

**Newcastle Office**

Ground Floor, 241 Denison Street, Broadmeadow, NSW Australia 2292
PO Box 428, Hamilton, NSW Australia 2303

Our Ref: 132827
Date: 22 July 2016

Attn: James Wearne
Centennial Coal Pty Limited
100 Miller Road,
Fassifern NSW 2283

Via: Email

Dear James,

RE: ECOLOGICAL DUE DILIGENCE SURVEY FOR SHALLOW GROUNDWATER BORES AND SOIL MOISTURE MONITORING

RPS Australia East (RPS) was commissioned by Springvale Coal to undertake a due diligence ecological survey of four shallow groundwater monitoring bores and one soil moisture monitoring site (collectively referred to as 'the sites'). The sites are located in the Gang Gang system of swamps within the Newnes State Forest in NSW, Australia (**Figure 1**).

The shallow groundwater monitoring bore sites and soil moisture monitoring (**Sites A, B and C**), soil moisture monitoring location (**Site D**) and shallow groundwater monitoring bore only (**Site E**) are located throughout Gang Gang South West and Gang Gang East swamps:

- **Site A (Downstream Gang Gang East shallow groundwater monitoring bore and soil moisture monitoring)**
E: 240447.40
N: 6303083.20
- **Site B (Upstream Gang Gang East shallow groundwater monitoring bore and soil moisture monitoring)**
E: 239938.3
N: 6301851.6
- **Site C (Downstream Gang Gang South West shallow groundwater monitoring bore and soil moisture monitoring)**
E: 240397.53
N: 6303188.33
- **Site D (Upstream Gang Gang South West soil moisture monitoring)**
E: 239815.11
N: 6302879.51
- **Site E (Upstream Gang Gang South West shallow groundwater monitoring bore)**
E: 239907.40
N: 6302924.80

The bores are to be constructed using a hand auger and located away from any identified threatened species.

Vehicle access during proposed works will be limited to pre-established tracks and access by foot in the swamp vegetation should be restricted to the shortest safe path to limit trample damage during installation and subsequent access for monitoring. It is expected that any vegetation removal will be undertaken using hand tools and will be minimal.

Legislation

This due diligence assumes that relevant approvals under the *Environmental Protection and Assessment Act 1979* (EP&A Act 1979) exist for clearance works and any associated activities required for monitoring equipment installation.

Consideration has been afforded to the requirements of the proposal in relation to the *Native Vegetation Act 2003* (NV Act 2003). Exclusions apply to any clearing on land described or referred to in Part 2 of Schedule 1 (State forestry land); therefore the NV Act 2003 does not apply to the proposed clearing works.

Methodology

Initial desktop studies were conducted using the NSW Wildlife Atlas database and the Protected Matters search tool to identify threatened flora, fauna and ecological communities with the potential to occur within the site (see **Attachment 1** and **2** for the results). A review of previous ecological works conducted within the Springvale Project Application Area (PAA) by RPS (2014) was conducted to provide an indication of mapped vegetation communities at the sites, and any threatened species listed under the Commonwealth *Environmental Conservation and Biodiversity Conservation Act 1999* (EPBC Act) and/or NSW *Threatened Species Act 1995* (TSC Act) that may be potentially impacted upon by the proposal.

The field survey was conducted by a qualified RPS ecologist on 18 April 2016. The sites were inspected on foot to determine ecological attributes of the area including targeted surveys for threatened flora species and ground-truthing of threatened ecological communities. A Trimble® differential GPS (GEOX6000) was used to record feature locations.

Results

Desktop

The locations of the future shallow groundwater monitoring bores and soil moisture monitoring points are supplied in **Figure 2**.

The proposed sites are located within Newnes Plateau Shrub Swamp an Endangered Ecological Community (EEC) which is listed under the TSC Act and is commensurate with EPBC Act listed Temperate Highland Peat Swamps on Sandstone EEC. The TSC Act and EPBC Act listed communities listed above are hereafter collectively referred to as THPSS.

The threatened species Blue Mountains Water Skink (*Eulamprus leuraensis*) distribution is restricted to shrub swamps (OEH, 2016) and recent records exist within Gang Gang system of swamps (RPS, unpublished survey data).

