extends for approximately 90 km from the eastern extent of the Blue Mountains near Lithgow, to the mine development area (traversing the local government areas of Lithgow, Bathurst and Blayney). The location of the Project is depicted in the below figures.

Invitation for Aboriginal people to participate in community consultation process

Aboriginal cultural heritage assessment reports have been prepared for the purpose of informing the assessment and determination of the State significant development application for the Project.

The Aboriginal cultural heritage assessment process for both the mine development component and pipeline development component of the Project continues to be informed by ongoing consultation with numerous Registered Aboriginal Parties.

LFB invites any Aboriginal person who is not already a Registered Aboriginal Party for the Project and who holds cultural knowledge relevant to determining the significance of Aboriginal objects or places in the area of the Project, to register an interest in the ongoing process of community consultation with LFB regarding the Project.

The closing date for the registration of interests is **Wednesday 18 November 2020.**

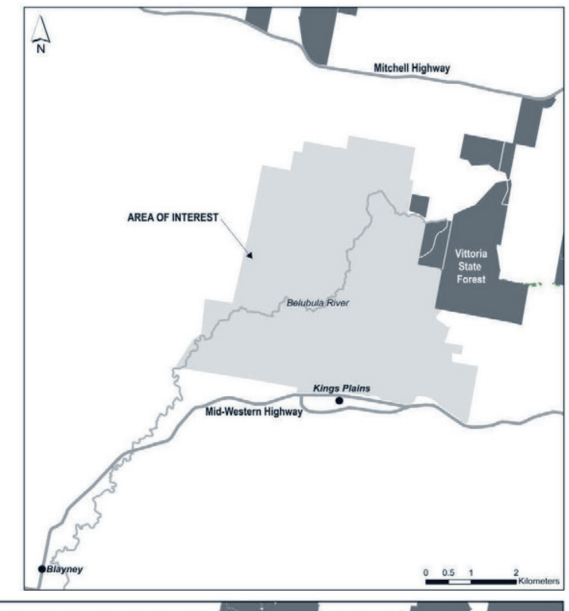
As the existing Registered Aboriginal Parties for the mine development component or pipeline development component of the Project have already been registered, **existing Registered Aboriginal Parties do not need to register an interest** and will continue to be involved in the ongoing process of community consultation with LFB regarding the Project.

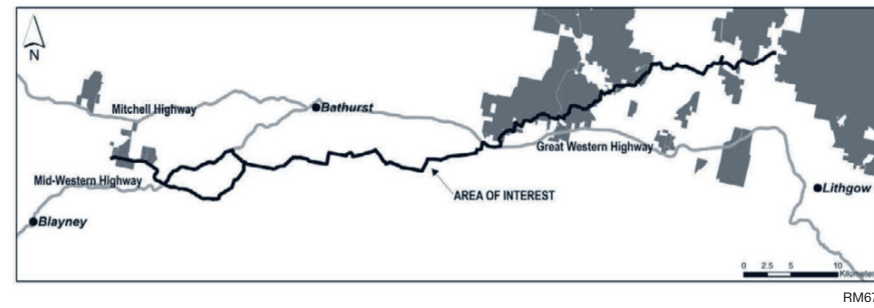
The purpose of community consultation with Aboriginal people is to assist LFB with the Aboriginal cultural heritage assessment process associated with the State significant development application for the Project, and to assist the NSW Independent Planning Commission in its consideration and determination of this application under the EP&A Act.

To register an interest in the ongoing process of community consultation or to ask any questions regarding the Project, please contact LFB via any of the following options by **Wednesday 18 November 2020.**

Email: dwallace@regisresources.com
Telephone: 02 6368 4100
Mail: PO Box 102, Blayney NSW 2799

Please note that the details of each Aboriginal person who registers an interest will be forwarded to Heritage NSW and the relevant Local Aboriginal Land Council, unless the person specifies that they do not want their details released.





RM6744746

From: Danielle Wallace
Sent: Wednesday, 16 December 2020 3:31 PM
To: 'bathlalc2@bigpond.com'
Subject: McPhillamys Gold Project - Registered Aboriginal Parties
Attachments: Tear Sheet - Central Western Daily.pdf; Tear Sheet - Lithgow Mercury.pdf; Tear Sheet - Western Advocate.pdf; Tear Sheet - Blayney Chronicle.pdf

Good afternoon,

RE: MCPHILLAMYS GOLD PROJECT – ABORIGNAL CULTURAL HERITAGE ASSESSMENT

In accordance with the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water [DECCW], 2010), a list of the Registered Aboriginal Parties that registered an interest in the community consultation process with Regis Resources Ltd for the McPhillamys Gold Project is as follows:

- Bathurst local Aboriginal Land Council
- Orange Local Aboriginal Land Council
- Dhuuluu-Yala Aboriginal Corporation
- Gundungurra Tribal Aboriginal Corporation
- Gundungurra Aboriginal Heritage Association Inc.
- Murra Bidgee Mullangari Aboriginal Corporation
- Wiradyuri Traditional Owners Central West Aboriginal Corporation
- Neville and Region Landcare
- Wellington Valley Wiradjuri Aboriginal Corporation
- Gungeewong Cultural Heritage Corporation
- Muragadi Heritage Indigenous Corporation
- Warrabinga Native Title Claimants Aboriginal Corporation
- Nyree Reynolds

Copies of registrations relevant to this project have been previously provided (to the then Office of Environment and Heritage) as part of the commencement of the original consultation process. Notwithstanding, public notices to seek any additional registrations were recently published in accordance with Section 4.1.6 of the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010). Copies of these notices are also attached for your records.

Please don't hesitate to contact me should you wish to discuss further – 0402 692 588.

Thanks,
Dani

Regards,
Danielle Wallace
Environmental Superintendent
Blayney Office | 57 Adelaide Street, Blayney, NSW 2799| **T:** +61 2 6368 4100 | **M:** 0402 692 588
E: DWallace@regisresources.com | **W:** www.regisresources.com.au

From: Danielle Wallace
Sent: Wednesday, 16 December 2020 3:32 PM
To: 'Annette Steele'
Subject: McPhillamys Gold Project - Registered Aboriginal Parties
Attachments: Tear Sheet - Central Western Daily.pdf; Tear Sheet - Lithgow Mercury.pdf; Tear Sheet - Western Advocate.pdf; Tear Sheet - Blayney Chronicle.pdf

Good afternoon,

RE: MCPHILLAMYS GOLD PROJECT – ABORIGNAL CULTURAL HERITAGE ASSESSMENT

In accordance with the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water [DECCW], 2010), a list of the Registered Aboriginal Parties that registered an interest in the community consultation process with Regis Resources Ltd for the McPhillamys Gold Project is as follows:

- Bathurst local Aboriginal Land Council
- Orange Local Aboriginal Land Council
- Dhuuluu-Yala Aboriginal Corporation
- Gundungurra Tribal Aboriginal Corporation
- Gundungurra Aboriginal Heritage Association Inc.
- Murra Bidgee Mullangari Aboriginal Corporation
- Wiradyuri Traditional Owners Central West Aboriginal Corporation
- Neville and Region Landcare
- Wellington Valley Wiradjuri Aboriginal Corporation
- Gungeewong Cultural Heritage Corporation
- Muragadi Heritage Indigenous Corporation
- Warrabinga Native Title Claimants Aboriginal Corporation
- Nyree Reynolds

Copies of registrations relevant to this project have been previously provided as part of the commencement of the original consultation process. Notwithstanding, public notices to seek any additional registrations were recently published in accordance with Section 4.1.6 of the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010). Copies of these notices are also attached for your records.

Please don't hesitate to contact me should you wish to discuss further – 0402 692 588.

Thanks,
Dani

Regards,
Danielle Wallace
Environmental Superintendent
Blayney Office | 57 Adelaide Street, Blayney, NSW 2799| **T:** +61 2 6368 4100 | **M:** 0402 692 588
E: DWallace@regisresources.com | **W:** www.regisresources.com.au

From: Danielle Wallace
Sent: Wednesday, 16 December 2020 3:30 PM
To: 'phil.purcell@environment.nsw.gov.au'
Subject: McPhillamys Gold Project - Registered Aboriginal Parties
Attachments: Tear Sheet - Central Western Daily.pdf; Tear Sheet - Lithgow Mercury.pdf; Tear Sheet - Western Advocate.pdf; Tear Sheet - Blayney Chronicle.pdf

Good afternoon Phil,

RE: MCPHILLAMYS GOLD PROJECT – ABORIGNAL CULTURAL HERITAGE ASSESSMENT

In accordance with the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water [DECCW], 2010), a list of the Registered Aboriginal Parties that registered an interest in the community consultation process with Regis Resources Ltd for the McPhillamys Gold Project is as follows:

- Bathurst local Aboriginal Land Council
- Orange Local Aboriginal Land Council
- Dhuuluu-Yala Aboriginal Corporation
- Gundungurra Tribal Aboriginal Corporation
- Gundungurra Aboriginal Heritage Association Inc.
- Murra Bidgee Mullangari Aboriginal Corporation
- Wiradyuri Traditional Owners Central West Aboriginal Corporation
- Neville and Region Landcare
- Wellington Valley Wiradjuri Aboriginal Corporation
- Gungeewong Cultural Heritage Corporation
- Muragadi Heritage Indigenous Corporation
- Warrabinga Native Title Claimants Aboriginal Corporation
- Nyree Reynolds

Copies of registrations relevant to this project have been previously provided (to the then Office of Environment and Heritage) as part of the commencement of the original consultation process. Notwithstanding, public notices to seek any additional registrations were recently published in accordance with Section 4.1.6 of the Heritage NSW policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010). Copies of these notices are also attached for your records.

Please don't hesitate to contact me should you wish to discuss further – 0402 692 588.

Thanks,
Dani

Regards,
Danielle Wallace
Environmental Superintendent
Blayney Office | 57 Adelaide Street, Blayney, NSW 2799| **T:** +61 2 6368 4100 | **M:** 0402 692 588
E: DWallace@regisresources.com | **W:** www.regisresources.com.au

APPENDIX F

OLALC CORRESPONDENCE – 12 MARCH 2018

ORANGE LOCAL ABORIGINAL LAND COUNCIL

Orange Local Aboriginal Land Council
14 Palmer St, Orange NSW 2800
PO Box 10, Orange NSW 2800
Ph: 02 6361 4742
F: 02 6361 9119
E: admin@olalc.com.au

12 March 2018

Office of Environment and Heritage
Level 14, 59-61 Goulburn Street
Sydney NSW 2000

Cc: Department of Planning and Environment

Dear Sir/Madam,

Re: Sub-surface disturbance and analysis of Potential Archaeological Deposits at the McPhillamys Gold Project

Since 2012, the Orange Local Aboriginal Land Council ("OLALC") has in conjunction with Regis Resources Ltd ("Regis") and its archaeological consultants, undertaken multiple archaeological surveys as part of the exploration and development of the McPhillamys Gold Project ("McPhillamys").

Some of the more recent archaeological surveys have identified a number of Potential Archaeological Deposits ("PADs"). The PADs represent areas where there is the possibility that Aboriginal cultural material may be present below surface

Given OLALC's cultural knowledge of the local area and our ongoing involvement in the archaeological surveys conducted by Regis' consultants, we support Regis' continued investigations into whether the PADs identified have sufficient probability for containing sub-surface Aboriginal objects of potential conservation value.

In order to determine the impact of McPhillamys on Aboriginal cultural values, OLALC agrees that it is important to confirm the extent and content of any deposits of Aboriginal material.

However, we are of the strong belief that any activities with the potential to disturb Aboriginal cultural material, should **only** occur if it is unavoidable. To clarify this, it is OLALC's opinion that further sub-surface investigations should **only** be undertaken if and when McPhillamys is approved. OLALC would expect to be consulted regarding any subsurface test work at that time.

I would trust that this recommendation from OLALC will be duly considered by the Office of Environment and Heritage along with other relevant regulatory authorities in the planning of any further investigations for McPhillamys.

Yours sincerely,

Annette Steele
CEO

APPENDIX G

RAP COMMENTS ON FINAL ACHA REPORTS

From: Gunhigal Mayiny <gunhigal@gmail.com>
Sent: Thursday, 25 March 2021 4:59 PM
To: Danielle Wallace
Cc: Malllyan; Wirribee Carr-Smith; Bill Allen
Subject: Fwd: Fw: McPhillamys Gold Project - Aboriginal Cultural Heritage Assessments

Dear Danielle, I apologise for our absence at the meeting on 17th February. WIRADYURI TRADITIONAL OWNERS CENTRAL WEST ABORIGINAL CORPORATION, due to the significant number of Aboriginal Cultural Heritage sites recorded within the mines footprint, recommend an extensive Cultural Heritage Values survey which encompaces the tangible and intangible aspects of this culturally significant area.
Yours sincerely, on behalf of WIRADYURI TRADITIONAL OWNERS CENTRAL WEST ABORIGINAL CORPORATION
Yanhadarrambal Jade - Public Officer

---------- Forwarded message ---------
From: **Flynn, Yanhadarrambal** <jflynn@csu.edu.au>
Date: Thu, Dec 17, 2020 at 11:33 AM
Subject: Fw: McPhillamys Gold Project - Aboriginal Cultural Heritage Assessments
To: bringail <bringail@westnet.com.au>, mummad_21@hotmail.com <mummad_21@hotmail.com>, dillawan58@gmail.com <dillawan58@gmail.com>, Gunhigal Mayiny <gunhigal@gmail.com>

ORANGE LOCAL ABORIGINAL LAND COUNCIL

Orange Local Aboriginal Land Council
79-81Kite St, Orange NSW 2800
PO Box 10, Orange NSW 2800
Ph: 02 6361 4742
F: 02 6361 9119
E: admin@olalc.com.au

Tony McPaul
Manager – Special Projects
57 Adelaide St,
Blayney, NSW

Dear Tony

In response to Regis requesting further comments from the Registered Aboriginal Parties, on the McPhillamys Proposed Gold Mines Aboriginal Cultural Heritage assessments and amendment. It is still the opinion of the Orange Local Aboriginal Land Council that we require a "Full Cultural Heritage Values Survey" to be carried out across the whole site, the survey should encompass activities such as sub surface testing, ground surveys, Ground Imaging Radar(GIR) and other activities as deemed warranted by the OLALC Cultural Heritage Advisory Committee.

Given the extent of archaeological deposits found in the minimal area surveyed by Regis coupled with the other tangible and intangible evidence for the site it is imperative that a Full Cultural Heritage Values Survey be carried out to thoroughly record all aspects of this significant site to Aboriginal and European history.

The OLALC has requested this on multiple occasions with no official response from Regis.

Regards

Annette Steele

Chief Executive Officer

APPENDIX H

DPIE CORRESPONDENCE – 17 MARCH 2021

ABN 28 009 174 761
www.regisresources.com

Level 2
516 Hay Street
SUBIACO WA 6008 Australia
P: 08 9442 2200
E: Perthadmin@regisresources.com

57 Adelaide St
BLAYNEY NSW 2799 Australia
P: 02 6368 4100
E: nsw_enquiries@regisresources.com

17 March 2021

Mr Stephen O'Donoghue
Director – Resource Assessments
Department of Planning, Industry and Environment
Locked Bag 5022 PARRAMATTA NSW 2124

Dear Steve,

RE: McPhillamys Gold Project (SSD 9505) – Response to Request for Additional Information [BHPG Correspondence]

This letter provides a response to the request for additional information (RFI) from the NSW Department of Planning, Industry and Environment (DPIE) dated 3 March 2021, in relation to the McPhillamys Gold Project (the Project) and the provision of a response to the correspondence from the Belubula Headwaters Protection Group (BHPG) provided to the DPIE on 25 February 2021.

New Artefactual Evidence

The correspondence provided by the BHPG refers to 'new artefactual evidence' allegedly originating from the Project area. As documented in our correspondence to the DPIE dated 1 March 2021, and in the interests of being able to respond appropriately to the matters raised in the BHPG correspondence, Regis has requested the following clarifications from BHPG:

1. When were the artefacts in the photographs first identified by Tony Cashen? The letter refers to 'some years' ago, however does not provide a specific timeframe/date.
2. Where within the "area marked in red" was each artefact identified?
3. When and why were these artefacts in the photographs removed from the land, and by whom?
4. If these artefacts were removed from the land post-2013 (i.e. post-Regis ownership), could it please be confirmed who accessed the land and under what authority?
5. Where are the artefacts currently located, and who currently has custody of these items?
6. Is it correct that the artefacts have not been registered on the AHIMS (Aboriginal Heritage Information Management System) database?
7. Is there any evidence to verify that the artefacts were located within the "area marked in red"? If so, please provide this evidence.
8. Is there any further information/evidence regarding the alleged 'camp oven' sites? If so, please provide this information/evidence.

Responses to these queries are required to provide critical context and allow Regis and its consultant specialists to assess the matter accordingly. Pending response to the questions raised above, these matters are not able to be addressed further in this response.

Artefact Recording Query

The correspondence provided by the BHPG refers to a discrepancy between the number of artefacts listed in the Preliminary Environmental Assessment (PEA)[1,2] and that described in the Aboriginal and Historical Cultural Heritage Assessment Addendum – Mine Development prepared for the Amended Project (Mine AHCHA Addenda)[3].

As described in Section 5.6.2.3 of the PEA, a total of 46 sites were initially identified during surveys undertaken by Navin Officer in 2017 within the proposed mine development area at the time of the survey (including 18 isolated finds [including some with potential archaeological deposits [PADs], 19 artefact scatters [including some with PADs] and nine potential Aboriginal scarred trees). As such, the BHPG reference to a total of 52 sites is incorrect.

Notwithstanding, Regis notes the following in relation to the change in the number of sites within the proposed mine development area footprint from 46 in the PEA to 38 in the Mine AHCHA Addenda:

1. Since preparation of the PEA, the proposed disturbance footprint has been further refined, as documented in the Project Amendment Report, including changes in the north-east and south-west of the Project area. As a result, some sites located within the original proposed mine footprint considered in the PEA are no longer located within the proposed disturbance footprint associated with the Amended Project. The sites potentially affected by the Amended Project are described in detail in the Mine AHCHA Addenda.

2. The PEA refers to several PADs within the project area. While archaeologists from Navin Officer considered that a number of areas in the project area had potential for subsurface archaeological deposits, following two separate in depth peer reviews by Dr Matt Cupper (Landskape) and Dr Tim Stone, the presence of these site types within the disturbance footprint has been discounted.

   As stated in Section 15.3.2 of the EIS, Dr Matt Cupper was commissioned in 2017 and formed the view that the level of previous disturbance that has occurred at each of the possible PAD locations had been underestimated. A second peer review was commissioned in 2018, completed by Dr Tim Stone (a geo-archaeologist). Consistent with the conclusions of Dr Matt Cupper, Dr Tim Stone noted that archaeological material is likely to be present on the land surface or shallow subsurface, no deeper than 10 centimetres in the A2 soil horizon. Dr Tim Stone discounted the likelihood that all of these potential areas within the disturbance footprint were differentiated from the surrounding archaeological landscape.

   On the basis of the above, no PADs are considered likely to occur within the disturbance footprint for the proposed Project. Further, Heritage NSW did not comment any further on this matter, finding that the assessment was undertaken in accordance with the relevant guidelines:

   > *"…the proposed mitigation measures to reduce harm to Aboriginal objects are adequate and proportionate to the type of objects and the land use disturbance history and that the assessment adequately complied with the Aboriginal consultation requirements".*

[1] Prepared by RW Corkery & Co Pty Limited, dated July 2018.

[2] Referred to in the BHPG correspondence as the 'preliminary EIS'.

[3] Referred to in the BHPG correspondence as the 'Amended ACHA.

3. The PEA refers to a total of nine potential Aboriginal scarred trees being located within the project area, including some within the extent of the proposed open cut pit. Despite this reference, these nine potential Aboriginal scarred trees and an additional two other potential Aboriginal scarred trees (identified post the date of the PEA) have since been assessed and examined by numerous archaeologists, finding that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices. Furthermore, it is noted that none of these potential Aboriginal scarred trees have been listed on the AHIMS database.

   As documented in Appendix 2 of the final Mine AHCHA Addenda, archaeologists from Navin Officer (2017) examined 10 potential Aboriginal scarred trees within the project area and concluded that nine were unlikely to contain scars made by Aboriginal people and that one (MGP-ST NR1) was of possible Aboriginal origin. Subsequently, Archaeologist Dr Matt Cupper reinspected this tree (MGP-ST NR1) on 26 September 2018 and concluded this feature was also unlikely to contain a scar made by Aboriginal people and that the feature appeared to be a recent tree wound.

   Notwithstanding the above, and that extensive consideration and assessment has concluded that none of the identified trees exhibit scarring attributable to Aboriginal cultural practices, Regis has taken a cautious approach and engaged specialists recognised as experts in the field of identification of Aboriginal scarred trees, Dr Johan Kamminga and Mr Allan Lance, to undertake a further assessment of these previously documented sites. They concluded the following:

   > *"None of the scars examined exhibited sufficient diagnostic attributes (whether weighted or unweighted) to identify any scar as evidence of Aboriginal subsistence or other cultural activity. Some of the scars are obviously too high on the tree trunk to be the likely consequence of Aboriginal bark procurement or other activity. The large majority of the scars are consistent with wounds resulting from branch or secondary stem tear, which is a common trauma sustained by trees (particularly box trees) in the region generally. Other scars are identifiable as the result of fire, storm damage, lightning strike, branch abrasion or bird and insect activity. In two instances the identified features can be attributed to natural fissuring in the bark, caused by expansion during growth".*

   Therefore, these previously documented potential Aboriginal scarred trees have not been considered in the Aboriginal cultural heritage assessments, and hence are not considered in the Mine AHCHA Addenda or the Project Amendment Report.

Further Information

If you require any further detail or wish to discuss the information provided, please do not hesitate to contact either Danielle Wallace (0402 692 588, dwallace@regisresources.com) or Andrew Wannan (0437 001 823, awannan@regisresources.com).

Yours sincerely

Rod Smith
General Manager NSW
rsmith@regisresources.com

APPENDIX I

SCARRED TREE INVESTIGATION REPORT

McPhillamy's Gold Project - scarred tree assessment

A report to Regis Resources Limited

Allan Lance
Johan Kamminga

Heritage Consulting Australia Pty Ltd
GPO Box 2677
ACT 2601

February 2021

McPhillamy's Gold Project - scarred tree assessment

A report to Regis Resources Limited

Allan Lance
Johan Kamminga

Heritage Consulting Australia Pty Ltd
GPO Box 2677
ACT 2601

February 2021

Table of contents

Tables

Executive summary

Regis Resources Ltd is presently seeking approvals for the development of McPhillamys Gold Project, in the Central West region of New South Wales. The proposed mine is to be located 8 km east of the town of Blayney in the Kings Plains district.

Due diligence assessments of the project area identified several trees bearing scars (wounds). In some cases, these scars were identified as potentially resulting from the removal of bark by Aboriginal people in pre- or post-contact times, associated with traditional Aboriginal cultural practices. The present report investigates the various assessments of these tree scars.

Field investigation

This investigation was carried out by Dr Johan Kamminga and Mr Allan Lance of Heritage Consulting Australia Pty Ltd on 4 December 2020, when each of the previously documented trees were examined to record diagnostic attributes.

Assessment of scarred trees in the project area

The primary aim in this study was to investigate each of the trees previously recorded in the project area, to determine whether, on the basis of physical inspection of the trees and recording of intrinsic and extrinsic attributes, any of the scars (wounds) could be identified with a reasonable degree of confidence as the consequence of Aboriginal cultural activities.

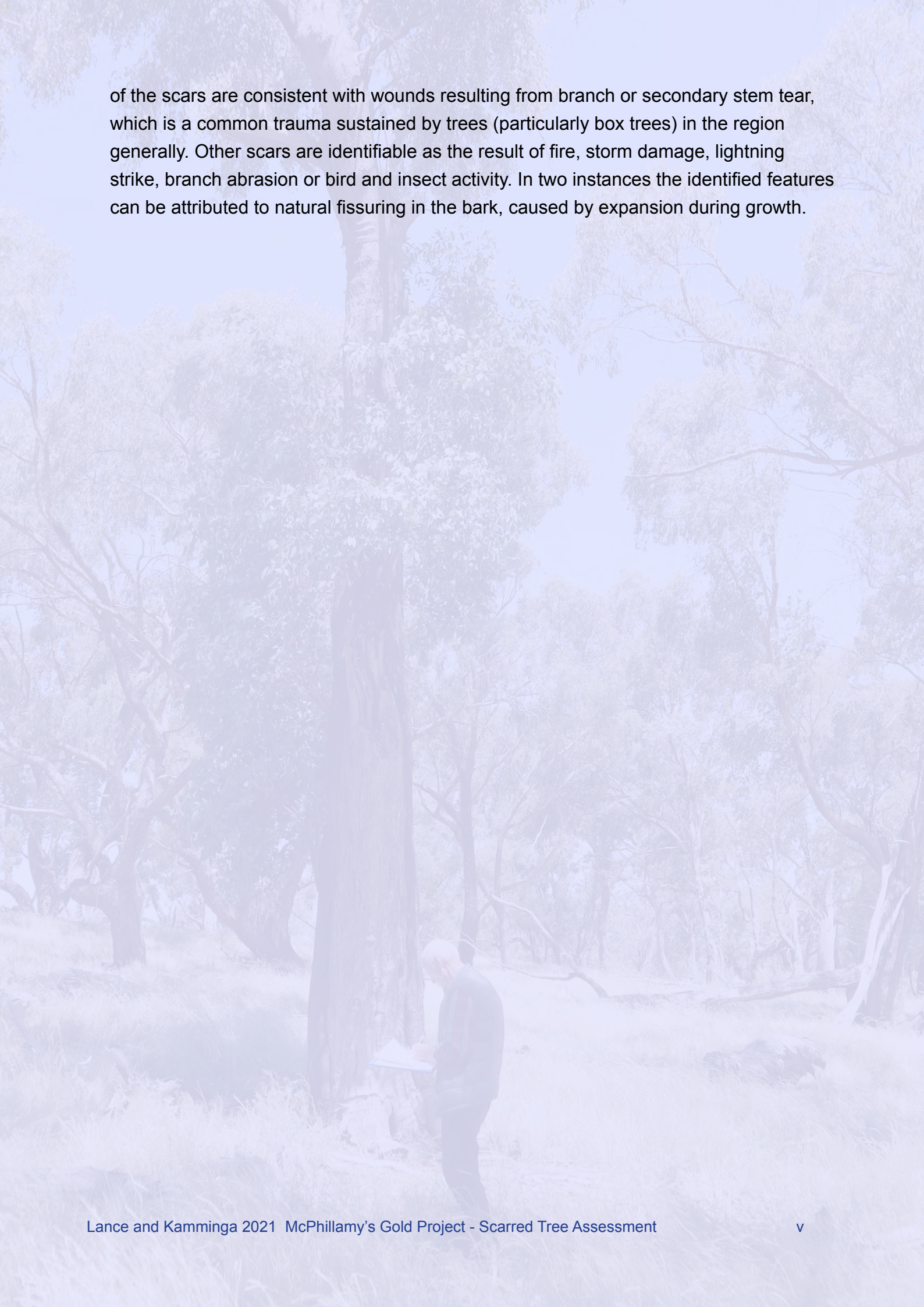
Assessment of probable wound origin

Many trees within the project area exhibit one or multiple wounds. A number of these wounds are relatively fresh in appearance, and some even exhibit active bark detachment. Consistent with the general pattern in the region as a whole, the wounds (or scars) we have examined can be attributed to a range of natural causes.

