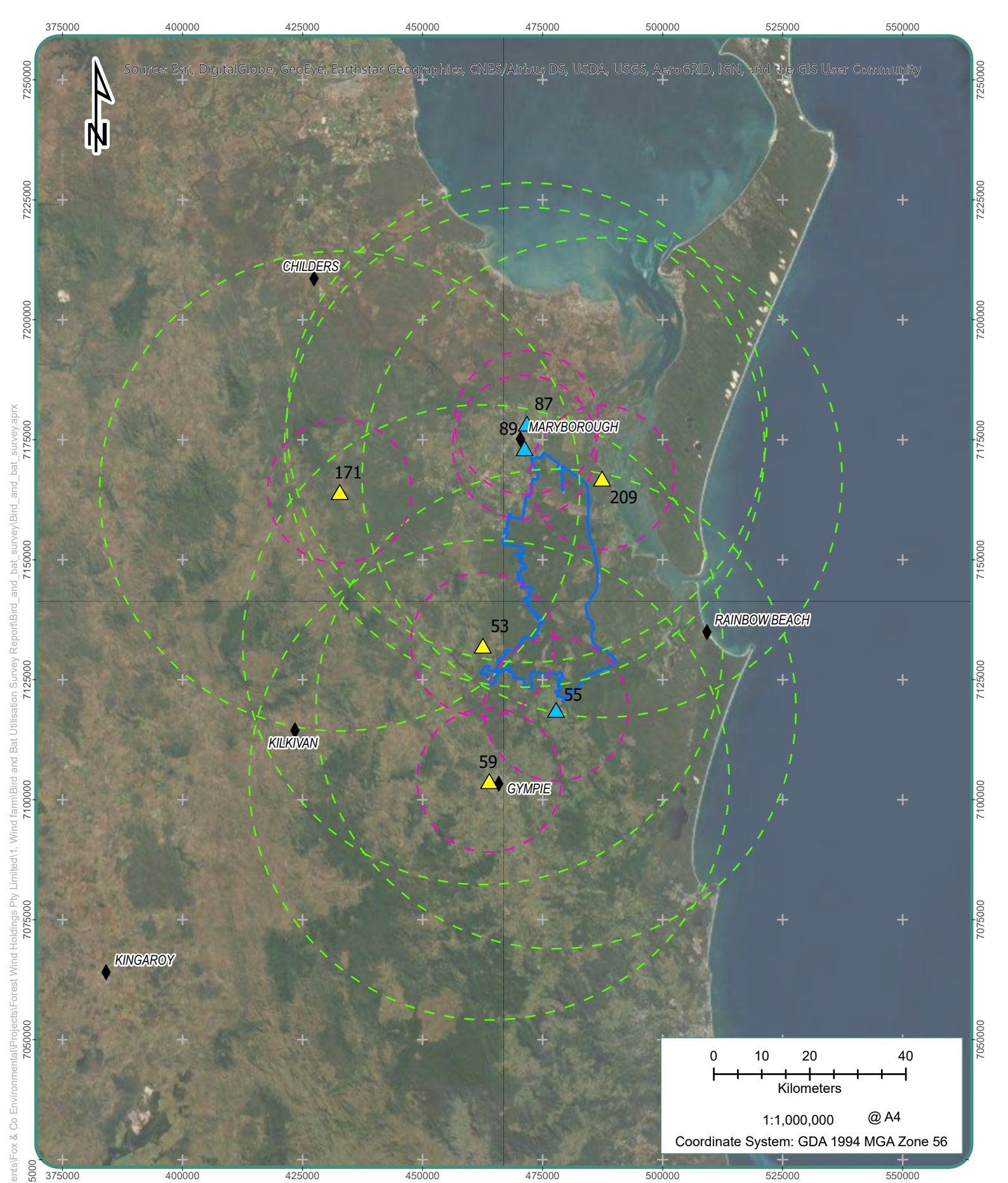


APPENDIX A

Figures

- Figure 7 – Flying-fox camps
- Figure 8 – Regional Ecosystems
- Figure 9 – Essential Habitat
- Figure 10 – Protected Plant Survey Trigger Areas
- Figure 11 – Conservation Areas
- Figure 12 – RAMSAR Wetlands
- Figure 13 – MSES Wetlands
- Figure 14 – Vegetation Management Wetlands
- Figure 15 – MSES Drainage
- Figure 16 – Waterway Identification
- Figure 17 – Conservation Significant Species Identified on WTA