Field Survey

The locations of the sites were confirmed to occur within the THPSS. Four individuals of the threatened species *Boronia deanei* were identified at two points near the locations of the upstream monitoring point in Gang Gang South West Swamp (Sites D and E). Whilst these individuals occur within the swamp they do not occur near enough to the sites that a direct impact is considered likely (see **Figure 2**).

A small area occupied by *Persoonia hindii* was observed near Site C. These plants can be avoided using the access route depicted in **Figure 2**. No threatened fauna were observed utilising the area during surveys.

Site B is to be accessed using the indicated path to avoid impacting a cultural heritage feature (RPS, 2016) (See **Figure 2**).

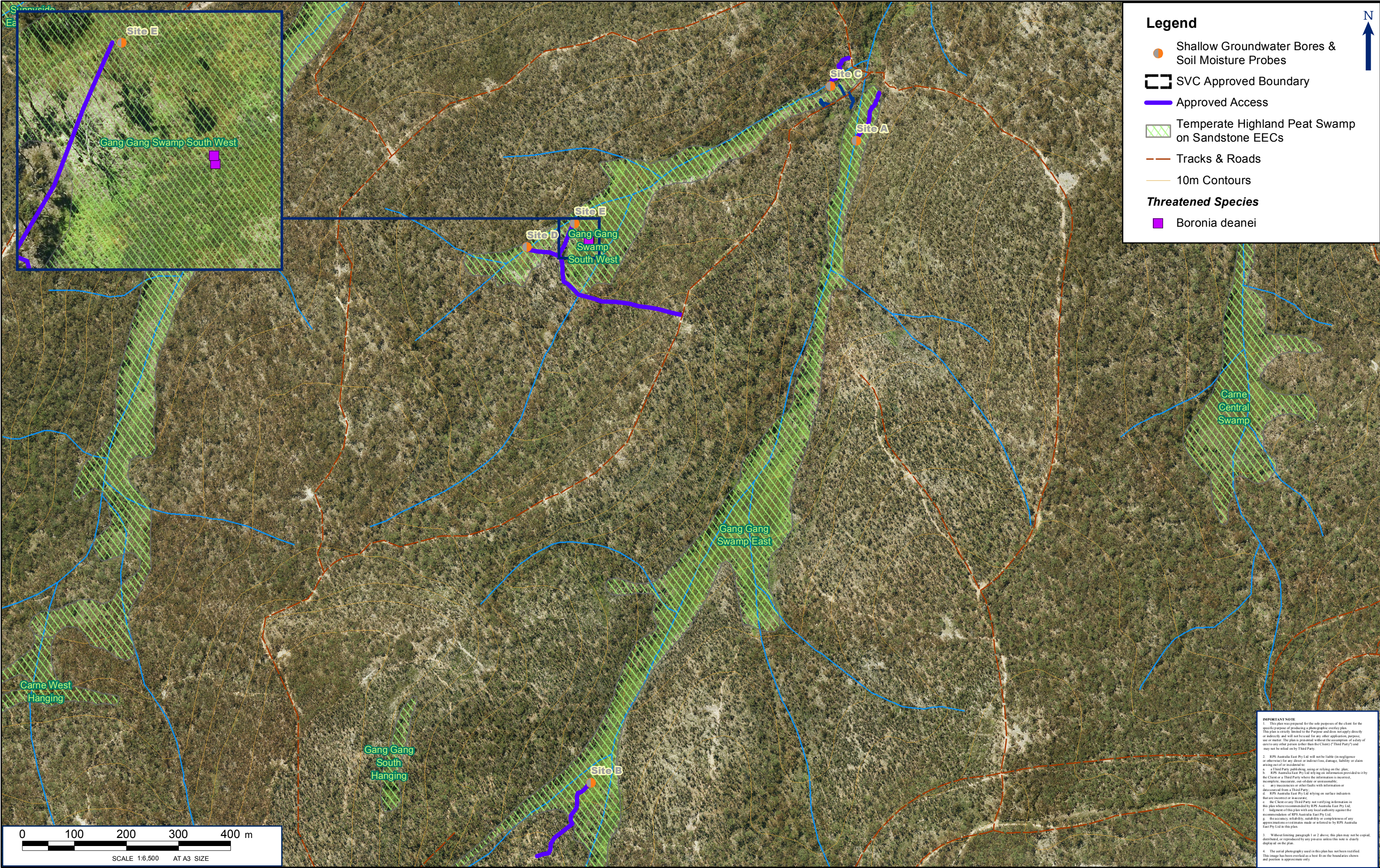


FIGURE 2: APPROVED LOCATIONS, TRACKS AND THREATENED SPECIES

TITLE : **AND THREATENED SPECIES**

LOCATION : **SPRINGVALE**

DATUM:GDA 1994

DATE : **21/07/2016**

VERSION (PLAN BY): AA3 (Natalie.Wood)

PROJECTION: GDA 1994 MGA Zone 56

PURPOSE: **ECOLOGY**

PATH: J:\OBS\Centennial\All Jobs\132827 SV Swamp Eco Due Diligence\10 - Drafting\Arcgis Map Documents\EcoReport Figures\132827-2b Figure 2 ECO A A3 20160721.mxd



Conclusion

One EEC (THPSS) was confirmed to occur within the proposed borehole and monitoring locations. Two threatened flora species (*Boronia deanei* and *Persoonia hindii*) were confirmed to occur within close proximity to the proposed bore holes and monitoring locations. Preferred access routes were identified and assessed to avoid any potential impacts on the threatened flora and minimise impacts on the EEC.

The amount of potential habitat for fauna (in particular the Blue Mountains Water Skink) to be impacted is considered to be negligible given the extent of surrounding contiguous vegetation. The impacts to potentially occurring threatened fauna species in locality have been minimised by not removing any trees, by using hand tools to carry out works and by minimising the distance travelled within swamps where possible.