There are many reasons why trees sustain wounds to their trunk or limbs. The causes of such wounding events are both natural and cultural; after initial wounding, the resultant scar can change shape and size over time. It is often not possible with reasonable confidence to determine the initial or principal cause of a wound, even only a few years after the initial wounding event.

None of the scars examined exhibited sufficient diagnostic attributes (whether weighted or unweighted) to identify any scar as evidence of Aboriginal subsistence or other cultural activity. Some of the scars are obviously too high on the tree trunk to be the likely consequence of Aboriginal bark procurement or other activity. The large majority

of the scars are consistent with wounds resulting from branch or secondary stem tear, which is a common trauma sustained by trees (particularly box trees) in the region generally. Other scars are identifiable as the result of fire, storm damage, lightning strike, branch abrasion or bird and insect activity. In two instances the identified features can be attributed to natural fissuring in the bark, caused by expansion during growth.



1. Introduction

Regis Resources Ltd is presently seeking approvals for the development of a gold mine, McPhillamys Gold Project (the project area), in the Central West region of New South Wales. The proposed mine is to be located 8 km east of the town of Blayney in the Kings Plains district (Figure 1). The region has been subject to localised alluvial and hard-rock gold mining since the mid-19th century, however, the present proposal is for the development of a large open cut mine that will result in direct and indirect impacts over an area of approximately 1,116 ha.

Several reviews of Environmental Factors (REFs) for exploration in the project area were completed in 2012 and 2016. These reviews touched upon the cultural heritage values of the project area, incorporating Due Diligence Assessments prepared by Orange Local Aboriginal Land Council representatives Mr Chad Morgan for the 2012 REF and by Mr Greg Ingram and Mr Peter Moore for the 2016 REF. Following these studies, a more thorough Due Diligence Assessment of drill locations was carried out by Hayes and Barham (2017) and by Riley (Orange Local Aboriginal Land Council 2017). Cressey and Gottschutzke (2018) also carried out an Aboriginal Cultural Heritage Assessment of the entire project area.

During these studies, several trees bearing scars (wounds) were identified. In some cases, these scars were identified as potentially resulting from the removal of bark by Aboriginal people in pre- or post-contact times, associated with traditional Aboriginal cultural practices. The present report investigates the various assessments of the tree scars in the McPhillamy Gold Project area. In some instances, the scars have previously been deemed to be of potential Aboriginal origin, in other instances and without detailed analysis, the scars have been identified as natural (or else non-Aboriginal) in origin.

The thoroughness of the recording of these trees with scars has also varied in each study. At least one tree recorded during the initial Due Diligence Assessment could not be located in subsequent field investigations.

Notably, none of these trees have been registered in the Heritage NSW ‘Aboriginal Heritage Information Management System’ (AHIMS) database.

As explained below, reliable identification of culturally modified trees involves consideration of a number of criteria or attributes to distinguish Aboriginal and non-Aboriginal cultural scars from commonly occurring natural wounds in bark and wood. Included in these criteria are estimates of the age of both the tree and wound. Estimating tree and wound ages require an awareness of regional- and species-specific tree age and rates of tissue overgrowth around the margins of a scar. These

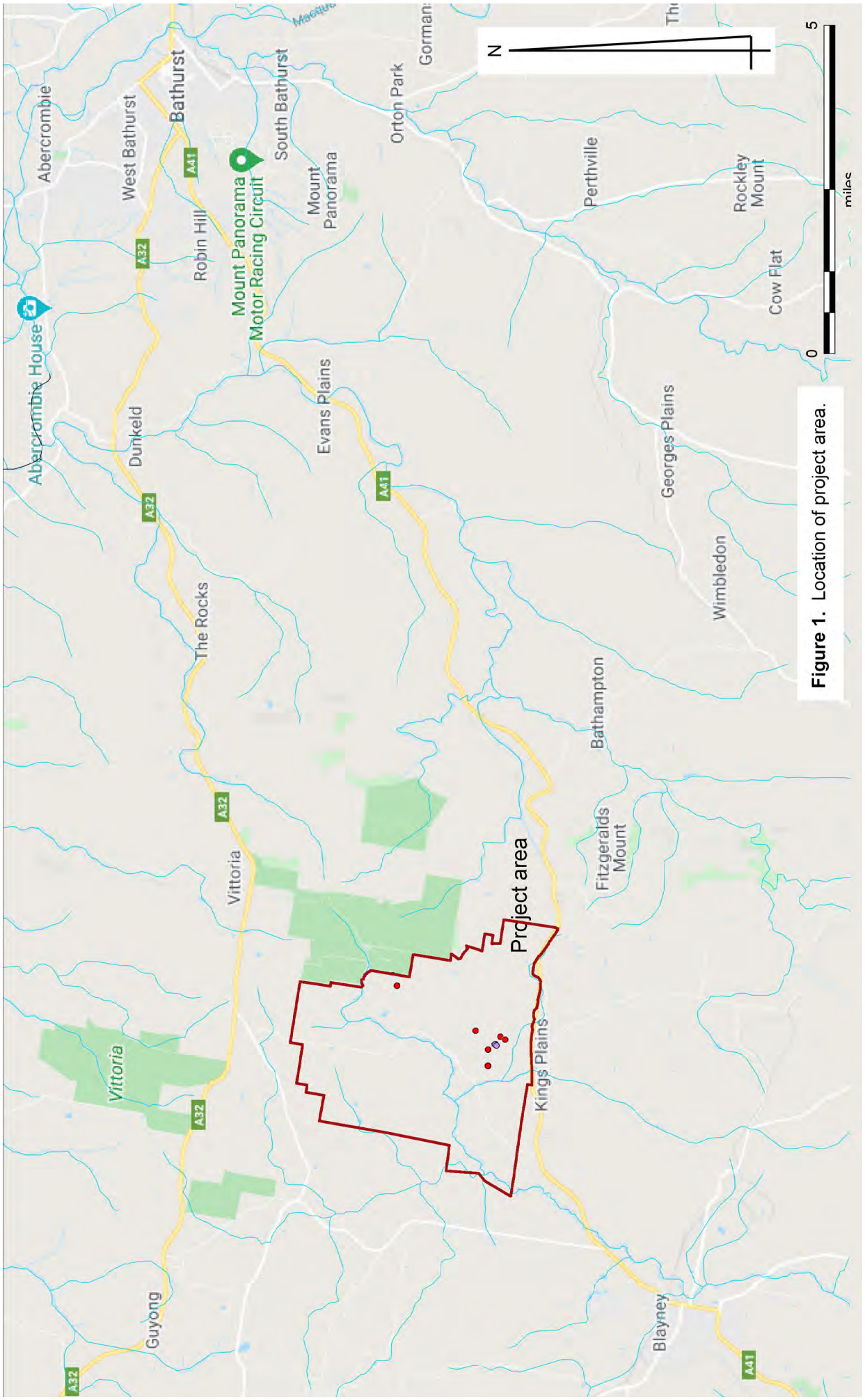


Figure 1. Location of project area.

attributes have been examined in other regions (for example Ngugi *et al*. 2015; Burns 2016; Kamminga and Lance 2016; Kuskie 2017a, 2917b, 2017c; Kuskie 2019) and the methodology embodied in these studies has been applied and extended for this current study.

2. Study aims

The main aims of this investigation of trees with scars are to:

- Review the previously recorded trees with scars to determine whether these are culturally modified or naturally scarred trees.

- Examine trees in the surrounding area, to discern any patterns in the nature and distribution of trees with scars.

- Investigate the history of land alienation in the region and investigate past land-use practices to identify potential agencies and instances of non-Aboriginal impacts to trees.

- Investigate post-contact Aboriginal history for the region, to provide an approximate date for general cessation of traditional Aboriginal tree scarring. This in conjunction with tree age estimates will be used to discount trees with post-contact and very recent scars.

- Map previously identified scarred trees and other cultural features, to identify high sensitivity zones: the locations where deliberate tree modification would most likely have occurred.

- Refine criteria for the evaluation and recording of culturally modified trees. This would include and surpass those characteristics identified by Andrew Long (2002, 2003, 2005) in his pioneering studies on tree scarring.

- Evaluate forest age and establish the likelihood (or otherwise) of the oldest trees dating from a period when traditional Aboriginal practices were still extant.

- Conduct a field investigation to relocate and record previously identified scarred trees. Further evaluate the setting of each try to identify other trees with scars that might have been missed during earlier field reconnaissance. By cataloguing all trees with scars (including those trees previously assessed as bearing scars of a natural rather than a cultural origin), it will be possible to document the full range of scars and origin of clearly natural features.

3. Personnel

This investigation was carried out by Dr Johan Kamminga and Mr Allan Lance. Dr Kamminga is co-author of the authoritative textbook *Prehistory of Australia*, has more than 45 years' experience in the investigation of Aboriginal archaeological sites and has conducted detailed studies of scarred trees (e.g., Kamminga and Grist 2000, Kamminga and Lance 2016). During his field research and consultancies in different parts of the continent Dr Kamminga has documented Aboriginal sites of cultural significance including culturally modified trees.

Mr Lance has more than 30 years' experience in the assessment of Aboriginal cultural heritage sites. His experience includes the documentation of numerous scarred trees in riverine settings, including along the Murray River, southern New South Wales and the Victorian Mallee, western and central Queensland. As part of these studies, Lance has worked with Traditional Owners to confirm the identity of culturally scarred trees and distinguish them from trees bearing natural scars.

4. Study methodology

The initial phase of the study was a preliminary review of literature relevant to the area and region, with mapping of historical features from published sources. Phase 1 was followed by a field investigation on 4 December 2020, during which archaeologists Johan Kamminga and Allan Lance, guided by Danielle Wallace (Environmental Superintendent, Regis Resources), visited each of the previously documented trees and examined and recorded their relevant attributes.

These recorded attributes included the following:

Location

Determined by handheld Garmin Montana 680t GPS/ GLONASS receiver.

Tree species

Identified by a range of attributes relating to tree form, foliage, bark, and fruit if present. For some trees it was possible to also obtain the seeds for species identification.

Tree height estimate

Determined by triangulation.

Tree girth

Tree girth was measures at the standard chest height (gbh) of 1.5 m from the ground using a fibreglass tape measure.

Scar length
Measured using a flexible steel tape measure.

Scar width
Recorded at the mid-point of the scar using a flexible steel tape measure.

Scar height above the ground
Recorded using a flexible steel tape measure (and soil level estimated in those cases where erosion had exposed roots).

Trunk tissue overgrowth
Overgrowth (also termed ‘regrowth’ and ‘accelerated growth’) of sapwood and bark tissue inward from the margins of a scar surface is a common attribute of both natural and cultural scars. In normal circumstances, the original wood surface, along with any stone or steel tool cut marks on it, is preserved underneath this overgrowth tissue. The rate of overgrowth depends on several variables, such as tree species, local environment, and shape and size of the detached bark.

Thickness of the overgrowth was measured outward from the dry scar face. For those scars where the heartwood had decayed, the extent of tissue growth into the wound cavity and the original shape and location of the dry face was measured in terms of average growth for four measurements: top and bottom and left and right centre.

Whilst recording the extent of scar panel overgrowth it was noted that to some degree these measurements are subjective and prone to inter-recorder variation (also termed ‘recorder error’ for instance, see Kamminga and Grist 2000: Table 4). In general, estimates of bark growth over scars is not demonstrably reliable or precise.

In addition to overgrowth thickness, which is relevant to the calculation of scar age, is the attribute of overgrowth width (at the sides and top and bottom of a scar) which is relevant to estimates of original scar size and shape.

Scar orientation
Determined by digital compass.

Scar symmetry
This attribute was assessed subjectively.

Scar shape
This attribute was evaluated and described using standard botanical leaf shape

terminology.

Epicormic growth

The presence or absence of epicormic growth below the scar was noted. Epicormic shoots are a response to a wound in the bark and eventually develop into a branch or trunk that provide compensatory foliage. In trees with very old scars, these shoots may reach a size nearly equivalent to the original trunk.

Determining scar causes

Determining the origin of a scar was based on assessed condition of both tree and scar.

In certain instances, it is necessary to calculate the approximate age of a tree, to determine whether a scar could be of Aboriginal origin. A living or dead tree trunk would have had to have been sufficiently mature in traditional times for viable bark procurement or other traditional activity that would create a wound in the trunk. Therefore, an assessment by a suitably experienced forester or arborist is beneficial. For the present study, the generally unambiguous nature of the recorded scars did not necessitate specialist input by a forester. The methodology employed in previous scarred tree assessments (e.g., Burns 2014a, 2016) was adopted and provided confidence in the interpretations of observed trunk damage.

5. Ethno-historical context

At the time Europeans arrived in the district, the project area was situated near the eastern boundary of the region occupied by Wiradjuri (w*irraathurray*) speakers (Tindale 1974:201; Donaldson 1984:26).

The territory of Wiradjuri speakers was extensive, covering an area of 97,000 km^2, and Wiradjuri was amongst the largest of all Aboriginal language groups. It is probable that there were variations in customs and practices across this vast territory. Tindale (1974:201) has proposed that group adhesion was maintained by ceremonial gatherings that took place regularly and at a cycle of ceremonies that moved around the different Wiradjuri-speaking groups.

Howitt (1904:55-6) observed that:

> The Wiradjuri, a very large tribe or nation of tribes occupying a vast extent of country in Central New South Wales, and distinguished by a common language in dialectic forms, the name being derived from *Wirai*, “no.”
>
> The Wiradjuri boundaries, as given by Mr. A. L. P. Cameron are as

> follows:- “On the west by the Ita-ita tribe, commencing at Hay. On the north-west by the Bargunji tribe (Barkinji?). On the north by the Wonghibon. On the north-east by the Kamilaroi. On the east by the Nungawal. On the south-east, south and south-west Burraburra-ba. This tribe completes the circuit by joining the Ita-Ita”

Early European visitors to Wiradjuri territory observed small, highly mobile bands of people throughout the region (Günther 1837, Pearson 1984:64). These groups of up to 20 people could quickly merge into groups of up to 150 to exploit locally abundant resources, to undertake ceremonies, and even to witness the arrival of explorers in their territory. The area each band occupied was estimated to be in the order of a radius of 40 miles (65 km) which provides and area of approximately 13,000 km^2. The *Muc-are* group inhabited the Kings Plains district (Pearson 1984:65-6, Read 1988:3), within which the proposed project is to be sited.

Exchange of valued goods occurred between the Wiradjuri and their neighbours. In the contact era this was recorded to have occurred at gatherings near Yass (Tindale 1974:87, 201).

5.1 Historical descriptions of the Wiradjuri

The earliest European observers to record Wiradjuri life arrived on the western slopes in the early 1800s after the crossing of the Blue Mountains. The observations made by these early visitors offers insight into the nature of Aboriginal life in the region at the time of first contact.

There are many descriptions of the Aboriginal people who visited the camps of the early explorers and later by British settlers and missionaries. Allan Cunningham described the Wiradjuri People in the following terms:

> Their beards are suffered to grow very long. Their bodies are regularly tattooed, particularly the breast and shoulders, which are strongly tubercled in a kind of systematical diagonal style... They perforate the cartilage of the nose, but I did not see any stick or reed worn through it.
>
> The cartilage of the nose of one of them was perforated and a stick or reed passed through it. They did not want for their front teeth. The pain occasioned by the deep tattooing process on their backs and breasts must be almost intolerable. Large cartilaginous pieces of flesh projected from their backs - almost an inch - forming various figures.
>
> By way of ornament they wore kangaroo teeth in their ears and cockatoo feathers in their hair. Those of them who were young men had their beards divided into three divisions and formed into plaited tails.

> They were young men of 5 feet 4-6 inches, of well-proportioned features, and with large bushy heads of hair, which gave them a wild ferocious appearance. [Cunningham 1817]

Tools and utensils

Historical accounts describe the tools and weapons used by the Wiradjuri at the time of British settlement, and examples of these artefacts are curated in museums in Australia. These accounts and the artefacts provide information about the sources of timber and bark used by Wiradjuri people, and provide guidance in identifying potential Aboriginal scars on tree trunks in the region.

Cunningham recorded a number of observations about the material culture and appearance of the Wiradjuri people he encountered:

> Their dress is simply a grass network, forming a cover to the head, and a belt of the same network fastened or tied round their loins, in which they have their 'mogo' or stone hatchet, waddies etc. One or two had a mantle of the skin of the kangaroo-rat, sewn together with sinews of the leg, which reached from the shoulders to the middle of the back... They do not use the wamera in throwing their spears, which are made of a very hard wood ... Their spears have lateral barbs, the one above the other, the whole is indurated by fire and is a most dangerous weapon. [Cunningham 1817]

> Our huntsmen came up with a native, his two gins or wives and three small children. They were extremely shy and by no means friendly, showing symptoms of suspicion and mistrust towards our people, who tried to persuade them to follow them to our encampment but to no purpose. The man was represented as of a strong robust athletic habit, perfectly naked, and armed with a stone hatchet and a long spear of acacia wood, with which he continually kept our people at a distance when they attempted to approach the females. The women were of delicate low stature, wore short mantles of skin round their shoulders, but were otherwise naked and were from 25 to 30 years of age. They carried some wooden spoon-shaped instruments in their hands, with which they dig for grubs, or roots. [Cunningham 1817]

Similar observations were recorded by the Anglican missionary Ernest Gribble (1932) who described the material cultural used by Aboriginal people in the southern part of the Wiradjuri's domain. These observations may also be relevant in the north and east:

> The Aborigines on the larger rivers in New South Wales and Victoria made beautifully finished weapons, and went in for decorative carving, beautifully executed... Two kinds of shields were made, one broad, for protection against spears, made out of very thick bark sun-dried and very hard, the other made out of wood, very narrow, used in close

> fighting with clubs or ‘nulla-nullas’. A remarkable boomerang was made by the natives on the Murrumbidgee River. It had a broadened out tip, fashioned somewhat like an axe, with a keen edge. This was a terrible weapon. Their boomerang was larger than elsewhere, and was used in battle as well as in the chase, whereas in the north it was smaller and mostly used for amusement.
>
> Among these tribes vessels for carrying water were made from bark, stripped from the round lumps on gum trees .... Small bags were made for gathering honey. These bags were made from very thin bark, sewn up at the sides with either bark twine, or the fine sinews of the tails of kangaroo.
>
> Bags and baskets of twisted grass were made in New South Wales, Victoria, and other parts in the south.
>
> Owing to the coldness of the winter, these natives made beautiful rugs of opossum, wallaby, and kangaroo skins. These skins were beautifully and strongly made and were well sewn together with the fine sinew taken from the tail of the kangaroo, the needle used being of bone. Each skin was decorated with markings representing kangaroos, emus, turtles and other ornamental designs.

James Günther (13 August 1837 pp. 2-3), a missionary based near Wellington, observed the following about the Wiradjuri:

> In the afternoon I accompanied Mr Watson to the Native Camp which is only a few hundred yards off our residence. Whilst we were talking to the Natives present, my eyes were suddenly struck with a strange & interesting, though for a new comer, almost frightful sight. Towards 30 blacks at once came out of the bush, mostly young men, with few exceptions, very robust & tall, several of them appeared to me at the least 6 feet high. Except one or two, they were all entirely naked and had increased their fierce & warlike look by curious ornaments, such as feathers round the head, by painting their faces, and many, the whole of their bodies with various colours, red yellow white, prepared from a species of stones. They were indeed shockingly disguised. When first espying them, we were afraid they were enemies of our natives at the Camp, but as these beheld their approach with so much composure, we soon discovered that they were friends. They had come to assist the Wellington Natives in a fight that is daily expected with Blacks from another quarter. All were, in their way, well armed, some of their wooden spears appeared to be from 10 to 12 feet long, as the wood is exceedingly hard, sharply pointed at the end, & sometimes poisoned; the instrument is more dangerous than one might expect. Another of their weapons is worked thin, like a sword, but bent, resembling a bow & its use is throwing. A third instrument might be called a kind of cudgel: it is a stick about a yard long, with a thick knob at the end. Their shield consists only of a piece of wood a few inches thick, which in the midst, on the back

side, has a handle. It may prove useful only by turning it swiftly round, to circumscribe a circle.

Scarred trees

There is considerable historical and anecdotal evidence about Wiradjuri people using tree bark for making shelters and a range of artefacts such as shields and carrying vessels. At a mission in the southern portion of Wiradjuri territory, Ernest Gribble, made the following observations:

> House building at Warangesda involved a great deal of hard work... The roofing was of bark stripped from the trees by the old black men, named Jacky, Melon and Tommy Bundure. These men were noted experts at bark stripping.
>
> In New South Wales and in Victoria, two kinds of shields were made, one broad, for protection against spears, made out of very thick bark sun-dried and very hard, the other made out of wood, very narrow, used in close fighting with clubs or “nulla-nullas”.
>
> Among these tribes vessels for carrying water were made from bark, stripped from the round lumps on gum trees. Throughout Australia, small bags were made for gathering honey. These bags were made from very thin bark, sewn up at the sides with either bark twine, or the fine sinews of the tails of kangaroo. [Ernest Gribble in Pardoe and Martin 2001]

A further description of bark used for shelter in the Wellington district, comes from Günther (14 September 1837 p.13):

> I saw today that the Natives know a little better to shelter themselves from the rain than I have hitherto observed, merely by a few pieces of bark.

Trees bearing the signs of the removal of relatively long sheets of bark are usually referred to as ‘canoe trees’. Bark for stillwater canoes are most often on river red gum tree trunks which are commonly on the banks the major rivers and associated wetlands.

Wiradjuri woman Margaret Tucker (in Pardoe and Martin 2001) has provided this description of making a bark canoe:

> I remember watching my old uncle as we came to a river to be crossed. Uncle would get his tomahawk, look for a suitable gum tree, shape a canoe with his tomahawk in the bark, loosen it by tapping the outline of the canoe and ease it out with a wedge made of hard wood.
>
> Aunt would make a fire, very hot, but constantly stirred so as to keep an even temperature to dry the sap and moisture out of the bark.
>
> Before the canoe was dried out on the fire, it would be moulded and small

> wedges cut for each end and stuck through to keep the ends together. Then gum from the trees was melted down and used to glue the ends. Mud was caked into the cracks. Amazing as it may seem, I remember hard-baked earth being kept in the canoe, on top of which a fire was lit to boil the billy for tea, while they were fishing. After the billy had boiled there would be enough coals to grill a couple of nice-sized fish. Of course the fire would be watched so that it didn't burn the canoe. They knew what they were doing.

Tree trunks were also scarred from cutting of climbing notches and cutting into hollows in trees inhabited by arboreal animals and birds. Trees bearing such notches were recorded in the Forbes district, which is in Wiradjuri country (Lance 1985:21). Cunningham records:

> We had scarcely unladen the horses and pitched the tent, when some of our people distinctly heard a continual hammering, as of a native with his hatchet. Mr. Oxley with some of our people went towards the spot whence the sound proceeded - about a quarter of a mile from our encampment - and discovered a native upon a tree, cutting out an opossum from its hollow trunk, in which the little animal had taken refuge from its pursuers. [Cunningham 1817]

Further observations were also made on possum gathering by Ernest (Ernie) Gribble:

> Opossums were numerous and easy to get. A native would examine a gum-tree for recent scratches on the bark made by ascending possums; then with his tomahawk, he would ascend, cutting small steps in the bark just sufficient to put his toes into. Reaching the hollow he would examine the entrance for traces of the animal. These would consist of fur adhering to the edges of the hollow. He would then probe the hollow with a long switch. If he could reach the bottom of the hollow he would be able to feel if the animal was "at homes. Then tapping the outside of the tree to find the end of the hollow by the sound, he would soon cut through, and inserting his hand draw out by the legs and tail the little animal, and killing it by banging its head against the tree, drop it to the ground. I have seen as many as twenty or thirty caught in this way during a morning's hunt. [Ernest Gribble in Pardoe and Martin 2001]

Some scars have resulted from bark removal to mark ceremonial or burial places. The following reports describe scarred trees on the Murray River to the south of Wiradjuri lands:

> The trees surrounding the burial grounds had the bark taken off in 2 ft wide and 5 or 6 ft strips, time and again, hundreds of them, the old dead trees are creased all over where healed up. Where recent burials took place one can count them by the trees if still intact - the marks of yam sticks are sometimes visible in sap wood where well sheltered. [Murray Black letters in Pardoe and Martin 2001:30]

> After a time, when these paroxysms of grief had subsided, a sheet of bark, rather larger than the grave, was stripped from a neighbouring tree and placed over the remains in a somewhat arched form. (Curr 1883: 311-313)

In some cases, burials took place without associated tree scarring, and this was generally the case for women:

> We stopped for the night upon the left bank; and close to a burial-ground that differed from any I had ever seen. It must have been used many years, from the number of bones that were found in the bank, but there were no other indications of such a place either by mounds or by marks on the trees. [Sturt 1838 II:187]

James Günther (18 September 1837 p.14) describes the burial of a woman who died in the Wiradjuri camp near the mission thus, noting the marking of trees around the graves of men:

> The poor woman died last night & was buried early this morning. I was too late to see the whole of the ceremony, or rather the nonceremonial performance of the burial which took place a short distance from the Camp where she was carried on shoulders. The grave was very short scarcely four feet long, they lay their dead in a sitting or bent position, nor has it depth enough. This is however up by a heap of earth raised to a considerable height. They first covered her over with some branches then with pieces of wood & stone after which the earth was put on. When they bury men they commonly mark some trees near the place but this honour is denied to the women. They changed their place for encampment removing to some distance as they are afraid to “sit down” where a person has died they have much fear of death. - The husband besmeared his face with white pipe clay as a sign of mourning.