TITLE:
Grey headed flying-fox potential foraging distances

MAP NO: Figure 7

PROJECT: Forest Wind Holdings Pty Ltd - Bird & Bat Utilisation Survey

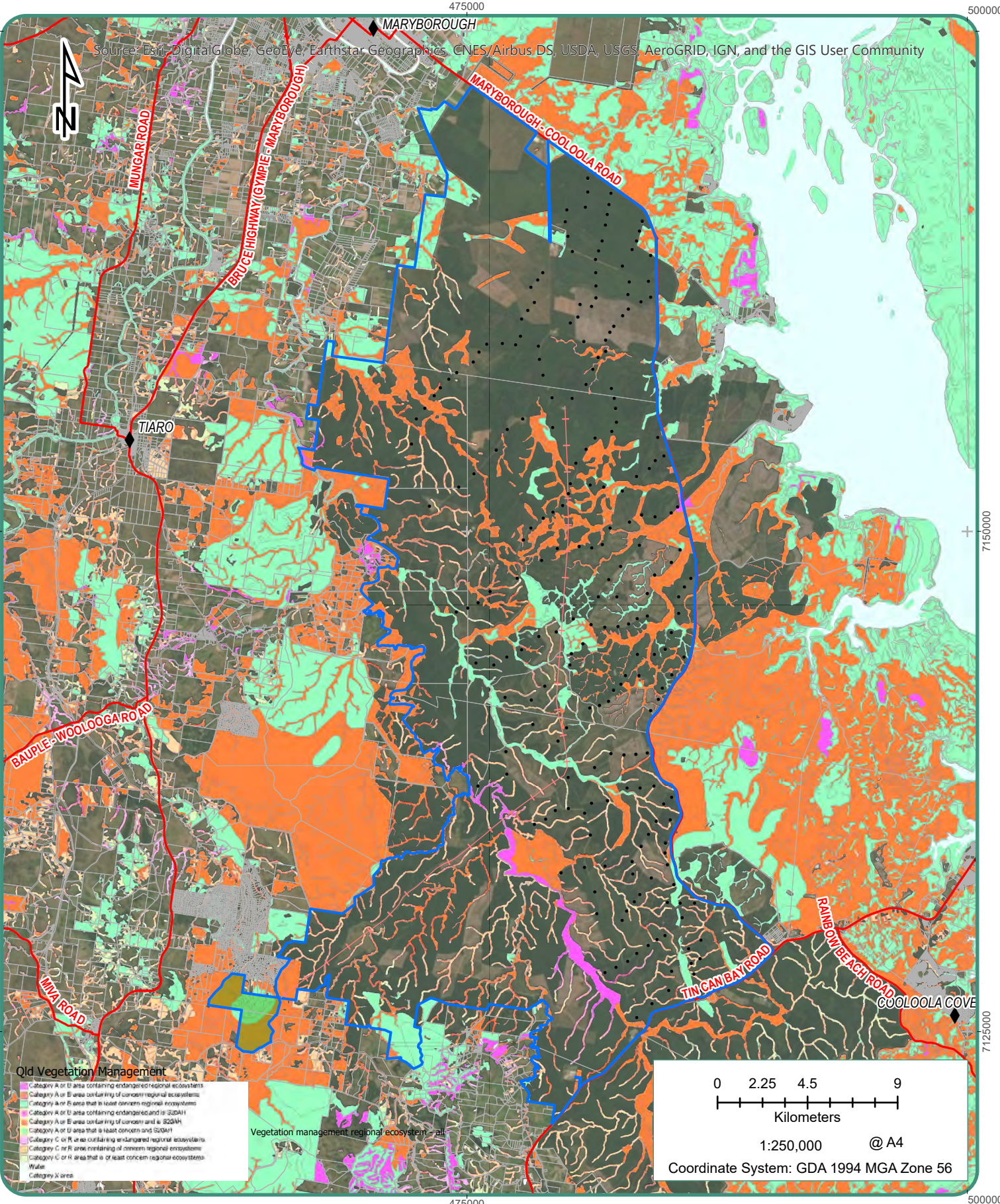
- LEGEND**
- ▲ Grey headed flying-fox camp
 - ▲ Nationally important flying-fox camp
 - ◆ Populated places
 - Study area
 - Flying-fox camp 15km buffer
 - Flying fox camp 50km buffer



Date: 7/09/2019

Data Source:
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Document Path: C:\Users\greenvalle\Documents\Fox & Co Environmental\Projects\Forest Wind Holdings Pty Limited\1. Wind farm\Bird and Bat Utilisation Survey Report\Bird_and_bat_utilisation_survey.aprx