Recommendations

The following recommendations have been outlined to limit potential impacts of the shallow groundwater bores and soil moisture monitoring on surrounding habitat:

- Access to the bores during installation and ongoing monitoring should be restricted to established tracks where ever possible;
- Access to points within the swamps should be undertaken using the designated tracks (**Figure 2**) to the monitoring points to avoid impacts on the identified sensitive ecological and cultural issues;
- No threatened species are to be removed and if any new individuals are detected they should be clearly flagged and avoided;
- All workers should avoid excessive trampling of the EEC by traversing around this vegetation community where possible and by laying-down equipment outside of the swamp margins where possible; and
- Disturbance to potential fauna habitat should be avoided, whilst removal of ground and shrub species during works should be minimised wherever possible.

We trust this information is sufficient for your purposes; however should you require any further details or clarification, please do not hesitate to contact the writer by telephone.

Yours sincerely
RPS

Arne Bishop
Ecology Manager

References

- DEC (2006) *The Vegetation of the Western Blue Mountains*. Unpublished report funded by the Hawkesbury-Nepean Catchment Management Authority. Department of Environment and Conservation NSW, Hurstville.
- OEH (2016) *Threatened Species Profiles. Blue Mountains Water Skink* *Eulamprus leuraensis* <http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10322> Accessed 21 July 2016.
- RPS (2014) *Springvale Mine Extension Project - Flora and Fauna Assessment Report*. RPS Group Australia East.
- RPS (2016) *Cultural Heritage Due Dilligence Survey for Shallow Groundwater Bores and Soil Moisture Monitoring*. RPS Group Australia East. Broadmeadow, NSW 2292
- RPS (Unpublished survey data) *Blue Mountains Water Skink Monitoring and Research program*. Springvale Coal Pty. Ltd. Lidsdale, NSW 2790.