Ernest Gribble, the son of the Missionary John Gribble who founded Warangesda Mission at Darlington Point in Wiradjuri territory, described his childhood on the Murrumbidgee in the 1880s:

> Bark was taken from trees to make ‘gunyahs’ or canoes, and they were very clever hunters. On the larger rivers in the south, canoes were made from the bark of gum-trees, stripped off in one piece. As a boy on the Murrumbidgee River, I frequently helped in the making of these canoes, and spent many a day with the natives in their large bark canoes or went hunting with them.
>
> The tribes in the Riverina made large nets for catching ducks. A net would be stretched across a sheet of water, fairly high above the water. The flying birds would at once pass down the stream, when the native in hiding would throw his boomerang among them as they passed. The ducks taking this to be a hawk, at once swoop down into the net. Another

> method was for the native to swim out into the stream with head covered with green bushes, and, getting among the ducks as they swam about, to seize them by the legs and pull them under.
>
> The author in his early youth frequently went out on hunting expeditions with the aborigines on the Murrumbidgee River. At that time the Riverina was plentiful in game of all kinds. … In those days, kangaroos and emus as well as turkeys were very numerous on the plains. If the skins were not needed, the animals would be thrown on the fire and the hair singed off. They would then be disemboweled and cooked. If on the other hand the skins were needed for any purpose, they were carefully removed, pegged out on squares of bark, and then dried in the sun. The pegs used for pegging out skins were carefully made, and the points hardened in the fire. These pegs were made from a certain shrub which grew in the sand-hills.
>
> On the Murrumbidgee River the natives in the spring of the year gathered wild lettuce and carrots, and in the sand-hills a small sweet yam [Taylor and Undy 1994, Extracts from Ernest Gribble 1932].

6. Contact history

Colonial excursions into this region began with the crossing of the Blue Mountains in 1813, when Gregory Blaxland, Lieutenant William Lawson, and William Charles Wentworth, following ridges rather than valleys, reached Mt Blaxland on the western side of the Blue Mountains, providing a view into the interior. The same year, Governor Macquarie sent surveyor William Evans to investigate these lands beyond the Blue Mountains. Evans followed the route taken by the three explorers and continued westward, following the Fish River to its junction with the Macquarie River, situated to the southeast of Bathurst and approximately 30 km to the east of the project area.

Evans (1813 [1916]) made mention of the park-like state of the country through which he passed. He also observed that they encountered few Wiradjuri people on their expedition, noting:

> We have not seen any Natives but hear them shouting around us [25 November 1813]
>
> We have not yet seen any Natives but can see their late Tracks. [3 December 1813]
>
> I conceive it strange we have not fell in with the Natives; they are near about us as we find late traces of them; I think they are watching us, but are afraid and keep at some distance. [16 December 1813]
>
> Returning we saw smoke on the North side of the River, at Sun set as we were fishing I saw some Natives coming down the Plain; they did not see

> us until we surprised them: there was only two Women and four Children, the poor Creatures trembled and fell down with fright; I think they were coming for Water; I gave them what Fish we had, some fish Hooks, Twine and a Tomahawk, they appeared glad to get from us; two Boys ran away; the other small Children cried much at first; a little while after I played with them, they began to be good humoured and laugh, both of the Women were blind of their Right Eye. [21 December 1813]
>
> The Natives seem to be numerous; there are fires in many parts not far from us. [29 December 1813].

It is likely that the infrequent encounters with the Wiradjuri on this expedition were the choice of the original inhabitants, not the explorers. Europeans settlers spread into Wiradjuri lands the following year with the commencement of construction of a road over the mountains. The road was completed in 1815 and the same year Governor Macquarie ventured westward to proclaim the township of Bathurst. In 1815 Evans continued his investigation of the region with an expedition mounted from Bathurst, which followed the route of the Belubula River in the vicinity of Kings Plains and the project area (Evans 1815).

The opening of a route over the mountains and the reports of land suitable for grazing, combined with Governor Thomas Brisbane issuing land grants in the region from the end of 1821 led to ever increasing numbers of colonial settlers moving westward across the mountains and into the Central West region. There is evidence that in the period 1821-1828 squatters had spread into the region to the west of Bathurst (Steel 1930:243). Survey plans from 1829 record Government stations for grazing Government cattle at Orange and another at King's Plains.

The settlers and their livestock put pressure on traditional lands and food sources, and within a few years this had resulted in spearing of livestock and increasing conflict between the settlers and the Wiradjuri. The rise in conflict can be seen to coincide with an increase in settler numbers. In the Bathurst district there were only 114 colonists in 1820. This number had increased to 392 two years later. In 1824, at the height of the conflict, colonists numbered 1,267 people and sheep and cattle numbers had risen from 33,733 in 1821 to 113,973 in 1825 (Pearson 1984:71). Shepherds and convict workers on the outstations, encroaching on Wiradjuri estates, were killed and this reciprocated retaliatory expeditions. In the Kings Plains area for instance, expeditions were mounted in 1823 and 1824 to capture those who had speared cattle and stolen provisions (Pearson 1984:73).

In response to the increased attacks, and without recognizing that the attacks often stemmed from the exclusion of Wiradjuri from traditional estates and food resources,

on 14 August 1824 Governor Darling imposed martial law west of Mt York and sent a detachment of soldiers to Bathurst. These events mark the start of a short period of intense conflict, with periodic skirmishes and a number of massacres of Wiradjuri men, women and children by soldiers and vigilantes (*Sydney Gazette and Advertiser* 5 and 12 August 1824). It has been estimated that the numbers of Wiradjuri killed during this period could have been in the hundreds (Read 1988:10).

By December 1824, with the surrender and subjugation of the Wiradjuri, martial law was repealed, and an uneasy peace ensued. As the Wiradjuri were not welcome in the towns many sought the protection of sympathetic pastoralists and camped near homesteads throughout the region. Traditional cultural and subsistence practices would have continued in these newly established camps.

At times, conflict in the region saw deployment of troops to provide protection to the pastoralists, both from the Wiradjuri and also from bushrangers and bandits. Günther (27 September 1837 p. 16) mentions the removal of a contingent of the military from the Wellington district, contrary to promises made by the Government:

> We troubled ourselves much to day by considering & consulting respecting the unexpected order to have the Infantry withdrawn from here. As it is at variance with the promise of the Government circumstances which in the first instance made the protection desirable are still the same and since we have had no reason assigned whatever why the Military were to be withdrawn we deem it our duty to send a petition to the Government through the medium of the Con. Committee.

Missionaries arrived in Wiradjuri lands in 1830 and established a mission on the Bell River near Wellington (Günther 1837; Read 1988:12-13). Despite the distribution of food and tobacco, the Wiradjuri were disinclined to take up the missionaries offer of permanent residence there, choosing instead to maintain their traditional seasonal movement patterns. This mission and a neighbouring mission continued in the district for more than 10 years with few discernible effects on the Wiradjuri people. One effect of the missionaries was to encourage the spread of English amongst the Wiradjuri which made the young more employable on the local pastoral stations, with boys engaged in stock work and the girls doing domestic chores (Read 1988:23). Read (1988:25) notes that unlike in cattle herding areas, sheep farming needed little Aboriginal labour. Some Wiradjuri were employed as workers around the stations, or as wool washers or trackers, but only in small numbers.

Whilst a number of Wiradjuri were able to obtain work, the violence against the people continued. Many areas became depopulated through violence with survivors fleeing to

With the opening of a new route over the Blue Mountains in 1832 making travel more reliable, and the dissolution of the Church and School Corporation in 1833 releasing previously unavailable pasture lands for settlement, land was occupied by squatters west of the Macquarie River, and some parcels of land were granted in the King's Plains district. It appears that the first land was settled in the King's Plain district in the early 1830s, with land along the more reliable creeks occupied first. The station workers would have initially included labourers, shepherds and camp cooks. It was only when fences were built, restricting the Wiradjuri from moving freely through the district, and when game became scarce and livestock was speared that traditional life would have been dramatically altered.

Steel (1931:255) claims that general lawlessness in the region in the 1830s, with bandits and bushrangers harassing the local squatters and station workers. In 1838 Governor Gipps threatened to again impose martial law and cancel all tickets-of-leave unless law and order could be reestablished. A detachment of police was sent from Bathurst to a barracks west of Carcoar to contain the disorder.

The numbers of settlers in the Bathurst district remained low for the first few years when land was occupied by squatters. In 1843 the number of people in the district had risen to approximately 1,200 people (free and bonded convicts). At the same time the population in the greater Sydney district had risen to 29,973 (*The Sydney Herald* 8 May 1841 p. 2).

The statistics for the entire Lachlan Squatting District (incorporating the lands outside the Nineteen Counties and bounded by the Macquarie, Lachlan and Murrumbidgee Rivers) at the end of 1843 is recorded in Table 1 and shown in Figure 2:

Number of stations:	183
Number of acres under cultivation:	3,173
Free population:	816
Bond population:	436
Horses:	1,711
Cattle:	53,533
Sheep:	146,212

Table 1. Population of people and livestock in the Lachlan Squatting District as recorded in 1843 (Great Britain Parliament 1844). See also Figure 2.

In 1843, while there was still only a small immigrant population, which was mainly concentrated in the eastern part of the county, livestock numbers were high. The spearing of livestock would have exacted retribution from the squatters and their workers and would have placed further restrictions on the mobility of Wiradjuri groups.

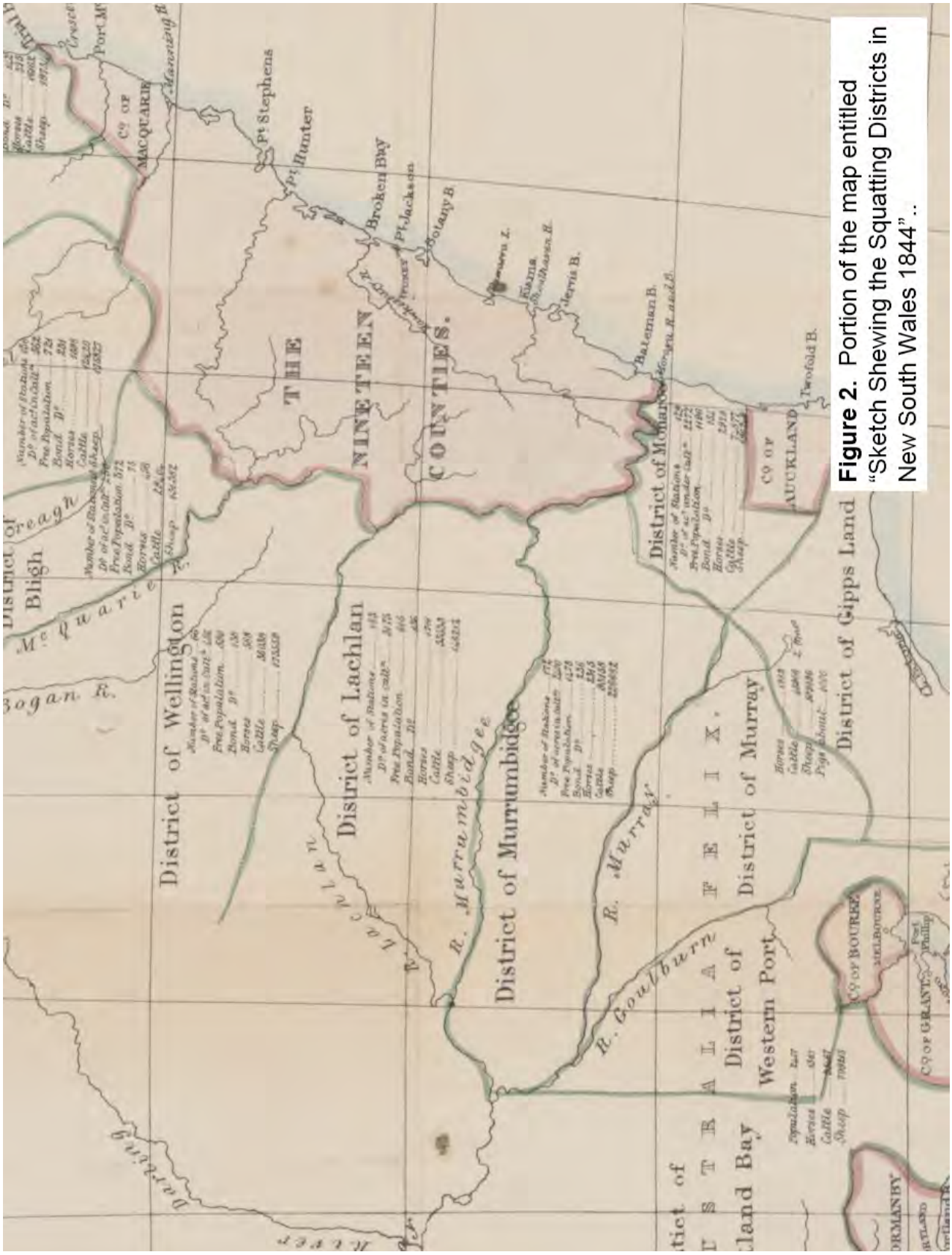


Figure 2. Portion of the map entitled "Sketch Shewing the Squatting Districts in New South Wales 1844"..

the safety of towns or sympathetic pastoral stations. Read (1988:24) observes that the period from 1840 to 1880 saw the greatest dislocation of Aboriginal people from the region, but also the least reporting of the Wiradjuri people. This period coincides with the influx of gold prospectors and miners into Wiradjuri lands, which was the centre of gold discoveries in the late 1840s and early 1850s. The lawlessness of the goldfields would have also seen an increase in violence against Wiradjuri people. Gold was found in the King's Plain district in about 1867 and a report on page two of the *Bathurst Free Press and Mining Journal* of 4 September 1886 mentions that there were at one time 500 miners at the field, panning for alluvial gold, but that they were hampered by a lack of water.

In the 1850s traditional ceremonies were still taking place in the Mudgee district, drawing Wiradjuri people from across their territory and away from the stations on which most were settled (Read 1988:23). By the late 1880s only initiation ceremonies were being performed and these were increasingly infrequent with the elders dispersed and active official discouragement of Wiradjuri language, customs and practices. With the establishment of the Board for the Protection of Aborigines in 1883 and enactment of the *Aborigines Protection Act* in 1909 government intervention in the lives of the Wiradjuri was formalized and supplanted the intrusion of the missionaries. Its guiding principle was the assimilation of Aboriginal people into Western society. It enabled government interference in the lives of the Wiradjuri and other Aboriginal groups, including the removal of Aboriginal children from their parents. This policy accelerated the breakdown of Wiradjuri traditions.

7. Pastoral expansion and Wiradjuri dispossession

In August 1891 *(The Sydney Gazette and New South Wales Advertiser* 21 August 1819 p. 1) Governor Lachlan Macquarie declared the region to the west of the Blue Mountains as County Westmoreland, "… extending Westward beyond the Town of Bathurst, and in that Direction without any present defined Limitation or Boundaries; …"

From 1828 to 1835 the region was surveyed by Assistant Surveyor James B. Richards from Bathurst, who sub-divided the County into four districts: Bathurst, Roxburgh, Westmoreland and Georgina. The King's Plain district became part of the County of Bathurst. One seventh of the Crown lands west of the Blue Mountains had been allocated to the Church and School Corporation, a body created to fund the establishment of schools and churches throughout the colony *(The Sydney Gazette and New South Wales Advertiser* 15 March 1826 p. 1). This led to the pasturing of stock in the vicinity of Blayney (King's Plains) in the adjoining Parish of Lindsay to the west of the project area.

An account of violence that occurred in the squatting era is recorded by “The Chatterer” in the *Bathurst Free Press and Mining Journal* of 7 August 1890.

> In the early days of Bathurst, when it was a convict settlement, an event occurred which furnished clear evidence of the cannibalistic propensities of the aborigines of the Western district. An attempt had been made by one of the more adventurous of the pioneers who had crossed the mountains to establish a “station “ about twenty-five miles farther westward, near the site of the now rising township of Blayney, then called King’s Plains. As was usual in those days, three assigned servants were sent up to the spot to erect a hut and yards, preparatory to occupation with stock, but shortly, alter commencing the work two of them fell victims to the savagery of the blacks, a united party of the Bathurst and Canoblas tribes being the assailants. The third man escaped the fate of his comrades by being temporarily absent from the camp, and he received a great shock upon his return, when he discovered the dead bodies of his two “mates” lying near the yard which they had been erecting … There were a few dead aboriginals in the neighbourhood of Bathurst shortly after, when the news of the outrage at King’s Plains reached the settlement. I had this story some years ago from the lips of one, of the oldest “hands,” who had crossed the mountains when but a boy as a convict, and I have no reason whatever to doubt its correctness.

As the infrastructure on the squatting runs improved with the construction of buildings and yards, there were increasing reports of conflict in other regions. It is probable that incidents occurred in the late 1830s and throughout the 1840s, although documentation is scarce. The newspaper accounts in the *Bathurst Free Press and Mining Journal* from 1851 describe life in the King’s Plain district. There is mention of gold mining, wool theft, the failure of a wheat crop, and the establishment of a school at “Blaney”, King’s Plains, but no mention of the Wiradjuri. In the following years there are infrequent accounts of Aboriginal people living in the district.

It is likely that illness (reported to have resulted in high Aboriginal mortality in neighbouring areas), and the declaration of martial law in 1824 and the resulting actions by soldiers, vigilantes and landholders, would have led to rapid Aboriginal depopulation. The surviving Wiradjuri would have fled to the sanctuary of the stations of sympathetic pastoralists, to camps on the outskirts of the towns, to missions, reserves and the rugged, more isolated, parts of their domain.

In 1861 two pieces of closer settlement legislation were enacted that brought further pressure on the Wiradjuri, with an influx of new settlers. The Robertson Land Acts *(Crown Lands Alienation Act* [1861] and the *Crown Lands Occupation Act* [1861]) sought to break up the large squatting holdings, making land available to selectors.

Despite the worthy intentions, the main objectives of the legislation, to reduce the large squatter holdings, were often thwarted by creative application of loopholes in the laws (through the use of proxy nominees [dummying] and by laying claim to holdings near the main water sources making adjoining lands worthless [peacocking]) and ended with the squatters still retaining the most productive lands. This legislation was amended in 1875 and 1880 and was replaced with the *Crown Land Act* (1884). These continuing

In the project area, the areas nearest water were first claimed. These included the Belubula River and its minor tributaries. A map (Figure 3.) of the gold districts in 1851 (Brownrigg 1851) shows land grants to the east and northeast of Blaney (Blayney), two additional areas of Crown Land reserved for villages, and several occupied stations in the vicinity of the project area (the boundaries of which have been superimposed on the historic map). It is likely that the adjacent, but unallocated areas, were being used for grazing by squatters on neighbouring stations, as in later Parish maps, their holdings had expanded to encompass these otherwise unoccupied areas (Figure 4).

8. Archaeological context

While this investigation is concerned with the assessment of tree scars, these scars must be evaluated in the context of known Aboriginal sites in the region. Evidence of prior Aboriginal habitation occurs in and around the project area and throughout the region generally, and some historical accounts document the presence of Aboriginal people inhabiting the region.

Prior to the current study several Aboriginal cultural heritage studies have been carried out within the project area. These studies have resulted in the recording of locations containing stone artefacts. These finds have included both isolated stone artefacts and stone artefact scatters (generally stone flaking débitage).

Orange Local Aboriginal Land Council Study (2012)

The Orange Local Aboriginal Land Council (OLALC) conducted a study of Aboriginal cultural heritage sites as part of the assessment of environmental impacts associated with minerals exploration in the project area (Corkery and Regis Resources 2012). The field inspection by Mr Chad Morgan (OLALC) was primarily limited to the seventy areas to be affected by drilling and the probable route of the drill rig moving between the drill locations. In addition to the inspected drill locations, several other areas were inspected adjacent to a creekline and in a paddock that had high ground surface visibility (GSV).

The identified cultural heritage evidence comprised a single basalt flake. Additionally, four trees with scars were recorded and these were flagged as being possible cultural scars. Neither the basalt flake nor any of the four trees with scars were subject to impact

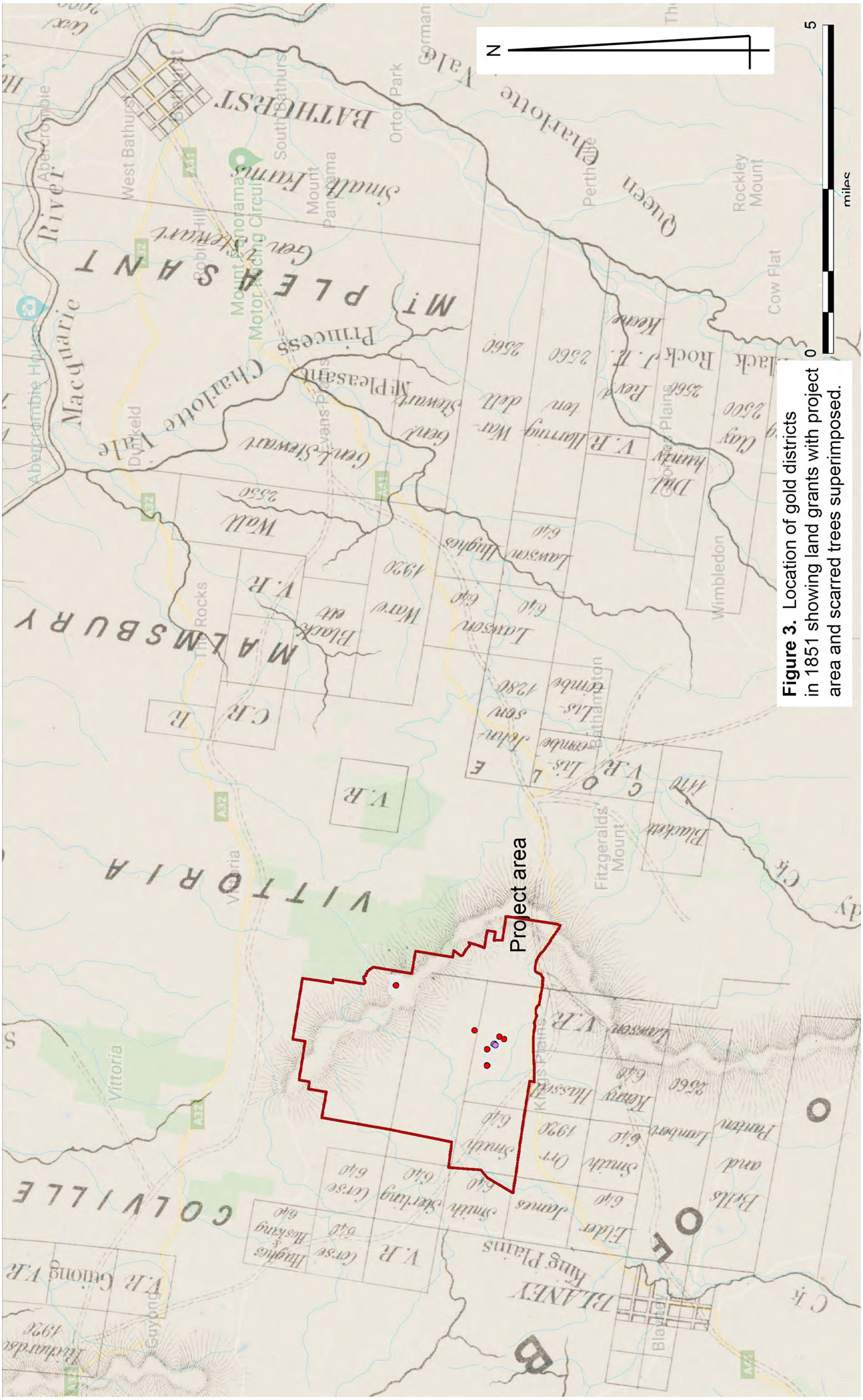


Figure 3. Location of gold districts in 1851 showing land grants with project area and scarred trees superimposed.

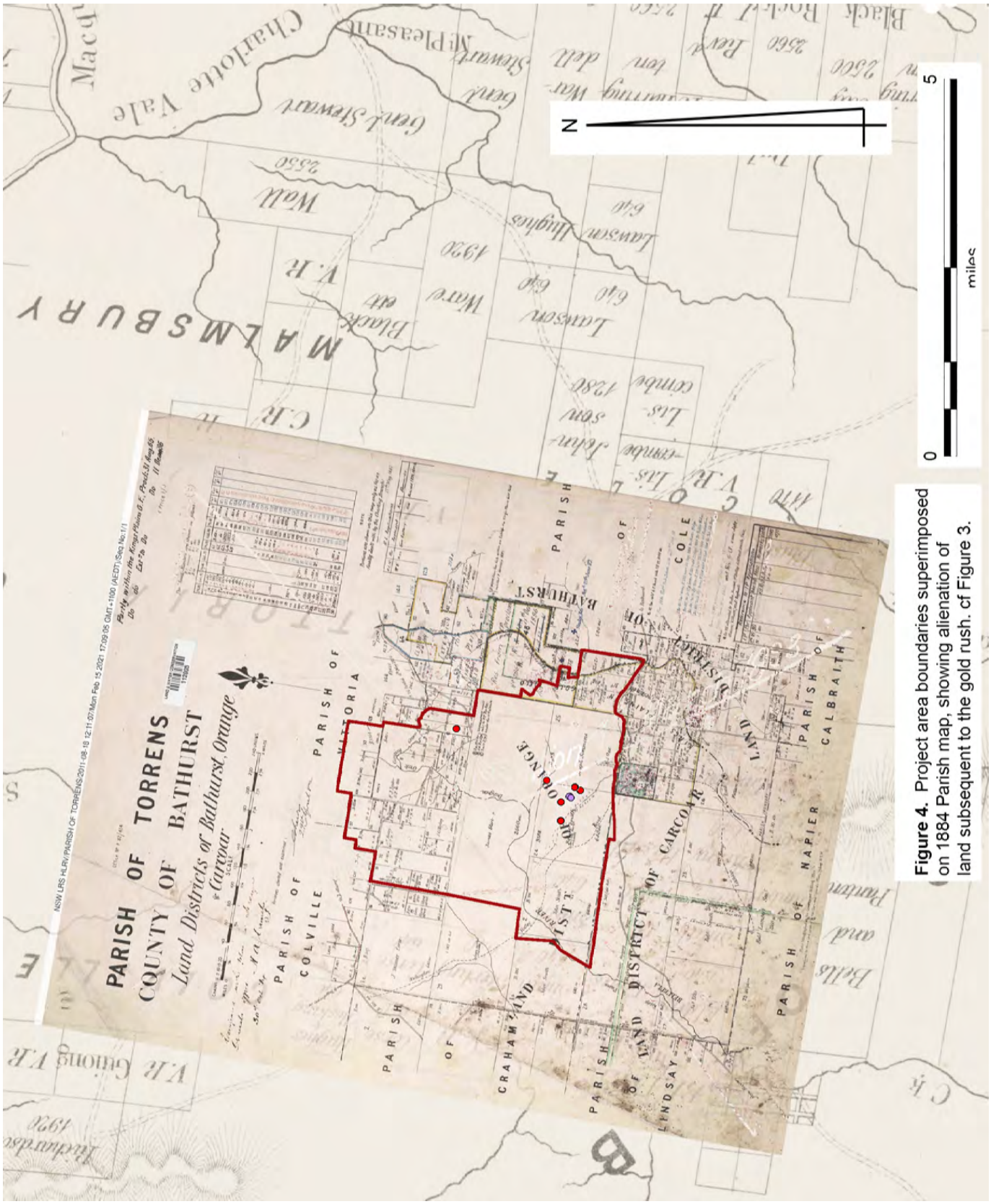


Figure 4. Project area boundaries superimposed on 1884 Parish map, showing alienation of land subsequent to the gold rush. cf Figure 3.

by the proposed drilling activities. Photographs of the scars on the trees are included in the REF (Corkery and Regis Resources 2012:43-44), which assisted relocation and inspection during the present study. The localized and low impact nature of the drilling program simplified the protection of these items.