TITLE:
Regional Ecosystems

MAP NO: Figure 8

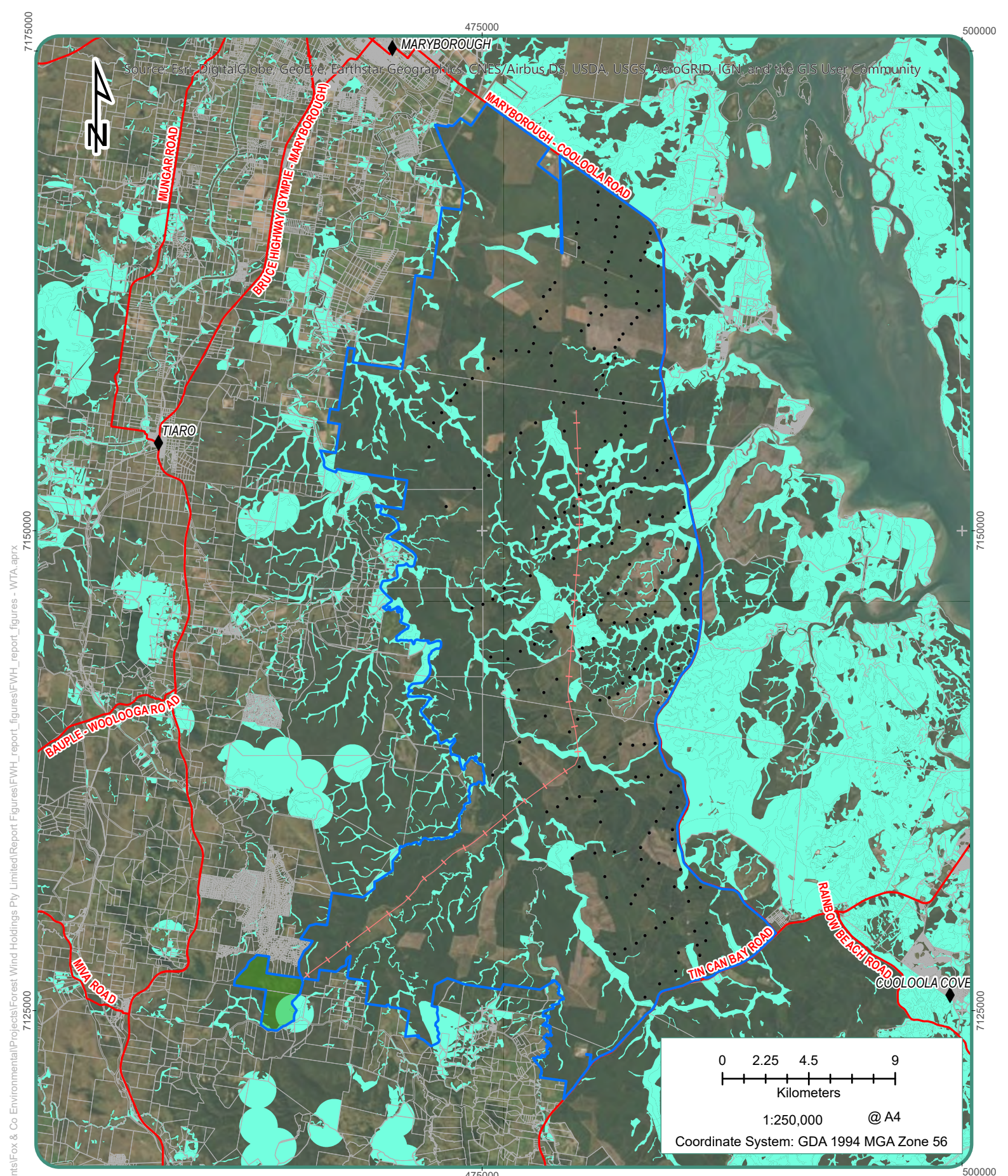
PROJECT: Forest Wind Holdings Pty Ltd

- LEGEND**
- ◆ Populated places
 - FWH Turbine Locations
 - State controlled roads
 - High voltage transmission line
 - ▭ Study area
 - ▭ Property boundaries
 - ▭ Native state forest



Date: 7/09/2019

Data Source:
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© State of Queensland (Department of Environment and Science) 2018



TITLE:

MSES - Essential Habitat

MAP NO: Figure 9

PROJECT: Forest Wind Holdings Pty Ltd

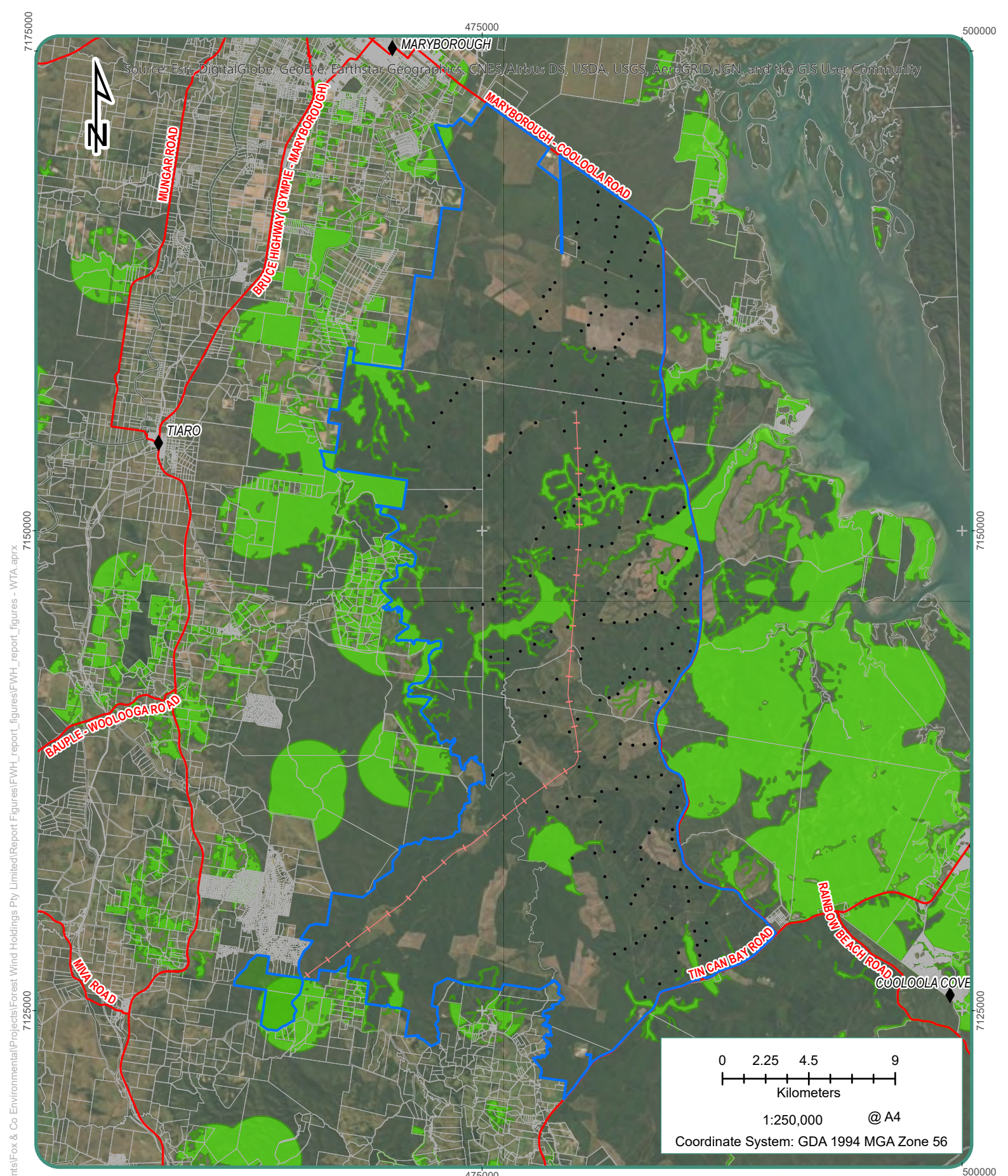
- LEGEND**
- ◆ Populated places
 - FWH Turbine Locations
 - State controlled roads
 - High voltage transmission line
 - ▭ Study area
 - ▭ Property boundaries
 - MSES Essential habitat
 - Native state forest



Date: 7/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.
 Essential habitat, downloaded 03/08/2019 © State of Queensland (Department of Environment and Science) 2019

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TITLE:

Flora trigger areas

MAP NO: Figure 10

PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

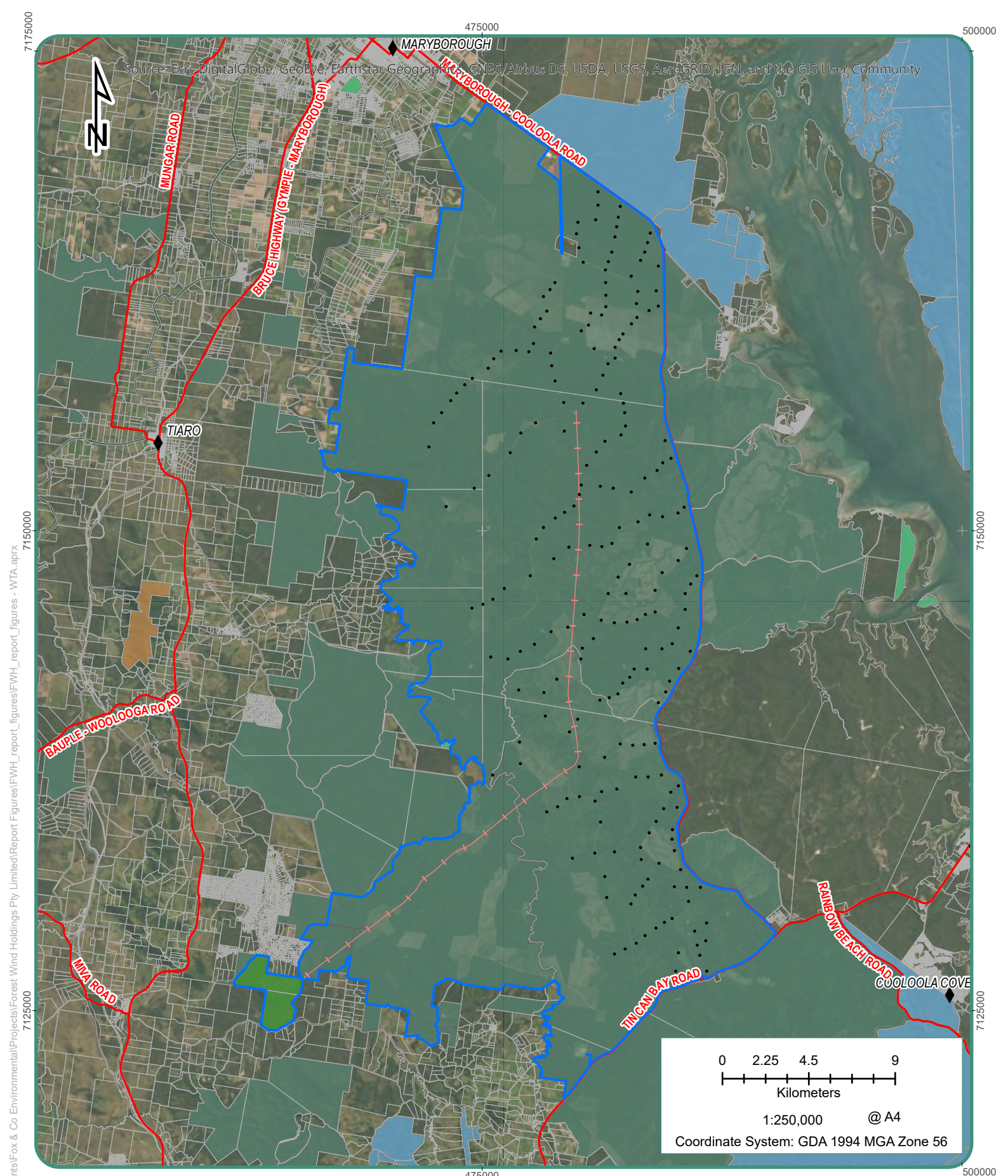
- ◆ Populated places
- FWH Turbine Locations
- State controlled roads
- High voltage transmission line
- ▭ Study area
- ▭ Property boundaries
- Flora survey trigger area
- Native state forest



Date: 7/09/2019

Data Source:
© State of Queensland (Department of Natural Resources, Mines and Energy) 2019.
Flora trigger, v7.1. © State of Queensland (Department of Environment and Science), 2019

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TITLE:

Conservation areas

MAP NO: Figure 11

PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

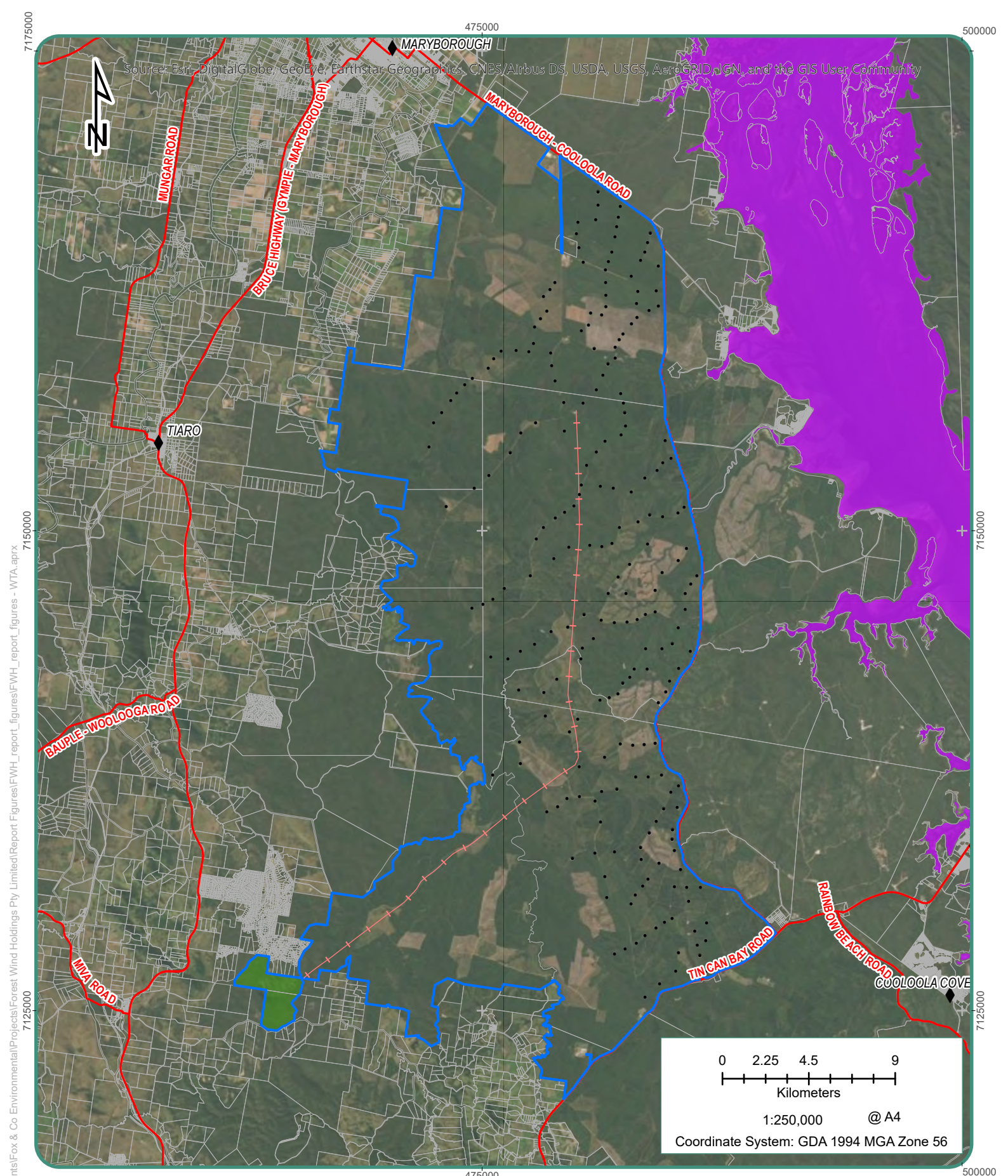
- ◆ Populated places
- FWH Turbine Locations
- State controlled roads
- High voltage transmission line
- ▭ Study area
- Protected areas
 - CP
 - NP
 - NS
 - SF
 - Native state forest