Attachment 1 – NSW Wildlife Atlas (Accessed July 2016)

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	No of Records within 10km
Fauna				
<i>Mixophyes balbus</i>	Stuttering Frog	E	V	1
<i>Littoria littlejohni</i>	Littlejohn's Tree Frog	V	V	1
<i>Eulamprus leuraensis</i>	Blue Mountains Water Skink	E	E	26
<i>Apus pacificus</i>	Fork-tailed Swift	P	C,J,K	1
<i>Hirundapus caudacutus</i>	White-throated Needletail	P	C,J,K	6
<i>Hieraaetus morphnoides</i>	Little Eagle	V		2
<i>Lophoictinia isura</i>	Square-tailed Kite	V		1
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V		120
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V		3
<i>Ninox connivens</i>	Barking Owl	V		1
<i>Ninox strenua</i>	Powerful Owl	V		19
<i>Tyto novaehollandiae</i>	Masked Owl	V		1
<i>Tyto tenebricosa</i>	Sooty Owl	V		1
<i>Merops ornatus</i>	Rainbow Bee-eater	V	J	3
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V		46
<i>Chthonicola sagittata</i>	Speckled Warbler	V		1
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater (eastern subspecies)	V		2
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V		2
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V		9
<i>Melanodryas cucullata cucullata</i>	Hooded Robin (south-eastern form)	V		8
<i>Petroica boodang</i>	Scarlet Robin	V		181
<i>Petroica phoenicea</i>	Flame Robin	V		266
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V		15
<i>Petaurus australis</i>	Yellow-bellied Glider	V		1
<i>Petaurus norfolcensis</i>	Squirrel Glider	V		4
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V		1
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	10
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V		4
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V		7
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V		4
<i>Pseudomys novaehollandiae</i>	New Holland Mouse	P	V	1
<i>Petalura gigantea</i>	Giant Dragonfly	E		14
Flora				
<i>Ceasia parviflora</i> var. <i>minor</i>	Small Pale Grass-lily	E		1
<i>Lastreopsis hispida</i>	Bristly Shield Fern	E		1
<i>Leucopogon fletcheri</i> subsp. <i>fletcheri</i>		E		6
<i>Dillwynia tenuifolia</i>		V		2
<i>Prostanthera cryptandroides</i> subsp. <i>cryptandroides</i>	Wollemi Mint-bush	V	V	1
<i>Veronica blakelyi</i>		V		46
<i>Persoonia hindii</i>		E		776
<i>Boronia deanei</i>	Deane's Boronia	V	V	45

V – Vulnerable
 E – Endangered
 P – Protected (National Parks & Wildlife Act 1974)
 C – Listed on China Australia Migratory Bird Agreement
 J – Listed on Japan Australia Migratory Bird Agreement
 K – Listed on Republic of Korea Australia Migratory Bird Agreement



Attachment 2 - EPBC Protected Matters Search



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 20/07/16 13:40:54

[Summary](#)

[Details](#)

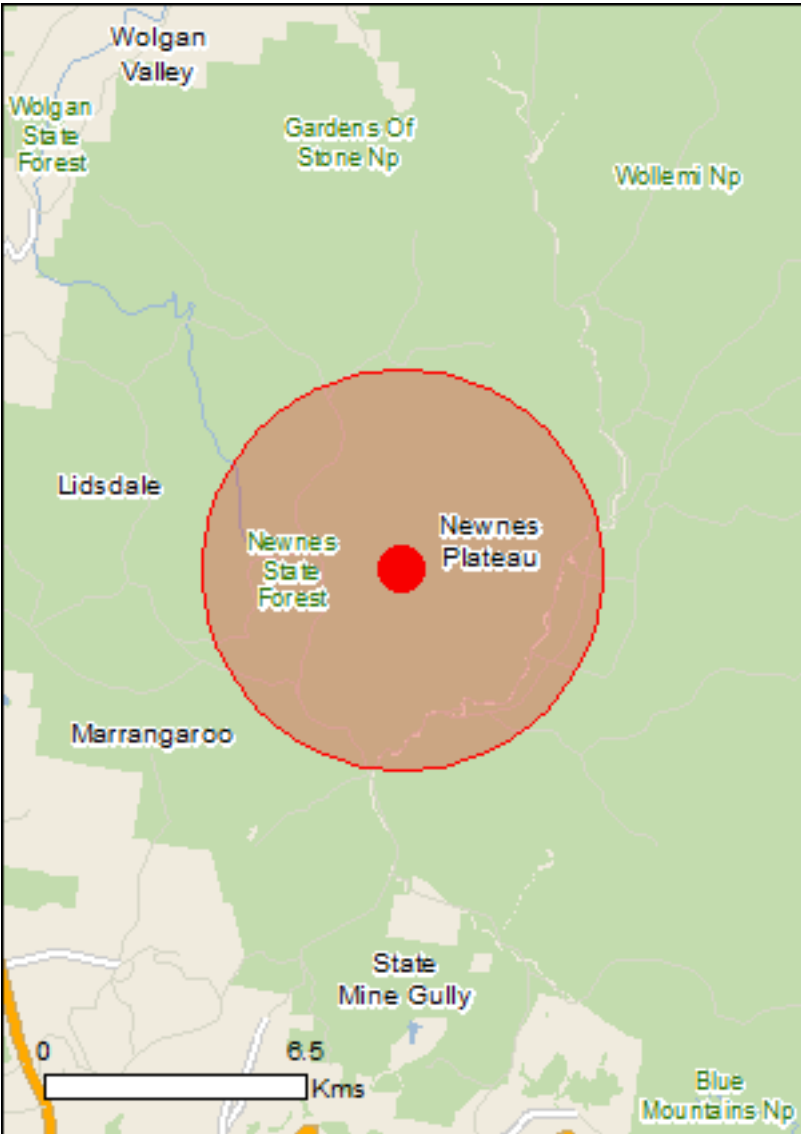
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