Orange Local Aboriginal Land Council Study (2016)

A further investigation and Due Diligence Assessment of proposed drilling activities was carried out in 2016 with the assistance of the OLALC (Corkery and Regis Resources 2016). The drilling program assessed in 2016 was more extensive, with approximately 217 drill holes planned and an area of approximately 160 m^2 subject to potential disturbance at each hole (Corkery and Regis Resources 2016:23). The program overlapped and extended the coverage of the earlier drilling program. Orange Local Aboriginal Land Council representatives, Mr Greg Ingram and Mr Peter Moore, carried out the assessment.

During the 2016 study, the items located in the earlier assessment were relocated, based on the photographs presented in the REF, and it was determined that their previously recorded locations were inaccurate (Corkery and Regis Resources 2016:20). An additional tree bearing a scar was also recorded (Figure 5). It was noted that one of the trees (MP-ST-02) had been blown over after the initial recording. No further cultural heritage items were identified during the 2016 investigation and site clearance. Localised impacts from drill pad construction and careful application of impact mitigation measures ensured that the identified items were not affected.

Orange Local Aboriginal Land Council Study (2017)

A further investigation and Due Diligence Assessment of proposed drilling activities was carried out with the assistance of the OLALC (2017). This work was undertaken by a representative of the Land Council, Mr James Riley. During this program, 35 of 182 drill holes were inspected, in areas with the highest site potential. A more detailed report of the findings of this Due Diligence assessment was prepared by Hayes and Barham (2017), who had accompanied Mr Riley during the site investigation. An additional three trees with scars were identified, however, these are not recorded by Hayes and Barham (2017) who visited the project area with Mr Riley. The trees were photographed, and it was noted that further investigation to assess the trees and determine origin was required to assess whether the scars were natural or cultural (and if cultural whether the scars were associated with former Aboriginal activity.

These additional trees are in the vicinity of earlier marked trees recorded in this area.

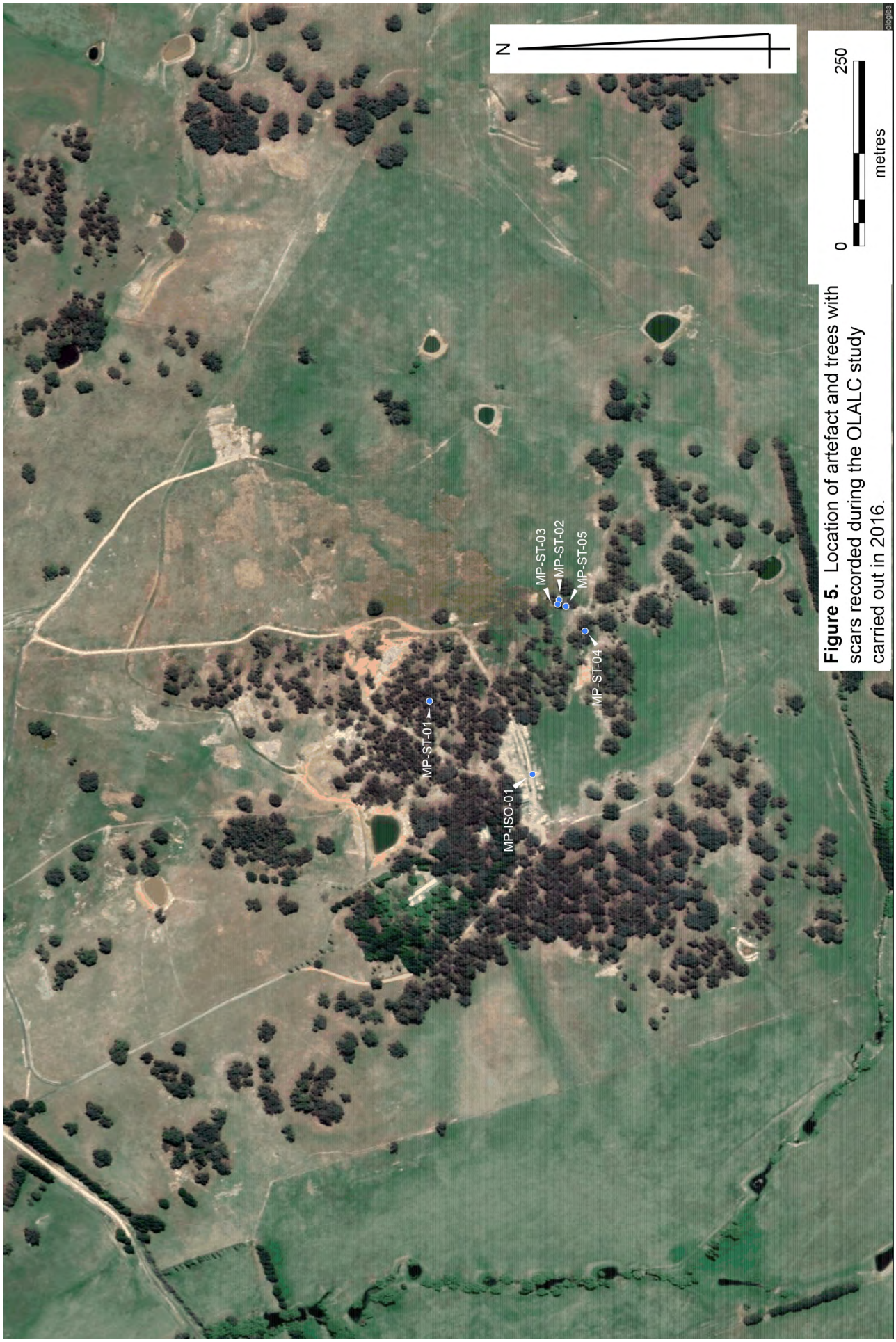


Figure 5. Location of artefact and trees with scars recorded during the OLALC study carried out in 2016.

Tree Number	Tree type	Tree height	Tree girth	Scar number	Scar length	Scar width	Scar length (external)	Scar width (external)	Height above ground	Aboriginal origin of wound
MP-ST-1	Yellow box	30 m		1	60 cm	15 cm	70 cm	25 cm	87 cm	Possible Aboriginal
				2	19 cm	35 cm	19 cm	45 cm	25 cm	Possible Aboriginal
				3	30 cm					Possible Aboriginal
MGP-ST-2	Apple/ peppermint gum	35 m	2.85 m	1	35 cm	8 cm	55 cm	30 cm	107 cm	Possible Aboriginal
MGP-ST-3	Apple/ peppermint gum	30 m	2.95 m	1	59 cm	9 cm	85 cm	9 cm	100 cm	Possible Aboriginal
MGP-ST-4										Not a scarred tree. Tree details not recorded. This assessment was corroborated by Orange LALC representative on site.
MGP-ST-5										Could not be relocated

Table 2. Details of recorded trees with scars (Hayes and Barham 2017:100-9)

Due Diligence Archaeological Assessment (Hayes and Barham 2017)
A further assessment of potential impacts of drilling was undertaken in 2017. The trees that had been noted in the initial study carried out by the OLAC in 2016 were again examined, and recorded in greater detail than in the earlier investigation, but inexplicably the report did not record the additional three trees with scars encountered by Mr. James Riley, who accompanied the field team on this expedition. When compared with later studies, this investigation reported fewer details of the trees or the scars; the identification of tree species also differs from later studies. The tree scars recorded during this assessment are presented in Table 2.

Aboriginal cultural heritage assessment (Cressey and Gottschutzke 2018)
As part of the environmental assessment process for evaluating the development of the McPhillamy's Gold Project, Cressey and Gottschutzke (2018) undertook a comprehensive evaluation of cultural heritage sites in the project area. The consultants re-examined the cultural heritage items and trees with scars (wounds) that had been identified during the earlier studies (seven scarred trees and an isolated stone artefact) and located additional Aboriginal cultural heritage items (Figure 6): 18 stone artefact scatters, 17 isolated stone artefact occurrences, and two further trees bearing scars (Cressey and Gottschutzke 2018:ii).

The locations containing stone artefacts were found in various landscape settings: stream banks, basal slopes, mid-slopes and hill crests. The trees bearing wounds were found in a similar range of settings (Table 3).

Site or feature	Stream bank	Basal slope	Mid-slope	Hill crest
Sites with stone artefacts	11	6	14	6
Trees with wounds		2	6	1

Table 3. Location of sites and features in the McPhillamy's Gold Project area (Cressey and Gottschutzke 2018).

Stone artefact occurrences are generally represented by small numbers of stone artefacts. Of the 35 locations with stone artefacts 17 contained only one item, ten contain two or three, seven contain from four to six, and only one contains ten or more items. The two locations containing the most artefacts (MGP-014 and MGP-007) were situated on the northern bank of the Belubula River, respectively 40 m and 21 m from the current river channel.

The small number of stone artefact occurrences generally and small numbers in identified locations are likely to reflect the limited ground surface visibility, rather than

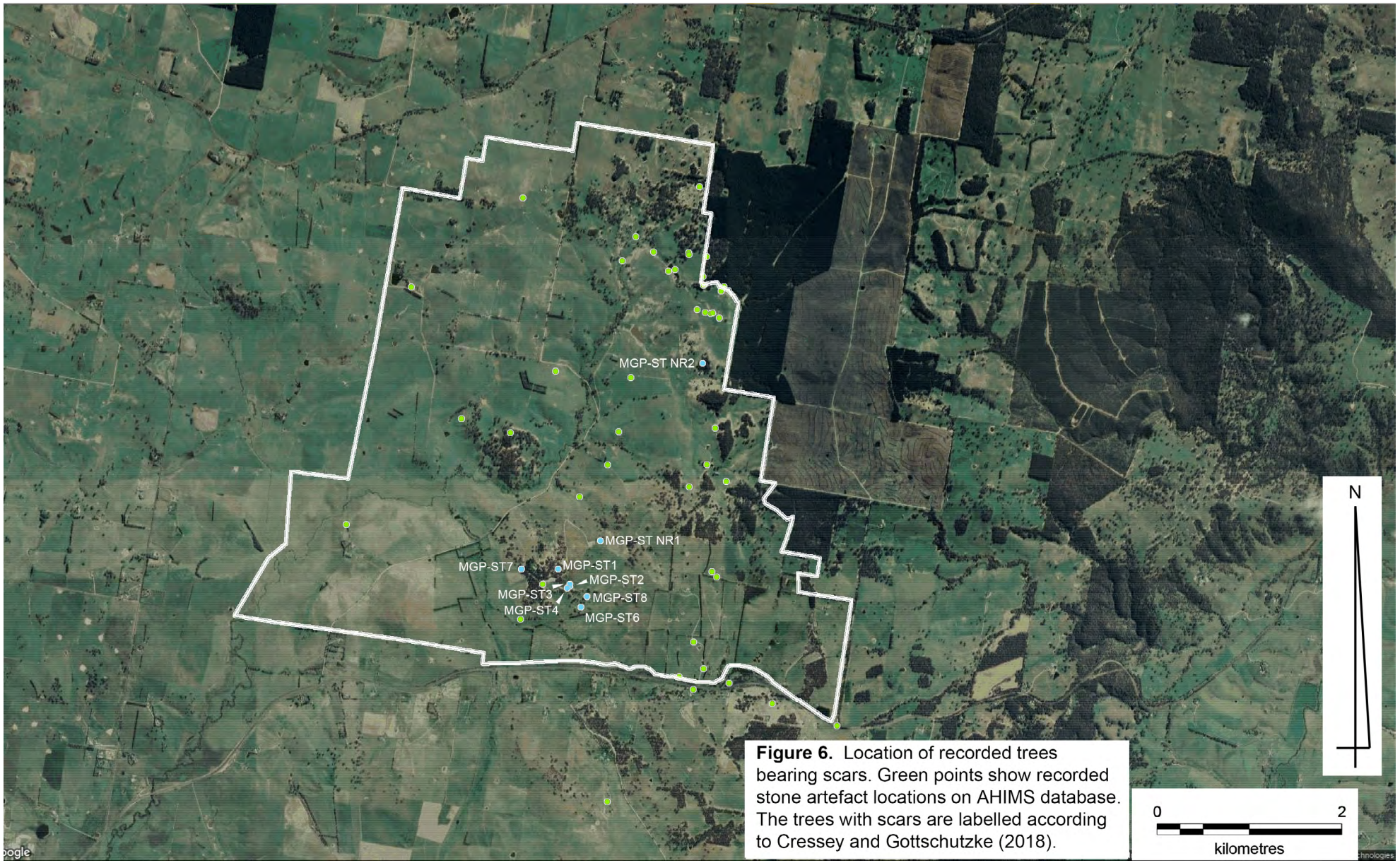


Figure 6. Location of recorded trees bearing scars. Green points show recorded stone artefact locations on AHIMS database. The trees with scars are labelled according to Cressey and Gottschutzke (2018).

an absence of locations with stone artefacts or actual low artefact numbers at these locations.

One observation that can be made about the distribution of these stone artefact locations, is that they are widely spread across the project area, albeit concentrated in areas close to the Belubula River. Trees bearing wounds on the trunk are, with one exception, concentrated in the one 700x200 m area of forestland (Figure 7). The single tree with a scar (wound) on the trunk (MGP-ST-NR1) that was separate from the main concentration is located at least 540 m from the nearest recorded tree with scar.

The recorded trees with scars are also distant from the locations containing stone artefacts. This is partly due to the concentration of identifiable stone artefact occurrences near watercourses, rather than on slopes and hilltops, where the trees with scars have been found. It is also due to the extent of forest clearing that has occurred across the project area with remnant forest regrowth mainly remaining on the more topographically rugged parts of the property, which are distant from the watercourses.

Nine trees with scars were also evaluated during this assessment. It included the seven trees recorded during earlier studies by the Orange Local Aboriginal Land Council and an additional two trees with scars recorded during the fieldwork associated with cultural heritage assessment of the McPhillamy's Gold Project (Cressey and Gottschutzke 2018). Significantly, none of the trees with scars have been entered onto the AHIMS register of Aboriginal sites, reflecting the uncertainty experienced by the Land Council representatives and consultant archaeologists about the origin of the scars.

The relevant attributes of the trees and scars as recorded by Cressey and Gottschutzke (2018:100-9) are listed below in Table 4. It should be noted that one tree with a scar originally recorded by the OLALC (MGP-ST5), could not be relocated during this study.

Current tree wound assessment (Lance and Kamminga 2021)

The present review of the trees with scars (wounds) within the McPhillamy's project area adopts a more thorough approach to assessing the likely origin of individual scars. Each of these trees was inspected and salient features of the tree and scars were recorded. Many of the attributes identified in the current field inspection are identical or similar to those recorded in the Cressey and Gottschutzke (2018) study (and differ from those in the Hayes and Barham 2017 study), with some variation based on the different measurement techniques used, for example the use of a ladder by the Lance/ Kamminga team to measure scars high above the ground as was the case for MGP-ST1 and MGP-ST7 (Plate 1). Additional attributes have been noted and these are critical to an assessment of tree age and scar origin. In addition to recording other

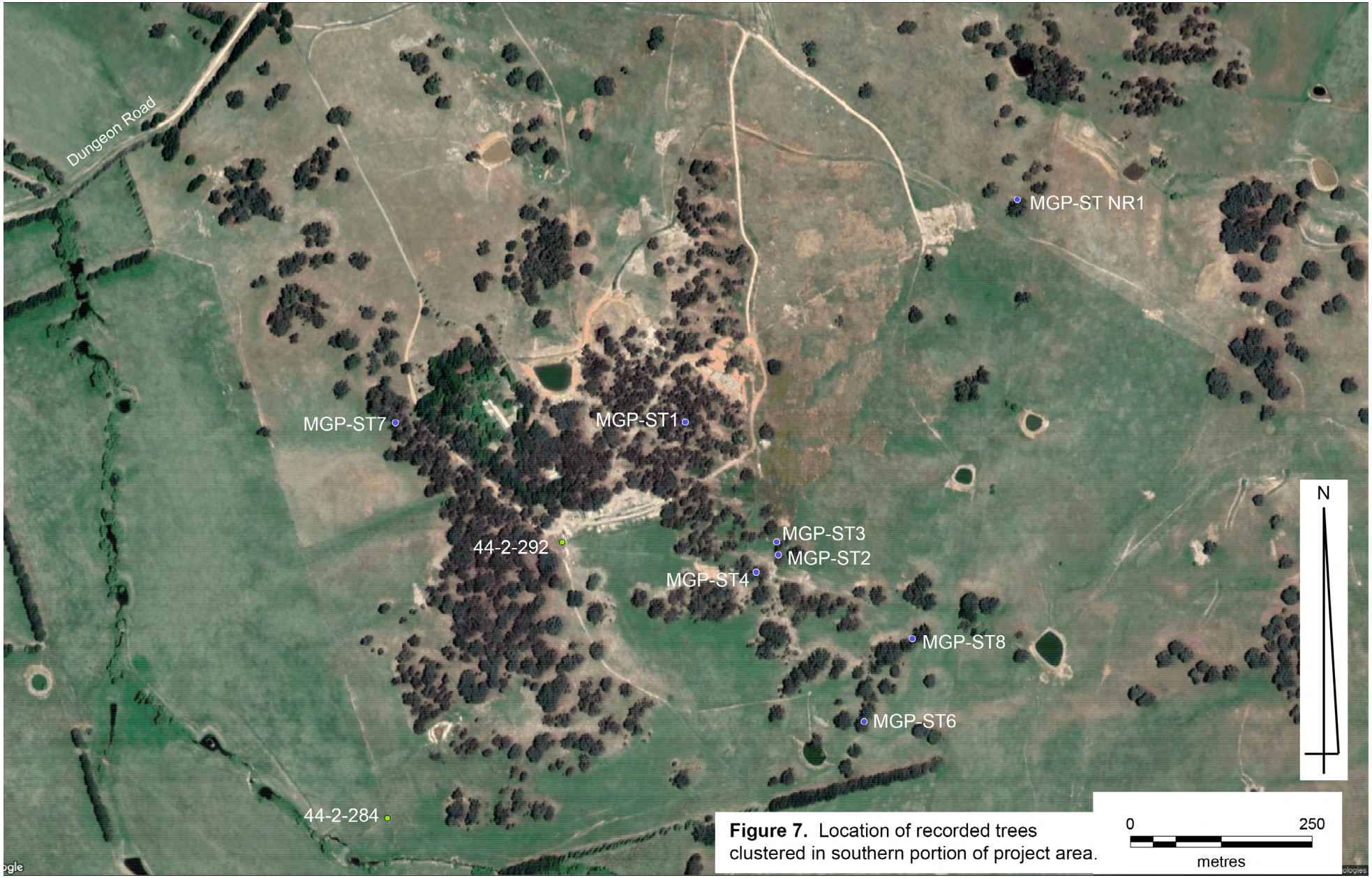


Figure 7. Location of recorded trees clustered in southern portion of project area.

Tree Number	Tree species	Tree height	Tree girth	Scar number	Aspect	Scar length	Scar width	Depth of overgrowth	Height above ground	Condition of scar	Aboriginal origin of wound
MGP-ST1	*E. bridgesiana*	15 m	1.8 m	1	SW	70 cm	7 cm	4 cm	27 cm	Poor	Unlikely
				2	SE	59 cm	14 cm	5 cm	88 cm	Poor	Unlikely
				3	N	142 cm	22 cm	6 cm	27 cm	Poor	Unlikely
				4	NW	25 cm	10 cm	-	260 cm	Poor	Unlikely
MGP-ST2	*E. bridgesiana*	15 m	2.95 m	1	W	124 cm	151 cm	6 cm	0 cm	Good	Unlikely
				2	SE	40 cm	8 cm	6 cm	91 cm	Good	Unlikely
MGP-ST3	*E. bridgesiana*	15 m	3.15 m	1		60 cm	10 cm	9 cm	105 cm	Good	Unlikely (Possible human origin)
MGP-ST4	*E. melliodora*	20 m	2.8 m	1		130 cm	40 cm	-	0 cm	Good	Unlikely
MGP-ST5											
MGP-ST6	*E. melliodora*	25 m	5.3 m	1		80 cm	50 cm	32 cm	-	Poor	Unlikely
MGP-ST7	*E macrorhyncha*	15 m	1.34 m	1		110 cm	7 cm	7 cm	104 cm	Good	Unlikely
MGP-ST8	*E. melliodora*	15 m	2.6 m	1		170 cm	38 cm	6 cm	-	Poor	Unlikely
MGP-ST NR1	*E. melliodora*	30 m	2.5 m	1		112 cm	20 cm	>5 cm	104 cm	Poor	Possible
MGP-ST NR2	*E macrorhyncha*	20 m	2.3 m	1		170 cm	34 cm	8 cm	0 cm	Poor	Unlikely

Table 4. Details of recorded trees with scars (Cressey and Gottschutzke 2018:100-9)

attributes, leaf and fruit samples were collected to assist in the identification of eucalypt species. The different growth rate of different tree species is one factor in the evaluation of age, and the likelihood or otherwise that the trees date from a period when Aboriginal people were still detaching bark as part of traditional activities.

Several of the attributes commonly used in assessing scarred trees, such as the depth and width of tissue overgrowth, require subjective decisions relating to measurement. As overgrowth depth is important in the assessment of the age of a scar and overgrowth width for the evaluation of the size of the original wound, the lack of measurement consistency can have significant implications for distinguishing common natural tree wounds from culturally modified trees. The results of measurements of important attributes on each of the trees with scars (wounds) is presented in Table 5.

9. Aboriginal bark and timber use and associated tree scarring

Many different varieties of trees (mostly eucalypts) in woodland and old growth forest throughout Australia exhibit scars from the deliberate removal of bark by Aboriginal people (see Table 6). Preferred trees included species of box, smooth-barked gum trees (particularly river red gum), stringybark and paperbark. As a result of natural tree death and decay, bushfires and agricultural clearing, the number of Aboriginal scarred trees has diminished dramatically. A number of studies in recent years indicate that non-Aboriginal scarring of tree trunks (in particular natural scarring) is an extremely common occurrence and demonstrable Aboriginal scarring is rare in comparison (see Burns 2016, Kamminga and Grist 2000, Kamminga and Lance 2016, Kuskie 2017a, 2017b, 2007c, Kuskie 2019).

Aboriginal scarred trees tend to occur more commonly in well-watered areas in proximity to major water bodies such as watercourses, lakes and swamps, and within road easements. This distribution reflects both the suitability of trees available for use, the more intensive use of well-watered areas by Aboriginal people in traditional times, and the persistence of older trees in reserves along watercourses and roads.

In pre-contact times bark sheets were cut by Aboriginal people from the trunk using a stone hatchet or hand-held stone chopper and then pried off with a lever, such as a digging stick, hatchet handle or stone wedge. During British colonial and more recent times, a steel hatchet or axe was commonly used by Aboriginal people (and European settlers).

Bark sheets and fibre strips were detached from trees for making a range of structures and artefacts, to carve decorative and symbolic patterns into the wood of living trees, to wedge out wood to make artefacts, and to expose timber or enlarge existing holes

Tree Number	Tree species	Tree height	Tree girth (gbh)	Scar number	Aspect	Scar length	Scar width	Depth of over-growth	Height above ground	Shape of scar	Dry trunk face
MGP-ST1	*E. bridgesiana*	15.5 m	1.73 m	1	233°	52 cm	5 cm		29 cm	Linear	Decay, termites, borers
				2	153°	59 cm	14 cm		89 cm	Irregular linear/ obtuse	Moderate decay, minor borer infestation
				3	1°	146 cm	19 cm	4 cm	26 cm	Lanceolate	Minor decay, minor borer infestation, termite tracks
				4	325°	34 cm	11 cm	7 cm	246 cm	Ovate	Moderate decay, minor borer infestation
MGP-ST2	*E. bridgesiana*	18 m	2.8 m	1	309°	124 cm	14 cm	12 cm	0 cm	Acuminate	Unweathered, minor borer activity
				2	174°	35 cm	8 cm	11 cm	100 cm	Ovate	Unweathered, minor borer activity
				3	30°	1200 cm	35 cm	9 cm	0 cm	Linear	Moderate decay
MGP-ST3	*E. bridgesiana*	22 m	2.47 m		155°	58 cm	6 cm	12 cm	120 cm	Cuneate	Minor decay, minor borer activity
MGP-ST4	*E. viminalis*	20 m	2.7 m		80°					-	Natural bark fissuring
MGP-ST5											
MGP-ST6	*E. viminalis*	29 m	5.3 m		88°	72 cm	32 cm	40 cm	0 cm	-	Natural bark fissuring
MGP-ST7	*E. melliodora*	15 m	1.34 m	1	312°	102 cm	5 cm	8 cm	92 cm	Narrow linear	No decay, minor borer activity
				2	161°	140 cm	30 cm	10 cm	180 cm	Irregular linear	Moderate decay and borer activity
MGP-ST8	*E. melliodora*	30 m	2.94 m			147 cm	21 cm	7 cm	24 cm	Irregular lanceolate	Decay, termites, borers
MGP-ST NR1	*E. viminalis*	35 m	4.45 m		-					-	Natural bark fissuring
MGP-ST NR2	*E. bridgesiana*	14 m	2.24 m		95°	161 cm	23 cm	14 cm	0 cm	Deltoid	Deep decay fissures, extensive termite activity

Table 5. Further details of recorded trees with scars examined during the present assessment.

during hunting and collecting animal and insect foods.

Despite the dramatic reduction in number due to natural tree death and other causes, trees identified as bearing Aboriginal scars are still being recorded during field surveys, sometimes in relatively large numbers. In some riverine areas of eastern Australia, Aboriginal scarred trees may be the most common site type recorded.

Aboriginal scarred trees are a diminishing cultural heritage resource and are vulnerable to natural deterioration and developmental impacts. Many Aboriginal people regard these trees as highly significant because they are a visible symbol of ancestral occupation and ownership of the land and the use of its resources. Given the importance of protecting from avoidable impact the progressively diminishing resource of scarred trees, it is essential to understand the significance and management options relating to this site type, so that appropriate actions can be taken in planning, development and land management decision making.