Date: 7/09/2019

Data Source:
 © State of Queensland (Department of Environment and Science) 2019.
 Protected areas, downloaded 4/8/19, © State of Queensland (Department of Environment and Science) 2019

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TITLE:

RAMSAR wetlands

MAP NO: Figure 12

PROJECT: Forest Wind Holdings Pty Ltd

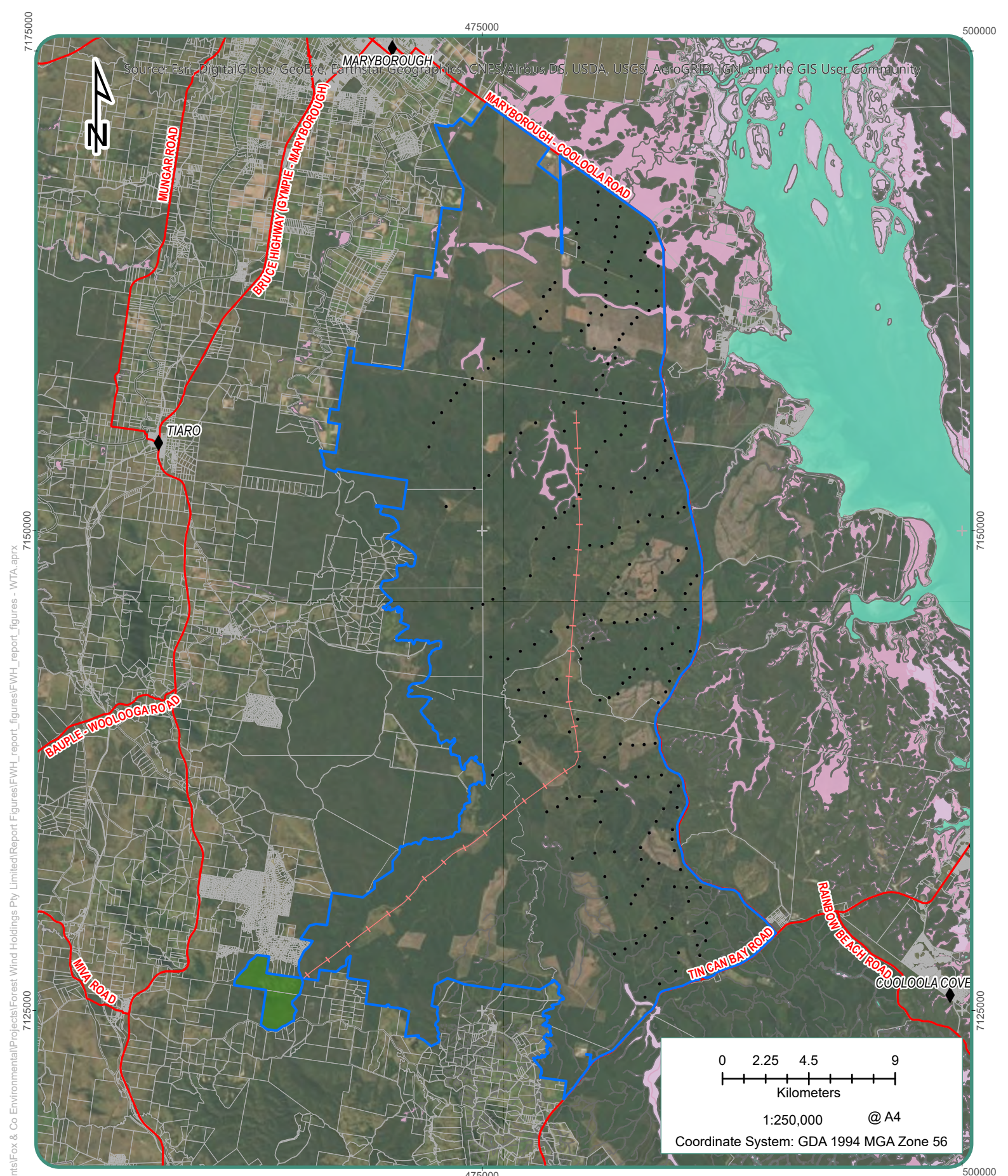
LEGEND

- ◆ Populated places
- FWH Turbine Locations
- State controlled roads