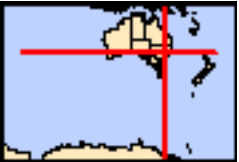
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 5.0Km](#)



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	33
Listed Migratory Species:	8

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	32
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities

[Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community may occur within area
Temperate Highland Peat Swamps on Sandstone	Endangered	Community may occur within area
Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Listed Threatened Species

[Resource Information]

Name	Status	Type of Presence
------	--------	------------------

Birds

Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area

Fish

Macquaria australasica Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Prototroctes maraena Australian Grayling [26179]	Vulnerable	Species or species habitat likely to occur within area

Frogs

Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat likely to occur within area
Litoria booroolongensis Booroolong Frog [1844]	Endangered	Species or species habitat may occur within area
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog [64733]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
Mixophyes balbus		area
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area
Insects		
Paralucia spinifera		
Bathurst Copper Butterfly, Purple Copper Butterfly, Bathurst Copper, Bathurst Copper Wing, Bathurst-Lithgow Copper, Purple Copper [26335]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri		
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus maculatus maculatus (SE mainland population)		
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Isoodon obesulus obesulus		
Southern Brown Bandicoot (Eastern) [68050]	Endangered	Species or species habitat may occur within area
Petauroides volans		
Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata		
Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae		
New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area
Plants		
Acacia bynoeana		
Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat may occur within area
Asterolasia elegans		
[56780]	Endangered	Species or species habitat may occur within area
Boronia deanei		
Deane's Boronia [8397]	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana		
Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Eucalyptus aggregata		
Black Gum [20890]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pulverulenta		
Silver-leaved Mountain Gum, Silver-leaved Gum [21537]	Vulnerable	Species or species habitat likely to occur within area
Euphrasia arguta		
[4325]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Pelargonium sp. Striatellum (G.W.Carr 10345) Omeo Stork's-bill [84065]	Endangered	Species or species habitat likely to occur within area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Pultenaea glabra Smooth Bush-pea, Swamp Bush-pea [11887]	Vulnerable	Species or species habitat likely to occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area

Reptiles		
Eulamprus leuraensis Blue Mountains Water Skink [59199]	Endangered	Species or species habitat known to occur within area
Hoplocephalus bungaroides Broad-headed Snake [1182]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species	[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.	

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area

Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area

Migratory Wetlands Species		
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat may occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Birds Rock	NSW
FMA's in BATHURST	NSW

Invasive Species	[Resource Information]
------------------	--------------------------

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Genista monspessulana Montpellier Broom, Cape Broom, Canary Broom, Common Broom, French Broom, Soft Broom [20126]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-33.36525 150.20541

Acknowledgements

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

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Parks and Wildlife Commission NT, Northern Territory Government](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Atherton and Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.