In commissions from Aboriginal Affairs Victoria and subsequently the NSW Office of Environment and Heritage, Andrew Long (2002, 2003, 2005) provided a comprehensive review of Aboriginal scarred trees (culturally modified trees) in southeastern Australia (see also Mulvaney and Kamminga 1999 for a brief summary of the site type). However, reliable identification of Aboriginal culturally modified trees remains highly problematic, with considerable implications for assessments of site significance and potential development impacts to heritage values. A number of studies suggest that most many if not most recordings in New South Wales have misidentified scar causation (see Burns 2016, Kamminga and Grist 2000, Kamminga and Lance 2016, Kuskie 2017a, 2017b, 2007c, Kuskie 2019).

9.1 Carved trees

One of the rarest and most vulnerable Aboriginal site types is the carved tree, a type of culturally modified tree (usually distinguished from ‘scarred trees’), which occurred frequently in Wiradjuri country (Mulvaney and Kamminga 1999:31-33). Carved trees are mainly known from the northern portions of their domain, in the Macquarie and Lachlan River districts (Etheridge 1918; Bell 1982).

More than 7,500 carved trees have been documented, though less than 100 now survive, most on public land where old growth trees have been preserved (State Library of New South Wales 2011:12). Carved trees marked ceremonial grounds and burial places (Howitt 1904:466).

Common Name	Botanical Name	Historical Reference or known Distribution of Scars
Gum Trees		
River red gum	*Eucalyptus camaldulensis*	Long 2005:57. Widespread along rivers and flood prone areas of inland NSW and Victoria.
Forest red gum	*Eucalyptus tereticornis*	Trees widespread in NSW and Victoria, though in Victoria scars are only recorded in Gippsland. Known to have been used to make stillwater canoe hulls.
Manna gum	*Eucalyptus viminalis*	Southwestern Victoria and Port Phillip.
Blue gum	*Eucalyptus globulus*	Historical recorded for Gippsland, but scars are yet to be identified.
Swamp gum	*Eucalyptus ovata*	Scars recorded in the Port Phillip area.
Yellow gum	*Eucalyptus leucoxylon*	Scars recorded in central and western Victoria.
Box Trees		
Black box	*Eucalyptus largiflorens*	Scars recorded in northwest Victoria.
Grey box (Alternative common name: gum-topped grey box)	*Eucalyptus microcarpa*	Southeastern Australia. Common in the wheat belt of Victoria, SNW and Queensland; in Victoria the main area is in the area immediately north of the Grampians, also Port Phillip area.
Grey box Alternative common name: gum topped grey box	*Eucalyptus moluccana* Roxb. Synonyms: *Eucalyptus hemiphloia F.Muell* Intergradation occurs with *E. albens* in the upper Hunter Valley. Synonyms*: Eucalyptus hemiphloia* F.Muell.	Long 2005:57. NSW & Queensland. Distributed in the relatively drier areas of central and northern coastal NSW and eastern Queensland, scattered as far north as the Atherton tableland.
Red box	*Eucalyptus polyanthemos*	Long 2005:57.
Poplar box	*Eucalyptus populnea*	Long 2005:57
Swamp box	*Tristania suaveolens*	Long 2005:57.
White box	*Eucalyptus albens*	Long 2005:57.
Yellow box	*Eucalyptus melliodora*	Long 2005:57. Scars recorded across Victoria.

Table 6. Australian economic timbers used by Aboriginal people in eastern Australia.

Common Name	Botanical Name	Historical Reference or known Distribution of Scars
Stringybark Trees		
Thin-leaved stringybark	*Eucalyptus eugenioides Sieber ex Spreng.*	Long 2005:57
Messmate	*Eucalyptus obliqua*	Southwest Victoria and Port Phillip area, but scars have yet to be identified.
Yellow stringybark	*Eucalyptus muelleriana*	Scars recorded in Gippsland.
Brown stringybark	*Eucalyptus baxteri*	Scars widespread in Victoria.
Red stringybark	*Eucalyptus macrorhyncha*	Non-specific historical reference only.
Blue-leaved stringybark	*Eucalyptus agglomerata*	South and central coast of NSW, east of the Great Dividing Range (canoe hull, reported in Lampert & Sanders 1973:108).
Native pines		
White cypress pine	*Callitris glaucophylla*	Scars recorded in Gippsland.
Murray pine	*Callitris gracilis*	Scars recorded in Gippsland.
Other genera		
Moreton Bay chestnut	*Castanospermum australe*	Long 2005:57.
Moreton Bay fig	*Ficus macrophylla*	Long 2005:57.
Paperbark	*Melaleuca* spp.	Long 2005:57.
Brown barrell	*Eucalyptus fastigata*	Long 2005:57.
Blackbutt	*Eucalyptus pilularis*	Long 2005:57.
Budgeroo	*Lysicarpus angustifolius*	Eastern inland Qld north of Townsville
Bangalay, southern mahogany	*Eucalyptus botryoides*	Narrow coastal belt from Newcastle to Canoe hull, reported Lampert & Sanders 1973:108; see also Smyth 1878/1:411).
Southern mahogany	*Eucalyptus acmenoides*	Long 2005:57.
Mountain ash	*Eucalyptus regnans*	Reported for Gippsland, but scars have yet to be identified.
White mallee and other mallee species	*Eucalyptus spp.* incl. *Eucalyptus dumosa*	Non-specific references only.
Red ironbark	*Eucalyptus sideroxylon*	Reported for Gippsland, but scars are yet to be identified.
Narrow-leaved Ironbark Alternative common name: narrowleaf red ironbark	*Eucalyptus crebra*	Long 2005:57; also other Ironbark species. Ironbarks do not appear to have been used extensively.
Black wattle	*Acacia mearnsii*	Reported for southwest Victoria, Port Phillip area and Gippsland, but scars are yet too be identified.
Moonah (species of tea tree)	*Melaleuca lanceolata*	Non-specific historical reference only.
Belah (species of she-oak)	*Casuarina cristata*	Scars occur in northwest Victoria.
Kurrajong	*Brachychiton populneus*	Historical reference for northeast Victoria, but scars have yet to be identified on trees.
Sandalwood, quandong	*Santalum* spp.	A non-specific historical reference only.
Northern sandalwood	*Santalum lanceolatum*	A non-specific historical reference only.
Bitter quandong	*Santalum murrayanum*	A non-specific historical reference only.

Table 6. Australian economic timbers used by Aboriginal people in eastern Australia.

Usually, bark was first detached and cuttings were made into the tree trunk in patterns of circles, spirals, concentric diamonds and lozenges. While a concentration of 120 carved trees has been reported to occur around one Bora ground (Bell 1982; Mulvaney and Kamminga 1999), carved trees usually occur in small numbers or as solitary trees. Many of those recorded carved trees were carved with steel hatchets in the 19th century. Well known examples of carved trees have been reported from the region to the west of Bathurst, the best known being those surrounding the grave of Yuranigh near Molong (Etheridge 1918:57; State Library of New South Wales 2011).

10. Natural tree scarring

While deliberate bark detachment was for tools or utensils, notching of trees to allow climbing or chopping out timber for various purposes, was common in traditional times and in the post-contact era, the vast majority of such wounds to tree trunks are the result of natural agencies (Long 2002, 2003, 2005:18-26; Burns 2014a). Such natural causes of wounding include::

- Lightning strike
- Fire damage
- Wind damage
- Branch and secondary stem tears
- Larval activity
- Termite activity
- Bird damage
- Abrasion (for instance from other tree limbs).

10.1 Lightning strikes

Lightning strike scars are a common type of natural scar, and are often seen on river red gums, box trees and stringybarks. During a lightning strike the electrical current passes to ground via the moisture in and around the cambial layer. The heated sap may sufficiently scald and damage the cambium to cause the bark to peel off, usually from the tree's crown down the trunk. An associated feature of lightning strike is damage to the crown. Trees struck by lightning do tend to die prematurely. Red gums survive lightning strikes better than other tree species such as box trees. Lightning-strike scars are usually long and thin, curve around the trunk and broaden towards the base.

10.2 Fire damage

Long (2002, 2003, 2005) has identified two main varieties of fire scars: a distinctive triangular scar with a wide base at ground level; and a linear succession of scars (continuous, elongated, or discontinuous) down the trunk. Typically fire scars occur on the downwind side of the tree and therefore tend to occur on a number of trees all bearing scars facing the same direction. The surface of fire scars can be charred

(sometimes with burnt hollows) or weathered or appear unburnt (when the outer ring disintegrates). Commonly, with lightning scars and with fire scars in general there is damage to the branches as well, and also complete branches may protrude from the scar.

10.3 Impact scars, limb abrasion and breakage

Impact scars may result from adjacent tree fall, floating debris during flood events, and from recent human activities such as woodcutting and logging, activities that were widespread in historic times. This damage is identifiable from contextual and direct evidence of irregular outline, damage to heartwood, branch tear and the location of the scar on the tree. The swaying of an adjacent limb over time may abrade the bark on a trunk or thick lower branch and polish the exposed wood surface. The resultant scar usually is irregular in outline and associated with branch tears and impact marks on the trunk. Tearing of the bark can also occur on older trees and particularly on river red gums. This type of damage tends to leave a tear-shaped socket in the trunk at any height, but often higher up (Long 2002, 2003, 2005).

10.4 Termite and borer infestation

Termite infestation causing loss of bark is usually indicated by termite holes in the wood and by differences in weathering of wood surfaces. Lyctus borer grub infestation (observed on trees examined during the current study) is easy to distinguish, as it usually creates scars of irregular shape at or near the base of the tree, with insect holes and ‘channels’ in the wood surface.

10.5 Bird damage

A number of species of flocking birds strip bark from trunk and limbs of grey box and other tree species. The resultant scars are usually located in the middle and upper branches, have a maximum dimension of less than 1.5 m and a low length/width ratio, are distinctively irregular in shape, and often curve around the trunk.

10.6 Natural tree scarring - conclusions

As well as these natural causes there are other less common agencies of wounding that result in bark scarring and wood loss (Burns 2014a:1). These include stock damage, ringbarking and trauma damage.

The natural cause of a scar is often difficult to determine since a number of natural causes can act in combination. These processes of wounding are often sequential; for example, branch tear resulting from wind damage often leads to subsequent fungal and termite damage over time (Burns 2014a:1).

A similar but even more extensive range of natural scarring forces and agencies is summarized in the Canadian guidelines for identification of Culturally Modified Trees:

> Most of these scars are not cultural, that is, the result of traditional bark collection by aboriginal people. Instead, they are the result of a variety of natural forces and agents. For western red cedar and yellow cedars, the trees most often used by aboriginal people, these natural forces and agents include fire, lightning, falling trees, breaking branches, animals, fungi, sun scalding, nutrient deficiency, lack of soil, and falling or sliding rocks. Modern machine damage is another source of bark removal. Following damage, a tree attempts to heal itself by covering a wounded area with new layers of wood and bark." [Resources Inventory Committee 2001:144].

11. Identification of Aboriginal cultural scars

In general, reliable identification of Aboriginal culturally modified trees is highly problematic (see for instance Burns 2013, 2014a, 2014b, 2014c). This is particularly so for scars with extensive overgrowth of scar tissue or where subsequent wood and bark deterioration have altered the original appearance of the wound. This can happen within only a few decades (Burns 2014a:1).

Burns advises that:

> Based on a failure by most people to understand both the rate of tree and wound growth and also the many natural causes that can lead to scarring, the age and cause of scarring are often frequently misinterpreted. As a result, both trees and scars present in live trees today are most likely much younger than most people consider. This makes the likelihood of scarring being Aboriginal related unlikely.
>
> In addition, it should be noted that a tree would initially have had to have been of a reasonable size to have been used (scarred) for Aboriginal purpose. Hence, scar age is normally much younger than tree age which makes the probability of scarring being of Aboriginal origin even lower. [Burns 2014a:1-2]

11.1 Degree of confidence in identification of Aboriginal scarred trees

The significant difficulty in reliably and consistently identifying this site type is indicated in Heritage NSW guidelines (Long 2005; see also Kamminga and Grist 2000 and Kamminga and Lance 2016). There can be no doubt that there is also a considerable degree of error in discrimination between natural, non-Aboriginal cultural and Aboriginal cultural scars for scarred trees that have been registered on the AHIMS database. Professional advice provided by a number of consultant archaeologists over a number of decades suggests that the *majority* of Aboriginal scarred trees registered on the AHIMS database and on the Victorian AAV Aboriginal Site Register may well bear

natural or European scars (including survey blazes, fence strainer trees, and bark sheet procurement for farm buildings) and are not scars resulting from Aboriginal activities.

After considering the concerns raised by Kamminga and Grist (2000) in the Yarriambiack Creek Aboriginal Heritage Study, commissioned by Aboriginal Affairs Victoria, this Department advised heritage consultants operating in Victoria to submit scarred tree registration requests only for definite Aboriginal scar identifications (Mark Grist personal communication). Prior to this, identifications of Aboriginal scarred trees were mostly qualified by the degree of confidence expressed in the following terms:

Definite Aboriginal scar – With few exceptions, this is a scar that conforms to a sufficient number of identification criteria, or is identified as an Aboriginal scarred tree by historical evidence (oral or documentary). In meeting the guidelines/criteria, all conceivable natural causes of the scar are discounted.

Probable Aboriginal scar – A scar consistent with all of the criteria for Aboriginal origin but for which natural or other human origin cannot be ruled out.

Possible Aboriginal scar – A scar which conforms to all or most of the criteria and where an Aboriginal origin cannot be reliably considered as more likely than alternative natural or human causes. The characteristics of this scar will also be consistent with a natural cause. Thus, this definition for uncertain identification indicated by minimal attributes such as evidence of scar or wound of unknown cause on a tree.

These categories have also been applied in Aboriginal cultural heritage surveys in NSW (e.g. Officer and Kamminga 1998; Kamminga and Lance 2016).

11.2 History of guidelines for scarred tree identification

This section documents the history of the development of scarred tree recording methodologies employed by archaeologists in eastern Australia over the last four decades.

Coutts and Witter 1977

The original set of criteria for identifying Aboriginal scars was formulated by the Victoria Archaeological Survey (Coutts and Witter 1977:53):

1. The scar should end above the ground.

2. The sides of the scar should be parallel, and the ends should be rounded or squared off.

3. The scar should have general symmetry.

4. Often there are hatchet or axe marks on the dry face (best preserved at the top of the scar).

Irish 2004

For a re-assessment of previously recorded Aboriginal scarred trees, which were determined, with a high degree of confidence, not to be of Aboriginal origin, archaeologist Paul Irish formulated a more comprehensive set of 14 identification criteria (Irish 2004:Table 1):

1. Scars do not usually reach the ground.

2. If a scar reaches the ground its sides should be roughly parallel.

3. Scars are usually symmetrical, with parallel sides or concave in form.

4. Scar outlines should be fairly regular in outline and overgrowth.

5. Scar ends are usually squared off or tapered.

6. Scars with axe or adze marks on the original scar surface are likely to be of human origin.

7. Scars should possess a similar shape to those types of artefacts known to have been locally made from tree bark.
8. Scar age must be appropriate for the area (e.g., in Sydney at least 100 years old).

9. The tree species bearing the scar must be endemic to the area.

10. Sapwood and/or heartwood (xylem) is usually exposed (but older scars can be totally obscured by the subsequent overgrowth of bark) and are usually flat.

11. Wood grain pattern is usually parallel to the trunk or branch on which the scar is located.

12. The presence of Aboriginal cultural remains (e.g., stone artefacts, hearths) in close proximity increases the likelihood of cultural origin.

13. Inspection of scar forms on surrounding trees may clarify the likelihood of a natural scar origin.

14. Knowledge of local European tree-marking types (e.g., identification of surveyors' blazes and minerals exploration and mining lease boundary marks) can eliminate these scars as Aboriginal in origin; however, there are notable instances where a demonstrable surveyor's blaze has been identified as Aboriginal in origin.

Kamminga and Grist 2000

In 2000 Kamminga and Grist formulated a set of guidelines based in part on the research of Andrew Long, and also on their own observations during an archaeological survey of Yarriambiack Creek in the Wimmera-Mallee region of Victoria (Kamminga and Grist 2000:59-60). These guidelines were as follows:

1. Cultural scarring occurs on certain tree species indigenous to the region (excluding plantings during historic times) and known to have been exploited for their bark.

2. Aboriginal bark procurement scars occur on trees that were living before the cessation of traditional Aboriginal exploitation and on younger trees around historic-era camps (until early in the 20th century). Aboriginal bark procurement of rectangular sheets to supply European pastoralists continued until the late 19th century.

3. Cut marks (sometimes incorrectly terms 'scarf' marks) from a stone or steel hatchet or a steel axe are often seen on the wood surface within a cultural scar, especially near its top and/or base. These marks are usually exposed by localized dieback (tissue death) around the scar margin, and/or obscured by subsequent overgrowth. At times, such marks can be used to infer an Aboriginal origin, but usually the marks are from steel tools.

4. Cultural scars tend to occur on the lower part of the tree trunk, though they do **not** commonly extend right to ground level. Scars caused by bushfire, lightning strike or fungal invasion usually **do** extend to the ground level. Cultural scars that do extend to the ground (for instance some canoe scars) usually were straight sided before overgrowth reduced the area of wood exposure or distorted the plan shape.

5. Cultural scars are generally symmetrical in shape and roughly parallel or concave sided. While some fire scars also are symmetrical, they tend to be wider at their

base.

6. The margin of a cultural scar and overgrowth are usually reasonably uniform, with overgrowth advancing over the scar surface at a uniform rate.

7. The top and bottom of a cultural scar is either squared-off or pointed in shape (normally as a result of overgrowth; a ‘keyhole’ profile with a ‘tail’ is typically the result of branch loss).

8. Presence of localised ‘dieback’ around the scar. Often when bark is detached from a tree subsequent contraction of living the cambium layer from the margin of the fresh scar occurs, resulting in dieback of bark from the margin of the scar. Dieback of bark is very common around scars resulting from the removal of square or large rectangular bark sheets. Long proposes that over time bark dieback and subsequent callous tissue overgrowth on the margins of the dry face transform it into an elongated ovate shape. Insect infestation may also be a cause of dieback but usually there is other evidence to identify a natural cause on a living tree.

9. An epicormic stem (a subsidiary shoot or limb) growing just below a cultural scar is a common feature on box trees and much less commonly on river red gums. Growth of an epicormic stem indicates that the process was traumatic (e.g. by removing of a bark sheet, or by fire or ringbarking) and not progressive (e.g. rubbing of bark by stock or tree limbs, or bird pecking or insect boring). It is a response by the tree to the sudden reduction of canopy foliage after detachment of bark.

It was emphasized that, in practical terms, the presence and patterning of hatchet or axe cut marks (Guideline 3) often constituted the most persuasive indicator of human causation of a scar.

Long (2002, 2003, 2005)

In the years 2002-2005, Andrew Long (2002, 2003:11-12, 2005) published guidelines that he originally formulated in 1999 for a report to the Victoria Archaeological Survey. These widely used guidelines are as follows:

1. Aboriginal scars reflect a wide range of bark removal, wood removal and toe hold scar forms.

2. Aboriginal scars may occur on a wide range of tree species, including various

gum, box, pine, fig, paperbark and stringybark species.

3. Aboriginal bark removal scars have a wide range of sizes and shapes, reflecting the numerous purposes for which bark was used.

4. Traditional Aboriginal scars will not display marks made by a full-size woodsman's axe (blade length 10-15 cm). While small steel axes or 'hatchets' (blade length 5-10 cm) were rapidly adopted into the Aboriginal toolkit for a range of purposes given their lightness and flexibility, larger types of axe were not commonly used other than for cutting timber.

5. Scarred trees with three or more scars are generally Aboriginal in origin.

6. Scars exhibiting stone tool marks will be Aboriginal in origin.

7. All scars dating to 170 years or more will be Aboriginal in origin, though some Aboriginal scars are much more recent. This may only be determined through scientific dating.

11.3 Relevant diagnostic criteria for Aboriginal scarred tree identification

Listed below is a revised set of relevant identification criteria previously applied by various consultants.

11.3.1 Tree species

In south eastern Australia, bark from box tree species were favoured for the bark. Along rivers the river red gum was commonly used for bark canoes (Carver 2001; Long 2002, 2003, 2005).

11.3.2 Date of scarring or wounding event

In south eastern Australia generally, definite Aboriginal scars are at least 150 years in age (from about 1870 and older). At the time of scarring, the tree probably would have been reasonably mature. The age of a suitable tree would have varied according to species, but at least 30 years was not uncommon. Settler and more recent scars will be less than about 170 years old (Long 2002:8, 11). Detailed studies of the colonial history in the region to the west of Bathurst suggests traditional tree scarring activities would have ceased as early as 1840.

11.3.3 Scar size and shape

The size range of Aboriginal scars reflects the wide range of traditional uses to which bark was put. Originally, some decades ago, archaeologists hoped that by faithfully recording the dimensions, orientation and preservation of the scar it would eventually

be possible to identify the function of the bark taken from the tree (Coutts and Witter 1977:53). We believe that, since the 1970s, at best, little progress has been made. Other than for canoe trees the Victorian Archaeological Survey, and its successor the Department of Aboriginal Affairs Victoria, has effectively ceased encouraging recorders to consider the purpose of the removed bark from general scar shape. However, Long (2002, 2003, 2005) has proposed, as did Coutts and Witter, that an appraisal of scar attributes can in many instances reveal its original scar shape and size, thereby identifying the reason for bark removal.

The range of scar types identified by Long (2002, 2003, 2005) include rectangular or square sheet or 'slab', for shelter construction, and circular, oval or elongated panel, curved in cross-section, for canoes and containers which require curvature. However, Long states that because of the considerable overlap in the size and shape of bark used for different artefacts it is often difficult to ascribe a particular function to a cultural scar. It remains the case that canoe-hull scars are more distinctive than other types because of their considerable length. As Long has pointed out, post-scarring processes will often distort the shape of the original scar, confounding interpretation of scars many decades later.

11.3.3.1 Huts and shelters

Rectangular bark sheets from large mature trees with straight trunks were used by Aboriginal people for roofs and walls of huts and shelters. Commonly, the sheet width was 50-75% of the tree's circumference. Sometimes the bark was removed as a sleeve around the entire trunk, effectively killing the tree. Rectangular sheets of different sizes were arranged to make a hut or shelter.

11.3.3.2 Canoe hull scars

Canoe hull scars are the largest of all the different categories of scars. Trees from which bark was selected for canoes were mature with a larger circumference, as these provided larger, flatter sheets. As with huts and shelter bark sheets, the main trunk characteristics required were a straight stem with no surface defects. 'Canoe trees' occur along rivers and around other major water bodies in those areas where canoes were used. Cultural scars more than three metres in length are most likely to be canoe hulls (Long 2002:8). The largest 'canoe tree' scars are up to six metres long and two metres wide.

11.3.3.3 Containers

Smaller sheets cut from a curved trunk, thick limb or burl were made into carrying vessels, such as dishes and bowls. The bark for these artefacts are termed 'curved preforms' (Long 2002:8).

11.3.3.4 Weapons

In some parts of southeastern Australia small sheets were also cut for bark shields. Günther's 1837 description of shields used by the Wiradjuri near Wellington suggests timber was used instead of bark.

11.3.3.5 Incidental uses of bark

At least in northern Victoria and the Hunter Valley in NSW small flat sheets were used as stretchers for drying and dressing animal skins (mostly possum). Bark sheets were also used to line grave pits, and for carved bark corroboree sculptures. Bark was stripped from the trunks of mostly fibrous barked trees for making fishing lines, nets, string, climbing rope, etc.

Grub procurement scars with a 'mutilated appearance', resulting from the extraction of insect larvae underneath the bark also are known but their identification is problematical (Long 1999).

Finally, bark was also stripped from trees for their tannin, which was used for curing animal skin used as waterbags.

11.3.3.6 Toeholds

Toeholds were cut into the trunk or branches for climbing in pursuit of possums and other small arboreal game or for collecting eggs, nuts, fruit and honey. Toeholds are more commonly identified on dead trees (Mulvaney and Kamminga 1999) as the small scars would be quickly covered by overgrowth.

11.3.3.7 Resource extraction holes and other wounds

Resource extraction holes (also called 'possum holes') were cut into a hollow trunk or limb to locate, smoke out or directly extract small game such as possums, or to collect birds' eggs or honey from stingless *Trigona* bees' nests. This type of wound is often associated with cultural scars and sometimes occurs within bark-removal scars. Long (2002) reports that all such holes he examined in a study area in central Victoria had been cut with a steel axe and occasionally by chainsaw. Long concluded that extraction of these food resources continued throughout historical times in rural Australia, particularly during the Great Depression and for some years afterwards. They were made by both Aboriginal and non-Aboriginal people. A site containing a cluster of more than 30 trees with resource extraction holes has been recorded in the Wimmera Mallee region in western Victoria (Pardoe *et al*. 2008). The holes cut in the trees had been partly obscured by overgrowth, but steel axe cut marks were still clearly visible. It is inferred that these extraction holes dated from the Depression years in the 1930s, when the unemployed sought an income from the sale of possum skins.

Aboriginal cut marks into solid wood are normally from removal of limbs or roots or splitting wood from a trunk or limb to make into artefacts such as hunting and fighting weapons. Such scars on trees have not often been identified by archaeologists in Victoria (or in Australia generally). Lance (1992) investigating a sand extraction quarry site near Cooper Creek in south western Queensland encountered a small number of trees scarred by the removal of curved pieces of timber from trunks and exposed roots. During a subsequent site inspection, a knowledgeable Traditional Owner identified these scars as indicating wood procurement for boomerangs. The timber had been cut with a steel axe, indicating that the activity had occurred in the district after European steel tools had become available at the end of the 19th century. This timing coincides with the employment of Aboriginal shepherds on properties in the region.

11.3.3.8 Tool cut marks

Many scars are the result of the activity of non-Aboriginal people (Europeans, Chinese, Afghan etc) such as pastoralists and farmers, prospectors and miners, surveyors, and even non-Indigenous town dwellers. Bark sheets were used in constructing roofs and doors on houses, shepherds' and shearers' huts, and all kinds of sheds (e.g. for the Wimmera-Mallee region of Victoria see Kamminga and Grist 2000; Priestley 1967; Robertson 1992:34-37; Stainthorpe 1925:8, Pardoe *et al*. 2008). We have also encountered instances where it can be inferred that bark sheets were used to construct a platform for vehicles such as carts and wagons to cross a sandy creek bed (Kamminga and Grist 2000:97), and also in constructing a rural railway line in the 1920s (Officer and Navin 1998).