- High voltage transmission line
- ▭ Study area
- ▭ Property boundaries
- ▭ RAMSAR wetlands
- ▭ Native state forest



Date: 7/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.
 RAMSAR wetlands, © Commonwealth of Australia (Department of the Environment and Energy) 2019



TITLE:

MSES - HEV wetlands and HES wetlands

MAP NO: Figure 13

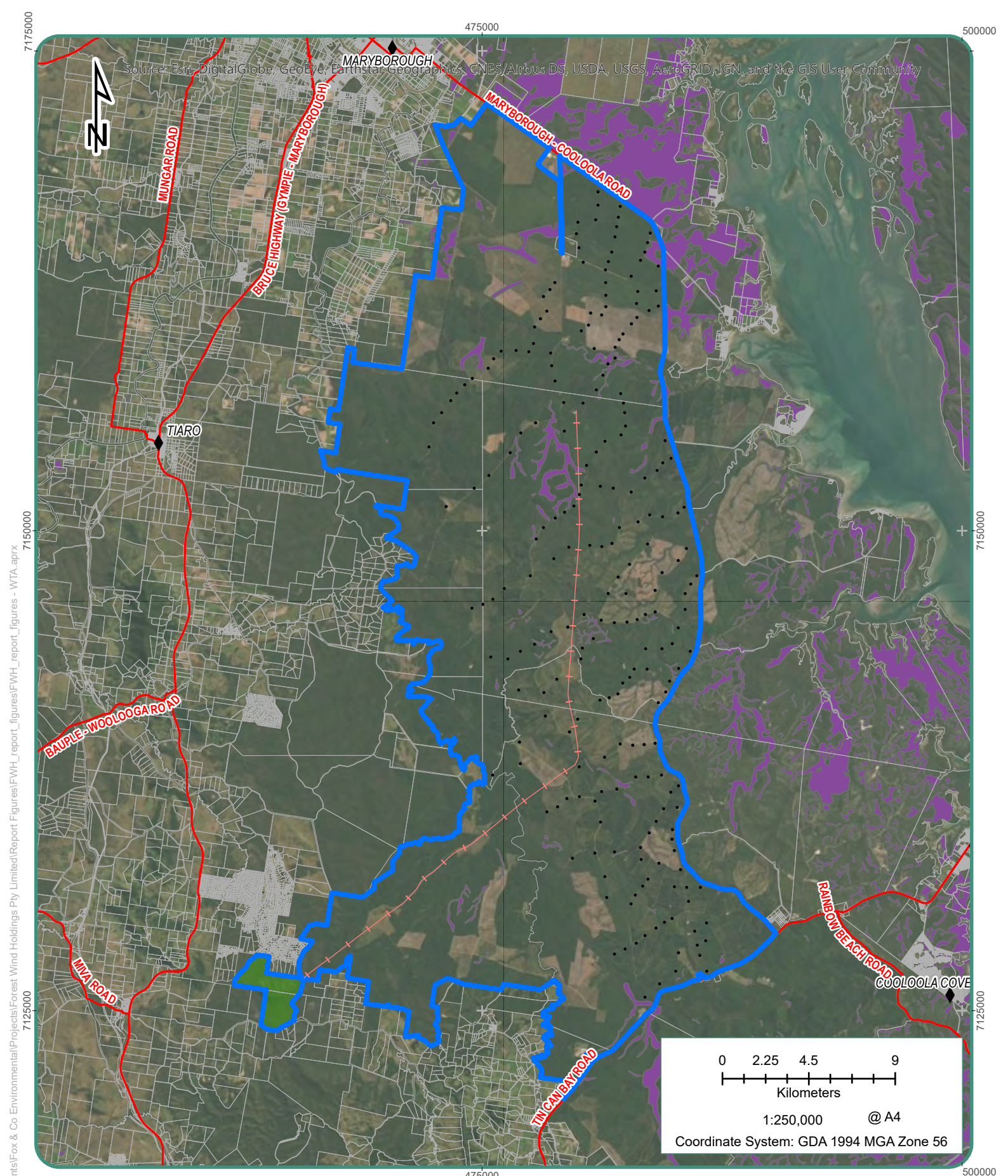
PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