Cutting the outline of a bark sheet (slab or panel) with a stone or steel hatchet or axe normally leaves marks in the wood surface. Such cut marks usually are evident within a few centimetres from the top and bottom edges of the scar and define the length of the bark sheet removed. The reason these marks are so visible on an aged scar is that the cambium layer was damaged by the removal of bark, and dieback of bark around the scar's margin subsequently occurred.

Cut marks on the wood exposed within scars can sometimes total more than half the scars on recorded probable or definite Aboriginal scarred trees (e.g., Edmonds 1998:48; Kamminga and Grist 2000:2, 97; Story 1993:14-15). The presence of cut marks made by a stone hatchet, although rare, is convincing evidence that a tree is an Aboriginal scarred tree.

While it has long been recognised that both stone and steel cut marks occur, there has been some confusion in distinguishing the two. The identification of stone marks is particularly problematic since it depends substantially on a subjective inference that a

relatively ‘blunt’ cutting edge caused the preserved cut marks which are often in aged and weathered wood. We believe that such identifications are prone to error.

An early interpretation by Sams (1988) of narrow marks as stone hatchet marks is unreliable because a stone edge used for chopping wood is necessarily broad, with acceptable edge angles ranging from 65° to 95° and most effective angles between 85° and 95° (Kamminga 1982:63). The narrow marks noted by Sams are therefore likely to be indicative of a metal cutting edge such as on a steel axe.

Long (2002) suggested that stone hatchets cut marks are very shallow (less than 5 mm) and that steel axe marks “may be deeper’”. Long proposes that steel tools result in a straight, narrow incision marks. He also noted that it is very difficult to identify stone tool marks with certainty, as they are easily confused with steel marks that have enlarged by wood decay. He inferred that the use of a stone hatchet tended to leave broad, asymmetrical ‘bludgeon’ marks, having the appearance of crushing or gouging of underlying sapwood against the wood grain. He further noted that all tool marks which penetrate the sapwood increase the rate of subsequent dry face decay.

We propose that stone hatchet marks and blunted steel hatchet or axe marks often cannot be distinguished, especially if the cut marks are weathered. Probably the only certainty is that relatively deep, sharply defined cut marks are from a steel implement (see Kamminga and Grist 2000:63). Notably, there is no available baseline replicative stone-tool-use experimental data to adequately corroborate identifications of stone hatchet cut marks (Kamminga 1978). In our view, less distinct cut marks do not necessarily indicate use of a stone hatchet.

In most cases, there is little problem in identifying cut marks from a steel hatchet or axe (Carver 2001:87; Long 2003:11, 2005:11); simply the wood fibre is more evenly and sharply cut. With steel axe marks the length of the mark ranges from 10 to 15 cm. We note that archaeologists in Canada have been able to distinguish a wider range of metal tool marks on culturally scarred trees; for instance, at least five different types of iron or steel tools have been identified from their characteristic cut marks (Resources Inventory Committee 2001:8, 16).

Whilst in pre-contact times all Aboriginal hatchet heads were made of stone, steel hatchets (and less commonly steel axes) were so remarkably superior to stone that they were eagerly acquired from British settlers. Aborigines carrying steel hatchets were seen by explorers even well beyond the colonial frontier. Therefore, an old scar showing evidence of steel hatchet use may be an Aboriginal cultural scar.

Non-Aboriginal cultural scars are often rectangular, approximately one to three metres long, and have a line of steel axe cut marks in the wood along where the sheet has been cut (Long 2002:10). According to Long (2002:8) a 'zig-zag' arrangement of cut marks, especially at the top of the scar, is always non-Aboriginal, whether from a steel axe or hatchet. The cut marks are often obscured by overgrowth of bark tissue over the margin of the original scar. For purposes of cultural resource management, trees with steel axe or steel hatchet cut marks or saw marks (which could have been made by non-Aboriginal people) may require other intrinsic and extrinsic supporting evidence to be identified as definitely or probably Aboriginal. This range of further attributes to be considered includes historical references, age of the tree, and the kind, context, and date of modification to the tree.

12. Post-contact cultural scarring

In addition to natural scarring and Aboriginal bark and timber use activities, many examples of tree scarring and timber use can be dated to the post-contact period. These continue to this day. The causes of early colonial era scarring can be attributed to a range of agencies dating from the earliest period of European settlement (and is often difficult to distinguish from Aboriginal scarring and timber use). These include:

- Survey and blaze marks (e.g., Kamminga and Grist 2000; Kamminga *et al*. 2008; see further details below).
- Bark sheet procurement for use in building structures and other artefacts.
- Abrasion by introduced stock animals, primarily cattle.
- Fencing (such as trees used as strainer and other fence posts).
- Damage associated with vegetation clearing activities.
- Impacts from vehicles and machinery such as farm vehicles (Burns 2014a; Long 2005).

Native forest areas were subject to land clearances commencing in early colonial times and continuing during subsequent, more intensive agricultural land use. Activities such as surveying, road and track construction, and provision of other rural infrastructure, have impacted trees during this period through to the present day.

As with natural scarring and wounding, the specific causes of cultural impacts are often difficult to determine because of subsequent impacts from agencies such as fire, fungus, and termites (Burns 2014a:1).

13. Polythetic classification of scarred trees

Polythetic classification is the framework used in classifying scarred trees and in discriminating and classifying those that are culturally modified trees. This type of classification is commonly regarded as the most practical way of dealing with a wide

range of Aboriginal archaeological artefacts and features and discriminating those from natural features (e.g., see Hayden 1980:3; Kamminga 1985:10; Kamminga and Grist 2000; Kamminga *et al.* 2008; Kamminga and Lance 2016).

A polythetic category or type, such as an Aboriginal stone tool or scared tree, is defined by a constellation of attributes for which no single attribute is essential or sufficient for membership (Clarke 1968:36; Read 2007; Sneath and Sokal 1973; Sokal and Sneath 1963:13). Thus, polythetic categories are not rigidly bounded but need only be identified or classified by more than one of the diagnostic attributes in the set, and none of the attributes has to occur for each member of the category. This method of defining classes is consistent with Wittgenstein's concept of 'family resemblances' and contrasts to monothetic or 'Aristotelian' classification in which a specific set of characteristics are both necessary and sufficient to identify members of that class (van Rijsbergen 1979).

The attributes within the polythetic set for Aboriginal scarred tree are both intrinsic and extrinsic (external or contextual). Needless to say, an essential defining attribute of an Aboriginal scarred tree is the existence of a scar or more invasive wound to trunk or limb. However, the presence of a wound alone is not sufficient for an identification of probable or definite Aboriginal scar/scarred tree. Other attributes are required, such as scar of particular size or shape, cut marks on the dry face, a particular tree species, extensive weathering of the dry face or even location of the scar on the tree.

14. Australian Aboriginal scarred tree identification in the wider context

Culturally modified trees (CMTs) in North America include a diverse range of categories, such as: logged tree, felled tree, planked tree, tested tree, undercut scar tree, kindling collection tree, sap and pitch collection trees and arborgraph tree (drawing or painting on tree): none of which are recorded in an Aboriginal Australian context. The Australian Aboriginal 'carved tree' has its equivalent in North America in an equally rare CMT category called arborglyph tree.

In Canada, the attribute categories used to distinguish natural from cultural scars are similar to those used in Australia. These include scar shapes, presence and character of tool cut marks, location of scar on the trunk, number of and types of scars on a tree, character of the tree trunk or limb, maturity of the tree (mature trees being preferred), age of the tree and the scar, correlation between the tree species and scar attributes, along with extrinsic attributes such as proximity to known forest trails and village sites.

The range of specific diagnostic or identifying attributes in the North American context is, however, more sophisticated and the classification of scars more discriminatory than generally possible in the Australian context. For instance, in Canada scarring and

scar shape and type is often specific to particular tree species. In all, 21 tree species were exploited, of utmost importance being Western red cedar (*Thuja plicata*), but also yellow cedar (*Chamaecyparis nootkatensis*), spruces (*Picea glauca*), hemlock (*Tsuga heterophylla*), pines (*Pinus contorta*, *Pinus ponderosa*) (Gottesfeld 1992; Resources Inventory Committee 2001; Swetnam 1984). As an example of this refinement in identification by species and scar type association, long narrow tapered bark-strip scars (called triangular or tapered scars) occur only on two tree species, Western red cedar and yellow cedar, and indicate bark procurement to make items such as clothing, mats, blankets, baskets, ropes, nappies and towels.

The main important difference between Canadian and Australian culturally modified tree classification is the relatively large variety of identifiable cut marks represented on Canadian culturally scarred trees, which often identifies a specific type of stone or steel tool. Canadian scarred trees often have multiple scars of the same type. Just one example of the relative sophistication of identification and classification in Canada is the rectangular bark-strip scar on lodgepole pine (*Pinus contorta*) for which there are twelve defining attributes (Resources Inventory Committee 2001:69, 85).

15. Dating scarred trees

One problem encountered when trying to assess the origin of a tree scar, relates to estimating the age of the tree, and establishing whether it would have been alive during the period that Aboriginal people inhabited and carried out traditional activities on the particular area of land (in this case, within the project area). A further question is whether the tree would have been sufficiently large to have provided bark suitable for traditional Aboriginal uses.

Direct dating of trees is problematic in an Australian setting and previous attempts to employ dendrochronology (tree ring dating) have been largely unsuccessful (e.g. Cheal *et al*. 2012:8). In those countries where tree ring dating has been successful, annual tree rings can be counted. These rings are visible because seasonal variations in the density of wood grown onto the outer edge of the tree provide a visible banding of annual growth rings. The reason that dendrochronology has not proven to be particularly useful is that in Australia eucalypts tend to grow opportunistically and therefore may have poorly delineated ring boundaries, a high frequency of intra-annual (latewood) bands, known as false rings, and an almost total absence of preserved dead wood (Ogden 1978, 1981; Dunwiddie and La Marche 1980; Banks 1997; Pearson and Searson 2002; Williams and Brooker 1997:5; Brookhouse 2006).

Attempts to correlate tree ring growth with other dating techniques have confirmed the unreliability of dendrochronology in an Australian context (Spooner *et al.* 2010:194-5).

Using wood from one of the tree species (*E. melliodora*) represented in the project area, Banks (1997) demonstrated that a tree ring count gave an age only half that obtained using radiocarbon dating.

Brookhouse (2007) undertook the analysis of tree growth rates for several *E. rossii* trees in the Canberra district, as part of an analysis to interpret trees identified as bearing Aboriginal scars. He discerned very different growth rates over ten-year intervals for trees up to 120 years in age. These rates vary from 1.5 cm/year to 2.5 cm/year, in samples that have a regular cyclical pattern of growth. Periods of slow growth in trunk diameter could be correlated with drought periods. These periods of drought stress were also shown to lead to the development of natural scars. Lateral overgrowth was also examined, demonstrating a rate of 0.5-0.6 cm/year. These rates would see the complete concealment of a scar within 150 years.

15.1 Chronometric dating

It has been suggested that radiocarbon (^{14}C) dating of trees with scars can establish with certainty the age of the tree and the scar. While Beesley (1989) proposed that radiocarbon dating the surface wood of scars may prove valuable, Long argued that a scarred tree should be at least 150 years old to obtain a reasonably accurate date. Very few scarred trees have been dated chronometrically in Australia. One instance is the Mildara Winery Tree, a river red gum on the Murray River near Mildura (AAV 7329-12). The uncalibrated age determination of this scar was 280±70 years BP (Godfrey *et al*. 1996:41).

Another example of the application of this methodology comes from Central Queensland, where a tree removed from a development area was dated for one of the current investigators (Lance). The tree bore a scar that met the criteria of Indigenous cultural use (shape, size and position of scar on the trunk), and the tree was very large (2.5 m diameter and 20 m high). It was hoped to date the centre of the tree trunk using radiocarbon dating of the inner timber. Unfortunately, the centre of the tree had decayed and been invaded by termites. It was necessary to date the innermost piece of timber remaining, and to then extrapolate to give an approximate tree age. This provided an estimate of approximately 410 years and one of the larger branches was dated, providing an age estimate of approximately 240 years old. The scar itself was exposed at the surface, had abundant overgrowth concealing the edges of the scar, although it was not possible to establish the age of the scar directly. It is likely this was formed by Aboriginal people at or shortly after the time Europeans arrived in the district.

Dr Michael Barbetti, former Director or the NWG Macintosh Centre for Quaternary Dating at the University of Sydney, advised that it may be difficult to obtain meaningful

radiocarbon dates for wood samples taken from scarred trees younger than 350 years (Michael Barbetti, personal communication). The reason is that atmospheric ^{14}C levels have (generally) decreased since the 18th century, so that most samples from recent centuries appear to have similar ^{14}C ages. However, if the tree was still growing in the late 1950s, the distinctive high ^{14}C contents (due to atmospheric nuclear tests) should show up in the *outermost* wood tissue. While it is possible that a reliable age for an important scar may be inferred from a series of ^{14}C determinations obtained from the heartwood to the outermost rings, in normal circumstances this would not occur.

One of the reasons for uncertainty in radiocarbon dating of scarred trees is the ambiguity inherent in ^{14}C dates that fall within the last three hundred years. A single determination from a two-metre diameter stump of 'king jarrah' (*E. marginata*) has provided a ^{14}C age of 230±50 years BP for the heartwood. After calibration, this age determination provides three possible calendar-year age bands:

AD 1500-1675
AD 1750-1805
AD 1930-1950

While the first band can be safely ruled out, the latter two provide a large degree of uncertainty in the absence of other evidence indicating a more precise age (Michael Barbetti personal communication).

15.2 Age of tree stands

An indirect method of establishing an approximate maximum date for a scarred tree is to date similar unmodified trees in the same stand as the scarred tree. Though individual trees within a stand will vary in age, if the overall age of the stand can be established, then the cultural modification is younger in age than the stand. Care should be taken to ensure that the scarred tree is not a veteran (Resources Inventory Committee 2001:84, 122). The dating of trees within a stand can use any one of a range of dating methods, although most commonly reference trees will provide the most accurate estimates.

15.3 Age of comparative reference trees

In a series of studies investigating potential cultural scarring, Burns (2013, 2014a, 2014b, 2014c) was able to estimate rates of tree growth based on the increase in trunk diameter following known age damage to the trunk, and from this, calculate the probable age of a tree based on trunk diameter (Burns 2004a; Ngugi *et al*. 2015). A number of survey scars of known age were used as reference trees in each of his studies. He measured the diameter of the trunk at the scar and outside the scar and was therefore able to calculate the amount of trunk growth since the bark was removed

and the scar formed.

While this study relates to trees found in a setting well distant (approximately 400 km) from the present study area, the principles that have been demonstrated by these studies are widely applicable. The growth rates of various reference trees, irrespective of setting or tree species appear to be remarkably consistent and therefore general principles of tree growth rates can be used to distinguish broad age classes of trees (i.e., post contact and pre-contact trees [Spooner *et al.* 2010]).

15.4 Age estimates from tree diameter

The relationship between tree age and tree diameter has been examined for a large number of tree species including box, karri, jarrah, marri, salmon gum and wandoo. Growth rates fluctuate widely over the life of a tree and can vary greatly between and within sites. Consequently, when tree age is estimated from tree diameter, the size of the error associated with this estimate increases with the size of the tree (Whitford 2006).

According to Burns (2014a:1-2) while the ratio of growth rate to tree age may vary due to a range of genetic, edaphic and climatic factors, the matching of tree diameter with age is consistent. Importantly, Burns' age assessments have also been supported by locally occurring reference trees that exhibited scars of known ages. A similar pattern was observed in broad growth rate patterns in the central western region of New South Wales (Spooner *et al.* 2010).

An alternative view on tree growth rates has come from a detailed analysis of trunk size change over a 75-year period in southern Queensland forests (Ngugi *et al.* 2015). Whilst none of the tree species with scars recorded in the project area is represented in the sample, the rates of growth in areas with similar annual rainfall are much greater than suggested by Burns or Spooner *et al.* (2010). The growth rates of the investigated eucalypts found in similar settings range from 0.13 cm to 0.50 cm. With such extremes in growth rates the age estimate for MGP-ST1, a tree with a diameter of 55 cm, would range from 110 to 423 years in age. The highest growth rate increases appear to present reasonable estimates for trees in the sample, with the largest tree (MGP-ST6), estimated to be approximately 337 years old, which is consistent with maximum eucalypt age assessments made by foresters and arborists (see Section 15.5) (Burns 2014a; Spooner *et al.* 2010). This tree is in declining health, with large limbs having fallen and crown die-back, suggesting it is senescent.

15.5 Estimating maximum lifespan of a tree

As described in reports by Burns (2014a), Spooner *et al.* (2010) and Ngugi *et al.* (2015) tree lifespan is determined by the innate genetic potential of the species, the environment in which it grows as well as the propensity of the tree to suffer from damage caused by natural and cultural agencies. As such, many natural and other non-Aboriginal factors can interact to reduce the lifespan of a tree and to cause scars.

There is no doubt that some Australian eucalypt species such as river red gum (*Eucalyptus camaldulensis*) can live up to 500 years and longer (Williams and Brooker 1997: Table 1.1). There is even an uncorroborated claim based on tree diameter of *Eucalyptus marginata* for more than 1,000 years (Mawson and Long 1994). Hickey *et al*. (1999) suggested that, based on ring counts from adjacent celery-top pine (*Phyllocladus aspleniifolius*), old-growth *Eucalyptus delegatensis* in southern Tasmania may be at least 460 years old. It is unlikely that the ages of the very large trees in the southwest forests of WA are much greater than about 450 years. Species in the colder southeastern highlands of Australia such as *Eucalyptus regnans* can live for 200-400 years (Jacobs 1955). In general, eucalypt trees rarely exceed 400 years in age (Helms 1945; Rayner 1992).

According to Burns, the maximum lifespan of most dominant forest species in central western New South Wales (including species we have inspected in the lease area) such as box, ironbark, red gum and cypress species, is much shorter, often not exceeding 170 years, with average maximum lifespans commonly in the range 100-140 years. Furthermore, in open woodland and in single tree environments created by European clearing, lifespans are often even shorter due to a higher rate of lightning strike, fire damage, wind damage, mechanical damage associated with clearing and agriculture, and many other factors (Spooner *et al.* 2010; Burns 2014a). These primary causes of wounding can quickly lead to secondary effects, which result in further impacts to tree health. Secondary effects include die-back and enhanced fungal and insect activity. In terms of dieback, once a tree becomes subject to regular crown dieback due to leaf-eating insects, it then becomes more prone to borers and termites resulting in more rapid senescence (declining health) of the tree leading to its ultimate death. Tree health is further compromised by drought and the application of broad acre fertilizer (Burns 2014a:3).

15.6 Age of fallen trees

Burns (2014a:7) observes that whilst it is easier to estimate the age of living trees using growth rates established through comparison with regional reference trees, estimating the age of dead and fallen trees is more difficult, with the period elapsed since the death of the tree needing to be considered. After death, a mature scarred tree may stand for

100 years or more before falling to the ground (Beesley 1989:12), where it may remain for many years before succumbing to fire, termite activity or decay.

Clues to the time since the death of a dead tree can come from the presence or absence of small branches and bark on the trunk. The smaller branches will be the first to fall off and decay upon the death of a tree. Larger branches will persist for longer periods (Burns 2014a:7). The size of the branches and twigs remaining on the trunk will hint at the relative age of the tree. The presence of bark will also give an indication of time since the tree's death. Bark will persist for some time after the tree has died, with much having fallen off within 10 years of the death of a tree.

If there are signs of chainsaw cuts on tree trunks, this can provide an absolute earliest date for death of a tree as chainsaw use only became common in New South Wales in the late 1950s and early 1960s (Burns 2014a:7).

16. European impacts on forest and woodland

The date of reduction and cessation of Aboriginal related scarring is one criterion in identifying culturally modified trees. For Victoria, and subsequently for NSW, Long (2002, 2003, 2005) has proposed that Aboriginal bark procurement (and tree scarring) generally ceased after about 1870, despite records of traditional ceremonies persisting until the turn of the 20th century. Historical accounts of colonization of Wiradjuri lands following the crossing of the Blue Mountains in 1813, point to a short period of peaceful coexistence with European settlers, which ended with the increase in settler numbers, the restrictions on Aboriginal inhabitation and movement after the establishment of pastoral stations and the impacts of state-sanctioned killings and from the punitive campaigns mounted by vigilantes, that followed Aboriginal spearing of station workers and livestock. With the influx of miners into the goldfields of the central west in 1851, it is likely that remaining Aboriginal traditions would have been substantially disrupted.

Forests and woodlands in the region were extensively disturbed and modified commencing with the arrival of British colonial settlers more than 180 years ago. It can be reasonably inferred that the cumulative effects of agricultural land clearance and natural tree senescence and death have removed most of the mature trees scarred by Aboriginal people in pre-contact and early contact times. As reported by Long (2003:30; 2005), these trees have mainly been replaced by younger trees, which are also likely to have reached maturity.

Many of the younger trees exhibit bark scars and other wounds associated with the agricultural and forestry use of the land which increased with the closer settlement schemes in the 1860s, at a time when traditional Aboriginal lifestyle would already have

been substantially impacted by colonial appropriation of the land, decline in Aboriginal population numbers and cultural dislocation (Long 2002, 2003:30, 2005). This is not to say that Aboriginal procurement of tree bark and wood ceased completely at that time, since Aboriginal people continued to live on pastoral leases, reserves and in camps around settlements in rural areas, though admittedly their numbers were smaller and traditional lifestyle had been severely disrupted.

In early colonial times in the district, Aboriginal people would have continued to procure bark for at least some traditional uses. They would also have procured bark sheets for settlers, as occurred in other regions in southeastern Australia. A report in the *Sydney Morning Herald* on 2 August 1859 describes the following:

> Since Thursday last our town has been graced with the presence of a number of the Queanbeyan blacks, and as usual they have had “a jolly good spree.” The cause of their presence is rather a matter of mystery, but from what we can learn from themselves it appears that all, or some, of them have been engaged in stripping bark for “white fellow,” and that one of the darkies who acted as contractor had declined to settle with his workmen. Before coming into town there was nearly bloodshed amongst the tribe owing to the defalcation.

It has been suggested that in this region by about 1860, the traditional Aboriginal material culture made from bark would have been replaced with European equivalents (e.g. corrugated iron sheets, metal buckets, tarpaulins and sawn timber) and dropped from the artefact inventory. If this were the case, any scars on trees left by the deliberate removal of bark by Aboriginal people for traditional uses, would be at least 160 years old.

In any event, at least by the end of the 19th century most of the Aboriginal people living in the Central West region are likely to have worked as station hands, or resided in Aboriginal reserves and therefore at a distance to the project area.

17. Assessment of scarred trees in the project area

The primary aim in this study was to investigate each of the trees previously recorded in the project area, to determine whether, on the basis of physical inspection of the trees and recording of intrinsic and extrinsic attributes, any of the scars (wounds) could be identified with a reasonable degree of confidence as the consequence of Aboriginal cultural activities.

Identification of Indigenous culturally scarred trees is problematical for a number of reasons (as discussed in this report). The methodology employed to identify and classify trees with scars is consistent with current best practice in the discipline. A polythetic set

of attributes has been applied in assessing scars (wounds) and determining whether any such face can be distinguished from natural scarring or identified as cultural scars (Aboriginal or non-Aboriginal) (Table 7).

17.1 Appropriate tree species

The first criterion used as part of the polythetic analysis to assess the origin of scars on trees, is tree species. Only three species of trees bearing scars were found in the project area. Of these, two (*E. viminalis* and *E. melliodora*) are documented to have been used by Aboriginal in the past, although in regions distant to the project area (See Table 5). While there are no recorded accounts of Aboriginal people using *Eucalyptus bridgesiana* (apple box) in the past, many other species of box tree were used. The bark obtained from any of these three species could have been used by Aboriginal people in the past.

17.2 Presence of epicormic stem

While not exclusively found on trees bearing cultural scars, the presence of an epicormic stem indicates the tree wound was the result of a traumatic injury to the trunk, such as would occur from a blow or deliberate bark removal, rather than from slow impacts such as bird or insect activity. Only two of the examined trees bore these auxiliary trunks (MGP-ST1 and MGP-ST7 - Plate 4 and Plate 22). The substantial girth of the subsidiary trunks indicates the scarring took place a considerable time ago (See Section 17.5).

17.3 Base of the scar is above ground level

Natural damage resulting from bark tear below a fallen limb or trunk damage due to fire often lead to wounds extending to ground level. While bark may have been torn from the trunk to provide building materials, historical bark removal was usually accomplished with the bark piece being removed with cuts at top and bottom. Most scars that extend to ground level are the result of natural not cultural processes. The trees bearing scars that extend to ground level also have features that indicate a natural origin of trunk wounds. In the case of trees MGP-ST2 (Plate 11) and MGP-ST8 (Plate 23), the long scars are associated with extensive branch tear. Tree MGP-ST6 (Plates 17 and 18) has a combination of fire damage, branch tear and animal activity that have contributed to the damage. The scar on tree MGP-ST NR2 has scorch marks on the dry face, indicating fire damage (Plates 29 and 30).

17.4 Mature tree age is consistent with known Aboriginal occupation

It was not possible to accurately estimate the age of the trees bearing wounds in the project area using chronometric dating, or by estimating growth rates from reference trees of known age (See Section 15). Nevertheless, using calculations based on two

Tree number	Scar No.	Appropriate Tree Species	Epicormic Stem Present	Base of Scar Above Ground	Mature tree of age consistent with known Aboriginal occupation	Scar age greater than 150 years	Symmetrical Shape (Y/N)	Scar Ends Squared Off or Tapered	Stone or Steel Hatchet Cut Marks	Shape Consistent with Traditional Artefact Type	Dry face condition	Identifiable Indigenous Resource Procurement Hole or Wood Removal	Probable origin of scar
MGP-ST1	1	Yes	No	Yes	No	No	Yes	Yes	No	No	Severe damage	No	Branch tear and insect activity
	2	Yes	No	Yes	No	No	No	No	No	No	Moderate damage	No	Branch tear
	3	Yes	Yes	Yes	No	No	No	Yes	No	No	Moderate damage	No	Branch tear
	4	Yes	No	Yes	No	No	Yes	Yes	No	No	Moderate damage	No	Bird activ-ity or branch tear
MGP-ST2	1	Yes	No	No	Yes	No	No	No	No	No	Fresh	No	Branch tear or fire scar
	2	Yes	No	Yes	Yes	No	Yes	Yes	No	No	Fresh	No	Branch tear
	3	Yes	No	No	Yes	No	No	No	No	No	Fresh	No	Lightning or branch tear
MGP-ST3	1	Yes	No	Yes	Yes	No	No	No	No	No	Moderate damage	No	Branch tear
MGP-ST4	1	Yes	No	-	Yes	No	-	-	-	-	Obscured by growth	No	Natural bark fissuring
MGP-ST5		-		-									
MGP-ST6	1	Yes	No	No	Yes	No	No	No	No	No	Severe damage	No	Fire damage, bark tear and animal hollow
MGP-ST7	1	Yes	No	Yes	No	No	Yes	Yes	No	No	Fresh	No	Branch tear
	2	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Severe damage	No	Branch tear
MGP-ST8	1	Yes	No	No	Yes	No	No	Yes	No	No	Moderate damage	No	Branch tear
MGP-ST NR1	1	Yes	No	-	Yes	No	No	No	No	No	Obscured by growth	No	Natural bark fissuring
MGP-ST NR2	1	Yes	No	No	Yes	No	No	No	No	No	Severe damage	No	Fire scar and insect activity

Table 7. Polythetic analysis of scars found on trees in the McPhillamy's Gold project area.

different methodologies: incremental tree growth calculated from long-term observations in State Forests (Ngugi *et al.* 2015) and from broad classification of age classes (Spooner *et al.* 2010), approximate tree ages have been estimated.

By using tree growth rates of various species of myrtaceous plants (eucalypts and bloodwood) from a control area with similar rainfall (albeit in an area with higher average temperatures), a range of growth rates for trees in the project area have been obtained. The results of this analysis is shown in Table 8. It does appear that the slow growth rates recorded in the South Eastern Queensland forest study plots would result in serious overestimation of tree age in the study area. The age estimate for the largest tree with a scar in the sample (MGP-ST 6) would range from 468 - 733 years old, with the second largest (MGP-ST NR1) estimated to be from 393-615 years old. At the extreme, these ages are greater than the oldest eucalypts recorded in Australia (Section 15.5), and so are unlikely to be reliable estimates.

If instead of *average* growth rates for the comparative species, *maximum* observed rates are used, the suspected age of trees in the project area are closer to what is expected. The estimated age of MGP-ST1 would range from 110-122 years old, with 119 years old if estimates are based on poplar box growth rates. Poplar box is a species similar in size and habit to the trees examined in the project area.

Using maximum growth rates observed in the comparative sample, the largest tree in the project area, MGP-ST 6, with a girth of 5.3 m, would therefore fall within the age range from 337-374 years. This may be an overestimation of the actual age, but fits better with our understanding of forest impacts that resulted from the arrival of British colonial settlers in the district in the mid-19th century.

A second methodology for calculating tree age has been employed, following a classificatory system based on numerous criteria, including GBH (Spooner *et al.* 2010). This system does not attempt to ascertain tree ages, merely group into two categories of pre- and post-settlement trees. The study used two eucalypt types (*E. populnea* and E*. microcarpa*) not found in our sample, but which are likely to demonstrate similar growth properties. These two varieties grow to a height of 20 m and 25 m, compared with the varieties recorded in the McPhillamy's project area sample: *E. bridgesiana* (20-25 m), *E. viminalis* (to 50 m) and *E. melliodora* (to 30 m).

The methodology employed by Spooner *et al.* (2010) is most accurate if multiple attributes are used to discriminate between pre-settlement and post-settlement tree populations. These include: girth at the ground level; the number of small (≤ 30 cm) primary branches, and secondary branches (≤20 cm), which are more common in

Species	Tree Type	Growth rate cm/year	95% confidence	Higher rate (cm/yr)
E. chloroclada	Baradine gum - small to medium gum	0.33	±0.12	0.45
E. populnea	Poplar box - small to medium tree	0.23	±0.23	0.46
Corymbia clarksoniana	Grey bloodwood - medium size tree	0.36	±0.14	0.50

Tree	diameter	*E. chloroclada* average	*E. chloroclada* high growth rate	*E. populnea* average	*E. populnea* high growth rate	*Corymbia clarksoniana* average	*Corymbia clarksoniana* high growth rate
MGP-ST1	55	166.67	122.22	239.13	119.57	152.75	110.00
MGP-ST2	89.12	270.06	198.04	387.48	193.74	247.56	178.24
MGP-ST3	78.62	238.24	174.71	341.83	170.91	218.39	157.24
MGP-ST4	85.8	260.00	190.67	373.04	186.52	238.33	171.60
MGP-ST5							
MGP-ST6	168.6	510.91	374.67	733.04	366.52	468.33	337.20
MGP-ST7	42.66	129.27	94.80	185.48	92.74	118.50	85.32
MGP-ST8	93.58	283.58	207.96	406.87	203.43	259.94	187.16
MGP-ST NR1	141.64	429.21	314.76	615.83	307.91	393.44	283.28
MGP-ST NR2	71.3	216.06	158.44	310.00	155.00	198.06	142.60

Table 8. Tree growth rates using comparative species in a similar rainfall region in SE Queensland (data from Ngugi *et al*. 2015:823-5).

younger trees; and the number of tree hollows and burls, which are more common in older trees. While none of these attributes was recorded for the McPhillamy's sample, on its own GBH has been shown to be an important and effective distinguishing characteristic.

The mean GBH for *E. populnea* and *E. macrocarpa* trees in the sample recorded in central western New South Wales (Spooner *et al.* 2010:191) is 2.41 m and 2.51 m for examples of the two species of pre-settlement age, while those of post-settlement age average 1.16 m and 1.95 m. The size range for this attribute in each of the sample groups does not overlap, and it is therefore a valid attribute for discriminating between the two groups.

Using this criterion alone, two trees in the McPhillamy's sample can be assigned to an age class more recent than the period when Wiradjuri people were frequenting this region and detaching bark for traditional purposes. These are trees MGP-ST1 and MGP-ST7 with girth of 1.73 m and 1.34 m respectively. All other trees in the project area sample fall within the pre-settlement size class.

If assumptions made about the applicability of tree growth rates in equivalent rainfall areas are correct (using the Ngugi *et al.* 2015 modeling) or the two broad pre- and post-settlement size classes (using the Spooner *et al.* 2010 modeling), only two of the trees can be excluded from being old enough to have been alive when Wiradjuri people were creating cultural scars. For trees to have been suitable to have provided bark for shelters, canoes and other items of material culture, or for toeholds, they would have had to have been quite large, if not mature, at least 150 years ago. For this to have been the case, the trees would now be at least 300-350 years old. This age-assessment process eliminates further trees from consideration. Using high growth rates, all but MGP-ST6 and MGP-ST NR1 would be too young to bear cultural scars. Additional trees would be included if the assessment uses average rates of growth, but such an approach results in small trees being assessed as very old; too old to fit with an understanding of maximum eucalypt lifespan.

17.5 Scar age greater than 150 years

Whilst a degree of uncertainty over tree age renders that diagnostic criterion problematical in cultural scar assessment, scar age is likely to provide a more reliable assessment of scar causation. Rather than using growth rates to estimate scar age, an alternative approach has been taken. This uses the proportion of trunk growth since the wound occurred, compared with total trunk diameter. This has been assessed for each tree assuming different ages for that tree (180, 250, 300, 400 years old). Only when assumed to be 400 years old do some of the scars on trees MGP-ST6 and MGP-ST7

approach an age that would have seen them produced in pre-settlement times. Other attributes possessed by these scars do not support a pre-colonial settlement date for wounds on these trees.

17.6 Scar symmetry

A symmetrical plan-shape of scars involves bark overgrowth at similar rates on either side of a wound, which is most likely if the original wound was also originally symmetrical. This would be the case for bark dishes or shields and would not be expected with the less regular scar margins that tend to characterise natural wounds. Most of the wounds seen on the trees examined during the current study are not symmetrical in plan shape.

The following observations can be made about the scars that have been classed as symmetrical during the current assessment:

MGP-ST1 Scar 1 - this scar is all that is exposed of an originally much longer dry face. There has been extensive overgrowth around its margins in an approximately symmetrical plan shape. Whilst symmetrical, there are irregularities in the thickness of overgrowth on either side, suggesting that the wound did not originally have a regular outline. The presence of a long occluded scar above the exposed dry face, also suggests that the original scar was much longer and that overgrowth has nearly completely obscured it.

MGP-ST1 Scar 4 - whilst this scar is shield-like in shape, it is relatively small and situated 2.46 m above ground level, at a height not usually associated with deliberate bark removal.

MGP-ST2 Scar 2 - this scar is approximately symmetrical, with minor undulations in the overgrowth surrounding the exposed dry face.

MGP-ST7 Scar 1 - overgrowth has nearly obscured the dry face exposed by this wound, leaving an approximately symmetrical, but very narrow scar. The original shape of the wound cannot therefore be determined.

MGP-ST7 Scar 2 - this wound is partially obscured at the base by growth of an epicormic stem, but is semi-symmetrical in shape, while twisting around the trunk.

The wounds examined during this study that can be classed as symmetrical, do not possess relevant sufficient attributes to indicate deliberate detachments of shield-like pieces of bark. For this reason, this criterion is not considered to be significant in the

Tree	Girth gbh (m)	Girth gbh (cm)	Radius (cm)	Depth of overgrowth (cm)	% growth since scarring	Age of scar if 180 year old tree (years)	Age of scar if 250 year old tree (years)	Age of scar if 300 year old tree (years)	Age of scar if 400 year old tree (years)
MGP-ST1	1.73	173	27.5	4	14.55	26.18	36.36	43.64	58.18
	1.73	173	27.5	5	18.18	32.73	45.45	54.55	72.73
	1.73	173	27.5	4	14.55	26.18	36.36	43.64	58.18
	1.73	173	27.5	7	25.45	45.82	63.64	76.36	101.82
MGP-ST2	2.8	280	44.56	12	26.93	48.47	67.32	80.79	107.72
	2.8	280	44.56	11	24.69	44.43	61.71	74.06	98.74
	2.8	280	44.56	9	20.20	36.36	50.49	60.59	80.79
MGP-ST3	2.47	247	39.31	12	30.53	54.95	76.32	91.58	122.11
MGP-ST4	2.47	247	42.9	0					
MGP-ST5									
MGP-ST6	5.3	530	84.3	40	47.45	85.41	118.62	142.35	189.80
MGP-ST7	1.34	134	21.33	8	37.51	67.51	93.76	112.52	150.02
	1.34	134	21.33	10	46.88	84.39	117.21	140.65	187.53
MGP-ST8	2.94	294	46.79	7	14.96	26.93	37.40	44.88	59.84
MGP-ST NR1	4.45	445	70.82	0					
MGP-ST NR2	2.24	224	35.65	14	39.27	70.69	98.18	117.81	157.08

Table 9. Calculations of scar age based on four different age class models.

polythetic assessment of wounds.

17.7 Scar ends squared off or tapered

The upper and lower ends of a wound can reveal features of the original scar shape. This attribute is also used to identify wounds that resulted from the deliberate removal of shield-shaped pieces of bark. In the current study, whilst seven of the fifteen scars have squared or tapered ends, this is mostly the result of extensive bark overgrowth that partially obscured the original dry face. This feature has not proven to be useful in discriminating cultural from natural scars on the trees in the project area.

17.8 Stone or steel cut marks

The presence of cut marks can reveal the timing of deliberate bark removal in either the pre-settlement or post-settlement eras, depending on the type of tool that had been used. In the present study, no cut marks were observed at all, which may be the result of the extensive overgrowth around the margins of wounds, or may simply indicate that the scars are of natural origin.

17.9 Shape consistent with known artefact shape

Scars produced by the removal of bark for tools, utensils, canoes or shelters are thought to be generally oval in shape. With extensive overgrowth these become narrower and the original shape is lost. None of the scars examined have a rounded or oval plan shape, either due to extensive overgrowth or natural wounding. This attribute has not been found to assist in determining whether wounds resulted from natural or cultural causes whether Aboriginal or non-Aboriginal.

17.10 Dry face condition

Wounds in bark will expose the underlying dry face. In very recent wounds, the dry face will be generally unweathered and unaffected by insect activity. In old wounds, the dry face is generally heavily weathered, decayed and often exhibits degradation from insect (termite and borer) activity. Whilst dry face condition is a subjective measure, it does help to identify and assess very recent wounds. In the project area, the dry face condition has been classified as one of the following three conditions: fresh, moderately damaged, and heavily damaged. These conditions are considered to equate with very recent, recent and old.

Only four of the dry faces on scars examined during this study fall into the heavily damaged category, with another five assessed as moderately damaged and four as fresh dry faces. The four heavily damaged examples are: MGP ST-1 Scar 1, MGP ST-6 and MGP-ST NR2. In one instance (MGP-ST NR1), the bark has completely covered the dry face, although photographic evidence from the original recording suggests that

this wound is nothing more than the natural bark fissuring common in *E. viminalis* trees (Plate 27).

17.11 Aboriginal resource extraction hole or timber removal

None of the wounds examined on trees in the McPhillamy's project area exhibited sufficient attributes to indicate that they were the result of intentional bark and/or timber removal. Such evidence of intent would include cut marks (considered above), but also evidence of deliberate enlargement of natural hollows on the trunk, the cutting of tree limbs or of climbing notches.

7.12 Assessment of probable wound origin

An assessment of the probable cause of each tree wound has been provided in Table 7. The majority of wounds appear to have been caused by natural bark tear, with some the result of insect activity, fire or lightning strike. Natural fissuring appears to have been mistaken for deliberate scarring on MGP-ST4 and MGP-ST NR1, which has healed in the period between being recorded in September 2018 and the time of this investigation in December 2020.

18. General conclusions - analysis of wounds in the project area

Many trees within the project area exhibit one or multiple wounds. A number of these wounds are relatively fresh in appearance, and some even exhibit active bark detachment. Consistent with the general pattern in the region as a whole, the wounds (or scars) we have examined can be attributed to a range of natural causes.

Evidence of both old and very recent natural scarring on the trunks of the subject trees in the project area was identified.

There has been extensive clearing of old growth forests within the project area, leaving mainly forest regrowth. Old stands of trees can be demonstrated on reasonable grounds to be of to post-contact age. The majority of trunk damage on trees appears to have resulted from branch tear, fire, storm damage, lightning strike, branch abrasion and bird and/or insect activity.

The most important diagnostic attributes for identifying Aboriginal culturally modified trees are:

1. Appropriate age of tree,
2. Appropriate age of the scar (wound),
3. Presence or absence of stone hatchet cut marks.

Tool cut marks may be fully exposed by bark dieback or obscured by bark overgrowth, or else destroyed by deterioration of the wood tissue in and around the area of the original wound.
There are also contraindicative intrinsic or extrinsic attributes relevant to identification of Aboriginal culturally modified trees, including:

1. A fresh appearance of a scar (wound),
2. An inappropriate age of the tree relative to the cessation of Aboriginal cultural activity within the project area,
3. Irregular or otherwise inappropriate original plan-shape,
4. The location of a wound too high on the trunk or a branch of the tree to have been the result of deliberate bark removal.

Often a single contraindicative attribute is sufficient to eliminate Indigenous cultural activity as the likely cause of a particular wound (such as a scar in bark). In particular, the inferred or estimated age of a tree and the wound is generally the most important criterion in assessing the likely cause of a wounding or scarring event. Soon after the arrival of colonial settlers in the district, the Wiradjuri population began to decline, as a result of both undocumented introduced diseases, the violence that occurred in retaliation for stock loss and assaults on station workers, dispossession of traditional hunting and gathering territory, and social and cultural dislocation. Privatisation and alienation of the land commenced in the 1830s and it can be reasonably inferred that Aboriginal bark procurement and other cultural modifications to trees became less frequent in the region generally even in this earliest phase of British colonial ‘squatter’ settlement.

This historical evidence suggests that Aboriginal modification of trees within the project area would have declined with the arrival of colonial settlers in the 1830s (about 180 years ago) and may have virtually ceased by the 1850s (160 years ago) as the numbers of colonists increased with the issue of land grants and the commencement of gold mining. Scars on only the oldest trees within the project area would date from before and during this period, and only if the subject trees were much older than have been estimated during the current study.

There are many reasons why trees sustain wounds to their trunk or limbs. The causes of such wounding events are both natural and cultural; after initial wounding, the resultant scar can change shape and size over time. It is often not possible with reasonable confidence to determine the initial or principal cause of a wound, even only a few years after the initial wounding event.

None of the scars examined exhibited sufficient diagnostic attributes (whether weighted or unweighted) to identify any scar as evidence of Aboriginal subsistence or other cultural activity. Some of the scars are obviously too high on the tree trunk to be the likely consequence of Aboriginal bark procurement or other activity. The large majority of the scars are consistent with wounds resulting from branch or secondary stem tear, which is a common trauma sustained by trees (particularly box trees) in the region generally. Other scars are identifiable as the result of fire, storm damage, lightning strike, branch abrasion or bird and insect activity. In two instances the identified features can be attributed to natural fissuring in the bark, caused by expansion during growth.

19. References

Banks, J.C.G. 1997 Tree ages and ageing in yellow box. *In* J. Dargavel (ed) The coming of age: forest age and heritage values. pp. 17–28. *Technical Series No 1.* Australian Heritage Commission, Environment Australia, Canberra.

Beesley, John 1989 The scarred tree: a project for the Victoria Archaeological Survey. Unpublished report to the Victoria Archaeological Survey, Melbourne.

Bell, D. 1982 Aboriginal carved trees in NSW. Report to National Parks and Wildlife Service, Sydney.

Brookhouse, M. 2006 Eucalypt dendrochronology: past, present and potential. *Australian Journal of Botany* 54:435-449.

Brookhouse, M. 2007 Dendrochronological reports and sample data. Appendix 7 in Navin Officer Heritage Consultants 2007 Gunghalin Drive Extension: Program of cultural heritage impact mitigation. Final Report.

Brownrigg, W.M. 1851 *Saunders' Official Map of the Australian Gold Country, Compiled from official records and information afforded by Mr. E.H. Hargraves, the Discoverer of The Gold Country*. London: Trelawney Saunders.

Burns, M. 2013 Appraisal of scar trees on the rail–infrastructure footprint for the Maules Creek Mine Project. Report by Global Soil Systems to UQ Culture & Heritage Unit, School of Social Science, University of Queensland. December 2013.

Burns, M. 2014a Scar tree report 2. Appraisal of 18 scar trees in Leard State Forest – Maules Creek Mine Project. Report to UQ Culture & Heritage Unit, School of Social Science, University of Queensland. February 2014.

Burns, M. 2014b Scar tree report 3. Appraisal of scar trees - Maules Creek Coal Project. Whitehaven Coal Limited – Maules Creek Coal Project. Report to UQ Culture & Heritage Unit, School of Social Science, University of Queensland.

Burns, M. 2014c Scar tree report 4. Appraisal of Namoi River scar trees - Maules Creek Coal Project. Whitehaven Coal Limited – Maules Creek Coal Project. Report to UQ Culture & Heritage Unit, School of Social Science, University of Queensland.

Burns, M. 2016 Whitehaven Coal Ltd – Vickery Extension Project. Scar tree assessment report Vickery Extension Project. Global Soil Systems report to Whitehaven Coal Ltd. February 2016.

Carver, G. 2001 An Examination of Indigenous Australian culturally modified trees in South Australia. Unpublished PhD thesis. Department of Archaeology, Flinders University.

Clarke, D.L. 1968 *Analytical Archaeology*. Methuen, London.

Corkery, R.W. and Co. and Regis Resources 2012 Review of Environmental Factors for Exploration Activities on EL 5760 (McPhillamys Project).

Corkery, R.W. and Co. and Regis Resources 2016 Review of Environmental Factors for Exploration Activities within EL 5760 (McPhillamys Gold Project).

Coutts, P.J.F. and D.C; Witter (Eds) 1977 *A Guide to recording archaeological sites in Victoria*. Records of the Victorian Archaeological Survey (Special Issue) Number 3.

Cressey, A. and T. Gottschutzke 2018 McPhillamy's Gold Project, Blayney NSW. Archaeological assessment and Aboriginal cultural heritage assessment. A report to Regis Resources Ltd.

Cunningham, A. 1817 (A.E. Orchard and T.A. Orchard 2018) *The Australian botanical journals of Allan Cunningham: the Oxley and early King expeditions October 1816 - February 1819*. Weston Creek, ACT.

Curr, E.M. 1887 *The Australian Race: It's Origins, Languages, Customs, Place of Landing in Australia, and the routes by which it spread itself over that continent.* Melbourne: John Ferres, Government Printer.

Donaldson, T. 1984 What's in a name? An etymological view of land, language and social identification from central western New South Wales. *Aboriginal History* 8:21-44.

Dunwiddie P.W. and V.C. La Marche 1980 Dendrochronological characteristics of some native Australian trees. *Australian Forestry* 43: 124-135

Edmonds, V. 1998 The Wimmera River Cultural Heritage Study. Stage II. The Middle Wimmera Basin. Report to Goolum Goolum Aboriginal Cooperative, Horsham.

Etheridge, R. 1918 The Dendroglyphs, or "Carved Trees" of New South Wales. *Memoirs of the Geological Survey of New South Wales*. Ethnological Series No. 3.

Evans, G.W. 1813 and 1815 Two Journals of Early Exploration in New South Wales. *In* Commonwealth of Australia *Historical Records of Australian Series* 1. Governors' Despatches to and from England. Volume VIII July 1813 – December 1815. http://gutenberg.net.au/ebooks13/1300271h.html accessed 05 January 2021.

Godfrey, M.C.S., C.F.M. Bird, D. Frankel, J.W. Rhodes, S. Simmons 1996 From time to time: Radiocarbon information on archaeological sites held by Aboriginal Affairs Victoria. *The Artefact* 19:3-5

Gottesfeld, L.M.J. 1992 The importance of bark products in the aboriginal economies of northwestern British Columbia, Canada. *Economic Botany* 46: 148-157.

Great Britain Parliament 1844 *Map of New South Wales and Victoria showing squatting districts with number of stations, acres in cultivation, free and bond populations, horses, cattle and sheep*. Luke James Hansard, Printer.

Gribble, E. 1932 Account of the Foundations of Warangesda. Typescript in Griffith Library.

Günther, J. 1837 Journal of James Günther, Missionary at Wellington Valley, New Holland, from August 8th to Dec: 31st 1837. https://downloads.newcastle.edu.au/library/cultural%20collections/the-wellington-valley-project/gunther/gunther-journals/i-aug-dec-1837.html accessed 19 January 2021

Hayden, B. 1980 Confusion in the bipolar world: bashed pebbles and splintered pieces, *Newsletter of Lithic Technology* 9 (1):2-7.

Hayes, N. and T. Barham 2017 McPhillamy's Gold Project drill locations: Due Diligence Archaeological Assessment. A report to Regis Resources Pty Ltd.

Helms, A.D. 1945 A giant eucalypt (*Eucalyptus regnans*) Nichols Spur,Junee, Derwent Valley, Tasmania. *Australian Forestry* 9:25-28

Hickey, J.E., W. Su, P. Rowe, M.J. Brown and L.G. Edwards 1999 Fire history of the tall wet eucalypt forests of the Warra ecological research site, Tasmania. *Australian Forestry* 62(1):66–71

Howitt, A.W. 1904 (1996) *The Native Tribes of South-East Australia*. Aboriginal Studies Press, Canberra.

Irish, P. 2004 When is a scar a scar? Evaluating scarred and marked trees at Sydney Olympic Park. *Australian Archaeology* 59:59-61

Kamminga, J. 1978 Journey into the microcosms. A functional study of prehistoric Australian stone tools. Ph.D. thesis, Department of Anthropology, University of Sydney.

Kamminga, J. 1985 The pirri graver. *Australian Aboriginal Studies*, 1985 (II):2-25

Kamminga, J. 2002 Australian Aboriginal timber Quick Search. ASEDA (Aboriginal Studies Electronic Data Archive), Australian Institute of Aboriginal and Torres Strait Island Studies, Canberra. http://coombs.anu.edu.au/SpecialProj/ASEDA

Kamminga, J. and M. Grist 2000 Yarriambiack Creek. Aboriginal Heritage Study. Report to Aboriginal Affairs Victoria. National Heritage Consultants.

Kamminga, J., C.E. Kenyon, B. Gott, J. Dibden, A.S.B. Mijares and N.H. Perera 2008 Lake Hume Aboriginal Heritage Study. National Heritage Consultants, Canberra.

Kamminga, J. and A. Lance 2016 Vickery Extension Project: Scarred Tree Assessment. Unpublished report to Whitehaven Coal Ltd.

Kuskie, P. 2017a Mount Pleasant Operation, Hunter Valley, New South Wales: Aboriginal heritage reassessment of four previously reported scarred trees. Unpublished report to MACH Energy Australia Pty Limited.

Kuskie, P. 2017b Mount Pleasant Operation, Hunter Valley, New South Wales: Aboriginal heritage reassessment of 11 previously reported scarred trees. Unpublished report to MACH Energy Australia Pty Limited.

Kuskie, P. 2017c Mount Pleasant Operation, Hunter Valley, New South Wales: Aboriginal heritage reassessment of three previously reported scarred trees. Unpublished report to MACH Energy Australia Pty Limited.

Kuskie, P. 2019 Mount Pleasant Operation, Hunter Valley, New South Wales: Aboriginal heritage reassessment of 19 previously reported scarred trees. Unpublished report to MACH Energy Australia Pty Limited.

Lance, A. 1985 An archaeological survey of the proposed Wellington to Forbes Transmission Line. A report to the National Parks and Wildlife Service and The Electricity Commission of New South Wales.

Lance, A. 1992 An archaeological reconnaissance of a potential quarry site on Shamrock Creek, South West Queensland. A report to Santos Ltd.

Lancelott, F. 1852 *Australia As It Is: Its Settlements, Farms. and Gold Fields*. Colburn and Co. London.

Long, A. 2002 *Scarred trees. A field identification manual. Aboriginal Affairs Victoria*. Compiled by Harry Webber. Department of Natural Resources and Environment, Melbourne.

Long, A. 2003 Scarred trees. An identification and recording manual prepared for Aboriginal Affairs Victoria. Andrew Long and Associates. (Available online at http://www.spiffa.org/uploads/2/6/7/5/2675656/scarred_trees_identification_manual.pdf).

Long, A. 2005 *Aboriginal scarred trees in New South Wales: a field manual*. Department of Environment and Conservation (NSW), Hurstville. (Available online at: http://nla.gov.au/nla.arc-55351).

Mawson P.R. and J.L. Long 1994 Size and age parameters of nest trees used by four species of parrot and one species of cockatoo in south-west Australia. *Emu* 94:149 - 155.

Mulvaney J. and J. Kamminga 1999 *Prehistory of Australia*. Allen and Unwin, Sydney.

Ngugi, M.R., D. Doley, M. Cant and D.B. Botkin 2015 Growth rates of Eucalyptus and other Australian native tree species derived from seven decades of growth monitoring, *Journal of Forestry Research* 26:811-826.

Officer, K. and K. Navin 1998 Proposed Pacific Highway Karuah Bypass & Duplication Route Selection Study, cultural heritage assessment. Unpublished report to Ove Arup and Partners Pty Ltd.

Officer, K. and J. Kamminga 1998 Buckargingah Creek 1 & 2 sub-surface testing results, Albury to Wagga EAPL Gas Pipeline Easement. Summary Excavation report. Navin Officer Report on behalf of East Australian Pipeline Ltd to the NSW National Parks and Wildlife Service.

Ogden, J. 1978 On the dendrochronological potential of Australian trees. *Australian Journal of Ecology* 3:339-356.

Ogden, J. 1981 Dendrochronological studies and the determination of tree ages in the Australian tropics. *Journal of Biogeography* 8,:405-420.

Orange Local Aboriginal Land Council 2017 Aboriginal Heritage Due Diligence Assessment McPhillamy's Project. Sterilization Drilling Program (EL5760 and EL6111. A report to Regis Resources Ltd.

Pardoe, C., A. Lance and D. Maloney 2008 Wimmera Mallee Pipeline Project Supply System s 3 (Birchip) and 4 (Wycheproof) Cultural Heritage Management Plan. Prepared for Grampians Wimmera Mallee Water.

Pardoe, C. and S. Martin 2001 Murrumbidgee Province Aboriginal cultural heritage study. A report to NSW National Parks and Wildlife Service and Aboriginal communities of the region.

Pearson, M. 1984 Bathurst Plains and beyond: European colonisation and Aboriginal resistance. *Aboriginal History* 8:63-79.

Pearson S.G. and M.J. Searson 2002 High-resolution data from Australian trees. *Australian Journal of Botany* 50:431-439

Priestley, S. 1967 *Warracknabeal. A Wimmera centenary*. Jacaranda Press, Brisbane.

Rayner, M.E. 1992 Application of dendrochronology, stem analysis and inventory data in the estimation of tree and stand ages in karri forest. Western Australian Department of Conservation and Land Management Technical Report No. 27.

Read, D. W. 2007 *Artifact classification: A conceptual and methodological approach*. Left Coast Press, Walnut Creek, California.

Read, P. 1988 *A Hundred Years War. The Wiradjuri People and the State*. ANU Press: Canberra.

Regis Resources Ltd 2012 Review of environmental factors for exploration activities on EL5760 (McPhillamys Project). Prepared by R.W.Corkery and Co. Pty. Limited.

Resources Inventory Committee 2001 *Culturally modified trees of British Columbia. A handbook for the identification and recording of culturally modified trees*. Prepared by Archaeology Branch, B.C. Ministry of Small Business, Tourism and Culture, British Columbia, Canada.

Robertson, S. 1992 *The bell sounds pleasantly: Ebenezer Mission Station*. Luther Rose Publications, Doncaster (Revised Edition).

Sneath, P.H.A. and R.R. Sokal 1973 *Numerical taxonomy. The principles and practice of numerical classification*. W.H. Freeman & Co., San Francisco.

Sokal, R. R. and P.H.A. Sneath 1963 *Numerical Taxonomy*. W.H. Freeman & Co., San Francisco.

Spooner, P.G., I.D. Lunt and L. Smallbone 2010 Using growth-form attributes to identify pre-settlement woodland trees in central NSW, Australia. *Australian Journal of Botany* 58:188-197.

Stainthorpe, R.H. 1925 *Early reminiscences of the Wimmera and Mallee*. Privately printed, Warracknabeal.

Steel, W.A. 1931 The history of Caroar, 1815-1881. *Journal of the Royal Australian Historical Society* 17:239-88.

State Library of New South Wales 2011 *Carved Trees: Aboriginal Cultures of Western NSW*. State Library of New South Wales, Sydney.

Sams, D.E.J. 1988 A reconstruction of the Indigenous culture of the Tumut Valley: An assessment of ethnographic and material evidence. NSW Department of Education, Riverina Region, Wagga Wagga, NSW

Sturt, C. 1833 (1982) *Two Expeditions into the Interior of Southern Australia during the years 1828, 1829, 1830, 1831 with Observations on the soil, climate and general resources of the colony of New South Wales*. Doubleday, Sydney.

Swetnam, T.W. 1984 Peeled Ponderosa Pine trees: A record of inner bark utilization by Native Americans. *Journal of Ethnobiology* 4:177-190

Taylor, P. and P. Undy 1994 Descendants of Warangesda. Some oral histories. A report prepared for NPWS, NSW.

Tindale, N.B. 1974 *Aboriginal tribes of Australia: their terrain, environmental controls, distribution, limits and proper names*. University of California, Berkeley.

van Rijsbergen, K. 1979 *Information retrieval*. 2nd ed. London: Butterworths. http://www.dcs.gla.ac.uk/Keith/Chapter.3/Ch.3.html.

Whitford, K. 2006 Briefing note - Estimating tree age in jarrah and marri. Science Division, Unpublished manuscript. Department of Environment and Conservation. Government of Western Australia. http://www.dpaw.wa.gov.au/images/documents/about/science/pubs/guides/tree-age.pdf

Williams, J. E. and M.I.H. Brooker 1997 Eucalypts: an introduction. In J.E. Williams, J.C.Z. Woinarski (*Eds*). *Eucalypt Ecology: Individuals to Ecosystems*. Cambridge University Press, Cambridge, pp. 1-15.

Zimmer, H., D. Cheal, I. Lunt and G. Johnson 2012 *Black Cypress-pine* Callitris endlicheri *fire-sensitive vegetation recovery following high intensity bushfire. Black Saturday Victoria 2009 - Natural values fire recovery program*. Department of Sustainability and Environment, Heidelberg, Victoria.

20. Glossary of technical terms

(Compiled and modified from Resources Inventory Committee 2001:23, 131-138 and Long 2003, 2005).

Alcove
A term used by some as a synonym for test hole through bark and wood.

Archaeology
The understanding of the human past, including the recent past, through the examination of material remains.

Archaeological site
An area containing physical evidence of past human use or occupation.

Blazed tree
A tree with bark removal and chop marks modified to identify a trail or boundary.

Callus lobe
Bark overgrowth or lobe.

Cambium
The thin layer of living cells found between the bark and sapwood that generates new inner bark and wood cells.

Canoe tree
A tree from which bark has been removed to make a bark canoe.

Carved tree
A tree carved by Aboriginal people as part of a traditional activity (also called Arborglyph).

CMT
Culturally modified tree.

Culture
That complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities acquired by humans as a member of society.

Culturally modified tree
A tree that has been intentionally altered by Aboriginal people as part of their traditional

use of the forest.

Cultural scar (or wound)
A bark or wood scar that is the result of human action.

Cut marks (also called as tool marks)
The cuts and other marks left on a tree as a result of stone, iron or steel tool use.

Cutting date
The year during which the most recent annual ring (the outside ring) of a tree was formed.

Dendrochronology
The dating of living and dead wood by the study of tree rings. A very useful dating method in regions with distinct seasons, where pairs of rings denoting winter and summer growth periods can be discerned and counted to give an accurate age for a tree. In Australia, however, this distinct seasonality does not exist, and dendrochronology is of limited use.

Dieback
The progressive lateral death of cambium and bark, resulting in a bark scar or extension to a pre-existing bark scar. Typically, this will occur where a large bark removal scar has interrupted the free flow of water and nutrients, which are forced to divert widely around the damaged area, thus killing off a larger part of the tree, such as canopy, than the part originally affected.

Direct ring count
A dendrochronological method in which the number of annual rings is added or subtracted from a known ring-year.

Disc
A ‘cookie-like’ transverse cross-section through a tree stem used for dendrochronology.

Dry face
The dead, exposed timber that forms the scar surface. As the scar ages the dry face becomes increasingly cracked and weathered. Tool marks where the bark was cut and detached are often preserved towards the top, bottom and occasionally across the centre of the scar. Tool marks will only be preserved on the sapwood.

Epicormic stem
A subsidiary limb which can often develop at the base of a scar. This is also part of the tree's natural response to damage, by providing a way for the root system to re-connect with the leaf system, thus ensuring a two-way flow of starches from photosynthesis, water and plant nutrients from the soil. Without epicormic development, the root system below a large scar may die, seriously weakening the tree.

Ethnography
The study of the culture of a particular social group through participatory observation and interviews with the members of that group.

Ethnohistory
The study of past and contemporary indigenous cultures and customs by examining historical records as well as other sources of information about their lives and history.

Face-boring
A procedure for collecting tree core samples, where two cores are extracted, one through the area of modification, and the second through the unmodified side of the tree.

Felled tree
Usually large diameter, these trees were completely felled using traditional felling techniques, and not felled by the wind.

GBH (Girth at Breast Height)
The tree girth at breast height, is a standard attribute used to measure tree growth within forests. By measuring above the ground, the tree girth can be measured, without the influence of buttress or branch swelling. The standard for this measurement varies between countries, with the international standard being 1.3 m above ground level. In the US GBH is 4.5' (137 cm) and in the UK it is 1.5 m. In Australia, the standard measurement for GBH is 1.4 m. This has been adopted in the present study. The GBH is used to calculate tree diameter.

Hatchet
A short-handled implement held on one hand during use (an axe is held with two hands). The Aboriginal hatchet comprised a short handle made of split sapling or branch wood folded over a stone head bound into place with resin, wax and string. Nearly all Aboriginal hatchet heads have cutting edges shaped by grinding; other surfaces of the head may also be smoothed by grinding, either partially or completely. Some hatchet heads are shaped and smoothed only along their cutting edge. This tool

was used in a wide range of subsistence activities, including cutting bark from trees. It was not normally used to fell trees.

Healing lobe
See bark overgrowth (scar lobe).

Heartwood
As a tree grows, the annual rings produced are sapwood which turns into heartwood as the tree matures.

Increment core
Usually 5 mm-diameter cylindrical tree-ring samples extracted from living trees with a special borer.

Internal scar
A scar concealed within the bark of a tree. As bark overgrowth invades the surface of the exposes wood it can eventually cover the entire scar, thereby closing the scar window, creating an internal scar. These scars appear as narrow vertical creases. Also called hidden scar.

Overgrowth
The bark tissue or ‘accelerated growth callus’ that forms along the margins of a dry face of the wood. This is a natural response from the tree to cover the damaged area rapidly and protect the wound from decay and infestation. Overgrowth generally develops at a much faster rate than the tree’s normal growth and is often distinctive from the surrounding bark. Eventually the wound may be completely absorbed into the trunk and obscured by overgrowth.

Ring-year
The year during which a particular annual ring was laid down.

Ring-year of injury
The year during which the annual ring associated with the modification of the tree was laid down.

Sapwood
As a tree grows, the annual rings produced are sapwood. This turns into heartwood as the tree matures. Sapwood has some living cells and persists between the heartwood and cambium.

Scar
An area on a tree trunk or major limb from which bark has been removed and has exposed the underlying wood. The scar can be the result of either cultural (human) or natural bark removal.

Scar-boring
A procedure for collecting tree core samples in which a number of cores (probably 4 or more) need to be taken per cultural modification. All cores are taken through the healing overgrowth (lobe), some from in front of the modification and the others from behind the modification.

Scar crust
A hard black or dark brown layer formed on the inner side of a healthy scar tissue (lobe) where it grows against the smooth surface of a substantially or completely intact dry face.

Scar face
See Dry face.

Scar face/scar lobe interface
Area of contact between post-injury annual growth rings (scar lobe) and the original scar face, whether present or decayed.

Scar window
The opening created by the bark overgrowth along the margins of a scar. As bark tissue invades the sides of the scar it joins together above a scar, as well as below the scar if the scar does not extend to the ground, thereby obscuring the original edges of the scar and forming a lenticular (lens-like) or triangular opening (the scar window) over the scar.

Skeleton plot
The recommended minimum tree-ring analysis.

Survey marker tree
A tree with an area of bark removed by a surveyor, showing symbols or numbers cut with a steel tool into the wood within the scar panel.

Tool marks
See cut marks.

Tree-ring dating
Synonym for dendrochronology.

Veteran
Older trees in a younger stand; often survivors of a fire, disease or other event that killed most trees.

Wedge
A tapering tool made of bone, antler, wood or stone used to split wood.

Wedge sample
A partial disc removed from one side of a tree for dendrochronological study (and radio-carbon dating).

Plates

Photographs of each subject tree

Plate 1. Tree MGP-ST1.

Plate 2. Tree MGP-1 Scar 1. Scale = 8 cm.

Plate 3. Tree MGP-1 Scar 2.

Plate 4. Tree MGP-1 Scar 3.

Plate 5. Tree MGP-ST1 Scar 4.

Plate 6. Tree MGP-ST1 Scar 4 showing borer damage and moderate decay on dry face. Scale = 8 cm.

Plate 7. Tree MGP-ST2.

Plate 8. Tree MGP-ST2 Scar 1.

Plate 9. Tree MGP-ST2 Scar 2.

Plate 10. Tree MGP-ST2 Scar 2. Surface of dry face.

Plate 11. Tree MGP-ST2 Scar 3. Note extent of scar encompassing upper branches and trunk, the result of branch tear or lightning strike.

Plate 12. Tree MGP-ST3.

Plate 13. Tree MGP-ST3 Scar 1.

Plate 14. Tree MGP-ST3 Scar 1. Surface of dry face showing borer hole.

Plate 15. Tree MGP-ST4.

Plate 16. Tree MGP-ST4 showing evidence of natural bark fissuring .

Plate 17. Tree MGP-ST6.

Plate 18. Tree MGP-ST6 Scar 1. Natural scar at the base of the tree, with associated animal burrow.

Plate 19. Tree MGP-ST7.

Plate 20. Tree MGP-ST7 Scar 1.

Plate 21. Tree MGP-ST7 Scar 1 showing dry face.

Plate 22. Tree MGP-ST7 Scar 2.

Plate 23. Tree MGP-ST8.

Plate 24. Tree MGP-ST8 Scar 1 showing dry face.

Plate 25. Tree MGP-ST NR1.

Plate 26. Tree MGP-ST NR1 showing natural fissuring.

Plate 27. Tree MGP-ST NR1 as recorded in September 2018 showing the suspected scar.

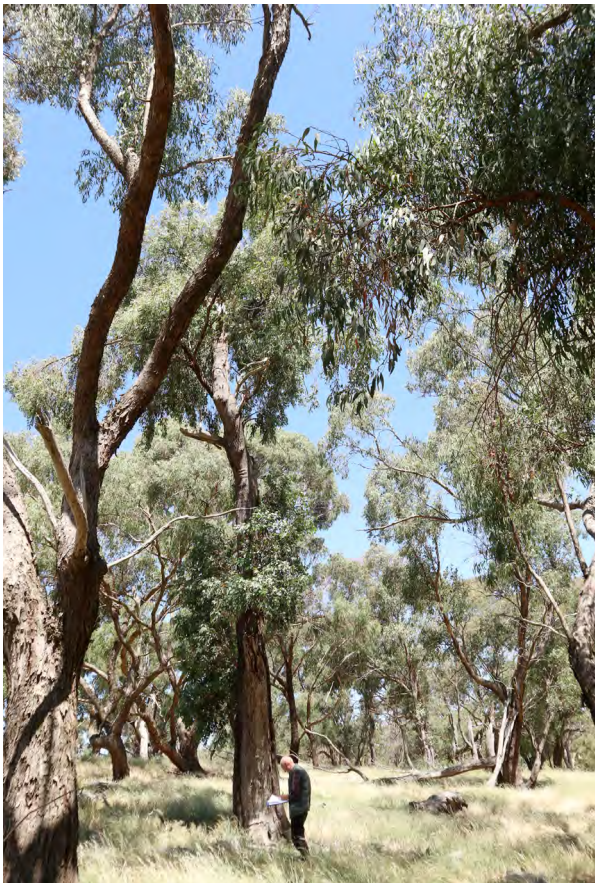


Plate 28. Tree MGP-ST NR2.

Plate 29. Tree MGP-ST NR2 Scar 1.

Plate 30. Tree MGP-ST NR2 showing dry face.

APPENDIX J

SUMMARY OF ABORIGINAL COMMUNITY CONSULTATION UNDERTAKEN TO DATE

Table J-1
Summary of Aboriginal Heritage Consultation Undertaken for the Project

Date	Consultation	Development Component*
Notification of Project and Registrations		
16 November 2016	Letters requesting the names of Aboriginal parties or groups that may have been interested in registering for the consultation process were sent to the Office of the Registrar (Aboriginal Land Rights Act, 1983), the OEH Environment Protection and Regulation Group, the Blayney Shire Council, NTSCORP, Orange LALC, Central Tablelands Local Land Services and the National Native Title Tribunal, in order to identify Aboriginal stakeholders.	Mine Development
22 November 2016	Responses to the above request were received from the Blayney Shire Council.	Mine Development
17 November 2016	Letters seeking registrations of interest were sent to the Aboriginal parties identified by the above step.	Mine Development
17 November 2016	A public notice was placed in the *Central West Daily* inviting interested Aboriginal parties or groups to register.	Mine Development
17 November 2016	A public notice was placed in the *Blayney Chronicle* inviting interested Aboriginal parties or groups to register.	Mine Development
5 December 2016	One organisation was registered as a RAP for the Project following completion of the registration periods – the Orange LALC. No other registrations were received.	Mine Development
21 December 2016	Record of names of RAPs provided to the OEH and Orange LALC in accordance with the OEH policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010a).	Mine Development
29 August 2017	Confirmation of Native Title search results received from National Native Title Tribunal.	Pipeline Development
4 September 2017	Letters requesting the names of Aboriginal parties or groups that may have been interested in registering for the consultation process were sent to the Office of the Registrar (Aboriginal Land Rights Act, 1983), the OEH Environment Protection and Regulation Group, the Blayney Shire Council, NTSCORP, Orange LALC and Central Tablelands Local Land Services, in order to identify Aboriginal stakeholders.	Pipeline Development
September 2017	Responses to the above request were received from the Office of the Registrar (Aboriginal Land Rights Act, 1983), the OEH Environment Protection and Regulation Group and the Blayney Shire Council.	Pipeline Development
6 September 2017	A public notice was placed in the Central West Daily (Orange) inviting interested Aboriginal parties or groups to register.	Pipeline Development
6 September 2017	A public notice was placed in the Western Advocate inviting interested Aboriginal parties or groups to register.	Pipeline Development
6 September 2017	A public notice was placed in the Lithgow Mercury inviting interested Aboriginal parties or groups to register.	Pipeline Development
14 September 2017	Letters seeking registrations of interest were sent to the Aboriginal parties identified by the above steps.	Pipeline Development
September 2017	10 organisations were registered as RAPs at the close of the registration period.	Pipeline Development

9 October 2017	Correspondence received from Bathurst Regional Council regarding potential additional interested parties.	Pipeline Development
11 October 2017	Letters seeking registrations of interest were sent to the Aboriginal parties identified by the above step.	Pipeline Development
13 October 2017	An additional organisation was registered as a RAP for the project following the close of the registration period [now a total of 11 RAPs]	Pipeline Development
20 June 2018	An additional organisation was registered as a RAP for the project following the close of the registration period [now a total of 12 RAPs]	Pipeline Development
25 May 2018	Record of names of RAPs provided to the OEH and the Bathurst LALC in accordance with the OEH policy *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010a).	Pipeline Development
October 2020 – December 2020	Additional registration period undertaken to facility continued and ongoing consultation. This additional registration process mirrored the same approach outlined above including the following: • A public notice was placed in the Lithgow Mercury inviting interested Aboriginal parties or groups to register for the consultation process on 27 October 2021. • A public notice was placed in the Blayney Chronicle, Central Western Daily and the Western Advocate, inviting interested Aboriginal parties or groups to register for the consultation process on 29 October 2021. • Record of names of RAPs provided to Heritage NSW, the OLALC and the BLALC on 16 December 2020.	Whole of Development
Proposed Methodology Review and Information Session		
7 March 2017	Provision of the Proposed Methodology for undertaking the ACHA was distributed to the RAPs. A request for comments on the Proposed was included with feedback requested by 4 April 2017. Nil feedback received from RAPs.	Mine Development
6 October 2017	Provision of the Proposed Methodology for undertaking the ACHA was distributed to the RAPs.	Pipeline Development
13 October 2017	Provision of the Proposed Methodology for undertaking the ACHA was distributed to the RAPs who registered late in the process.	Pipeline Development
4 June 2018	Provision of the Proposed Methodology for undertaking the ACHA was distributed to the RAPs. A request for comments on the Proposed was included with feedback requested by 4 July 2018.	Pipeline Development
29 April 2018	An addendum survey methodology was provided to all RAPs.	Pipeline Development
8 May 2018	Feedback was received on the addendum survey methodology from Wellington Valley Wiradjuri Aboriginal Corporation.	Pipeline Development
Field Surveys		
14 February 2018	Meeting with Orange LALC held in relation to sub-surface test work for the Project.	Mine Development

18 April – 11 May 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from Navin Officer, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Mine Development
1-2 August 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from OzArk, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Pipeline Development
29-30 August 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from OzArk, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Pipeline Development
13 September 2018	Invitation sent to the RAPs to attend additional field surveys for the Project.	Mine Development
26 September 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from Landskape, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Mine Development
26-27 November 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from OzArk, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Pipeline Development
11 December 2018	An Aboriginal cultural heritage survey was conducted by archaeologists from OzArk, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Pipeline Development
31 January 2019	An Aboriginal cultural heritage survey was conducted by archaeologists from Landskape, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Mine Development
4-7 April 2019	An Aboriginal cultural heritage survey was conducted by archaeologists from OzArk, accompanied by RAP representatives. The cultural significance of the Project area and the identified Aboriginal heritage sites was discussed with the RAPs during the surveys.	Pipeline Development
23 June 2020	Field survey of the access road for the amended project was undertaken by OzArk.	Mine Development
24-25 June 2020	Additional field survey was undertaken for the ACHA addenda by OzArk.	Pipeline Development
Draft ACHA Review, Information Sessions and Site Inspection		
5 May 2019	A copy of the draft ACHA was provided to RAPs for their review and comment. The initial draft ACHA included survey results, archaeological and cultural significance assessment (based on feedback received during consultation and fieldwork), potential impacts and proposed mitigation and management measures.	Mine Development

13 May 2019	Project update letters distributed to RAPs.	Pipeline Development
20 May 2019	A copy of the draft ACHA was provided to RAPs for their review and comment. The initial draft ACHA included survey results, archaeological and cultural significance assessment (based on feedback received during consultation and fieldwork), potential impacts and proposed mitigation and management measures. Feedback was requested by 18 June 2019.	Pipeline Development
23 May 2019	RAPs contacted to obtain feedback on the draft ACHA report including an opportunity to provide any information on cultural knowledge/significance.	Mine Development
28 May 2019	A copy of the amended draft ACHA was provided to RAPs for their review and comment. The initial draft ACHA included survey results, archaeological and cultural significance assessment (based on feedback received during consultation and fieldwork), potential impacts and proposed mitigation and management measures. Feedback was requested by 18 June 2019.	Pipeline Development
28 May 2019	An additional copy of the draft ACHA was provided to RAPs for their review and comment.	Mine Development
28 May 2019	RAPs contacted to obtain feedback on the draft ACHA report including an opportunity to provide any information on cultural knowledge/significance.	Mine Development
May/June 2019	Various responses received from RAPs on the draft ACHA report.	Pipeline Development
3 June 2019	Comments received on the draft ACHA were considered and included in the ACHA.	Mine Development
24 June 2019	Meeting held with RAPs regarding the draft ACHA report including an opportunity to provide any information on cultural knowledge/significance.	Mine Development
27 June 2019	Additional comments received on the draft ACHA were considered and included in the ACHA.	Mine Development
25 August 2020	A copy of the draft ACHA addenda was provided to RAPs for their review and comment.	Mine Development
26 August 2020	A copy of the draft ACHA addenda was provided to RAPs for their review and comment. Feedback was requested by 23 September 2020.	Pipeline Development
2 September 2020 & 7 September 2020	A request was received from OLALC regarding copies of the Submissions Report and Amendment Report.	Mine Development
9 September 2020	Copies of the Submissions Report and Amendment Report were made available to the OLALC.	Mine Development
16 September 2020	Regis Resources received correspondence from OLALC in response to the draft ACHA addenda. A copy of this correspondence was also forwarded to Landskape on 22 September 2020 by the OLALC.	Mine Development
17 December 2020	A copy of the final ACHA addenda (and a copy of all other ACHA assessments prepared to date) was provided to RAPs.	Mine Development
17 December 2020	A copy of the final ACHA addenda (and a copy of all other ACHA assessments prepared to date) was provided to RAPs.	Pipeline Development

17 December 2021	Copies of the final ACHA reports and associated addenda were provided to all RAPs for their records.	Whole of Development
25 February 2021	Information session held with archaeologists and RAPs to provide a project update and summary of the results as per the existing reports.	Whole of Development
3 March 2021	Copies of the final ACHA reports and associated addenda were provided to all RAPs, for their review and comment. Feedback was requested by 31 March 2021.	Whole of Development
25 March 2021	Comments on the final ACHA reports and associated addenda were received from the Wiradjuri Traditional Owners Central West Aboriginal Corporation	Whole of Development
29 March 2021	Comments on the final ACHA reports and associated addenda were received from the OLALC.	Whole of Development
April 2021	Comments received on the final ACHA reports and associated addenda were considered and addressed in this correspondence.	Whole of Development
Additional Consultation		
22 January 2019	Consultation with Orange LALC regarding potential work engagement activities and employment opportunities.	-
15 July 2020	Consultation with Orange LALC regarding potential work engagement activities and employment opportunities.	-
1 October 2020	Meeting held with Orange LALC regarding community consultation, subsurface testing program, access to site and other general discussion points including potential work engagement activities and employment opportunities.	-
20 October 2020	Meeting held with Orange LALC regarding possible ACH management measures post-approval, subsurface testing program, access to site and other general discussion points including potential work engagement activities and employment opportunities.	-
17 December 2020	Correspondence provided to OLALC regarding access to site and additional works.	-
December 2020 – March 2021	Several attempts to contact OLALC via email and telephone to request a further meeting. No response received.	-
11 February 2021	Contacted by four members of Aboriginal community in Cowra (Rebecca Ingram, Lavinus Ingram, Eva Coe and Francis Coe) regarding consultation completed to date. Copies of the final ACHA were forwarded to them at their request.	-
15 February 2021	Meeting held with BLALC regarding undetermined Aboriginal land claims along the water supply pipeline route.	-
24 February 2021	Meeting held with Rebecca Ingram and Lavinus Ingram, to provide a project update and information on the assessments and consultation process undertaken to date.	-
4 March 2021	Meeting held with Nyree Reynolds, providing a project update and information on the assessments and consultation process undertaken to date.	-
29 March 2021	Meeting held with Orange LALC regarding general project updates, possible ACH management measures post-approval, access to site and other general discussion points including potential work engagement activities and employment	-

	opportunities.	

* As different consultants were engaged to undertake assessments of different components of the proposed development and different times as the project design developed, this column indicates which process applied to which component of the proposed development.