- ◆ Populated places
- FWH Turbine Locations
- State controlled roads
- High voltage transmission line
- ▭ Study area
- ▭ Property boundaries
- ▭ MSES HES wetlands
- ▭ MSES HEV wetlands
- ▭ Native state forest



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TITLE:
**Vegetation Management
 Wetlands Map**

MAP NO: Figure 14

PROJECT:
 Forest Wind Holdings Pty Ltd

LEGEND

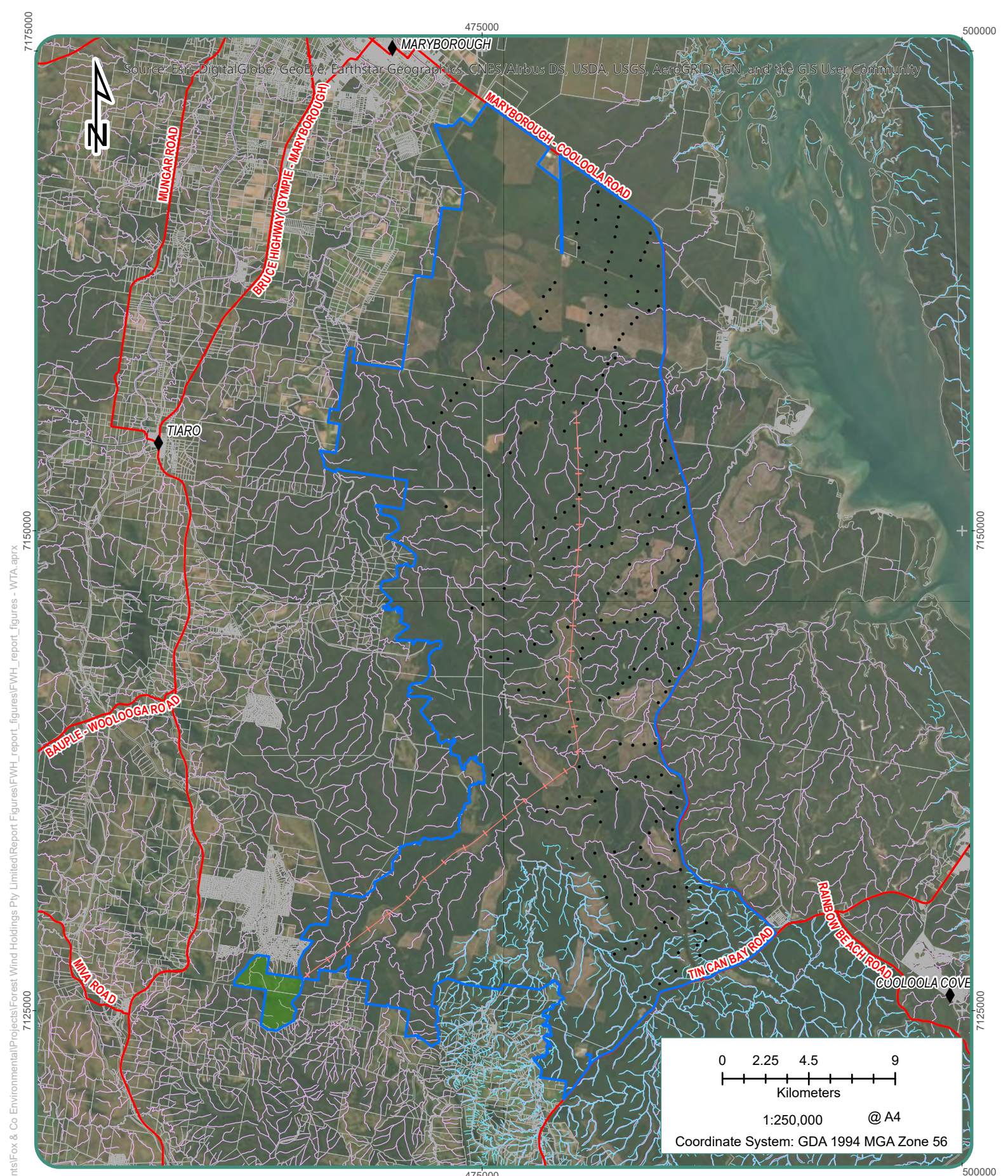
◆	Populated places		Study area
•	FWH Turbine Locations		Property boundaries
	State controlled roads		Vegetation management wetlands map
	High voltage transmission line		Native state forest



Date: 6/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.
 Vegetation management wetlands map, downloaded 03/08/2019

Document Path: C:\Users\greenvale\Documents\Fox & Co Environmental\Projects\Forest Wind Holdings Pty Limited\Report\Figures\FWH_report_figures\FWH_report_figures - WTA.aprx
 7125000
 7150000
 7175000



TITLE:
**MSES - Regulated vegetation
(intersecting a watercourse)
and High Ecological value Waters**

MAP NO: Figure 15

PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

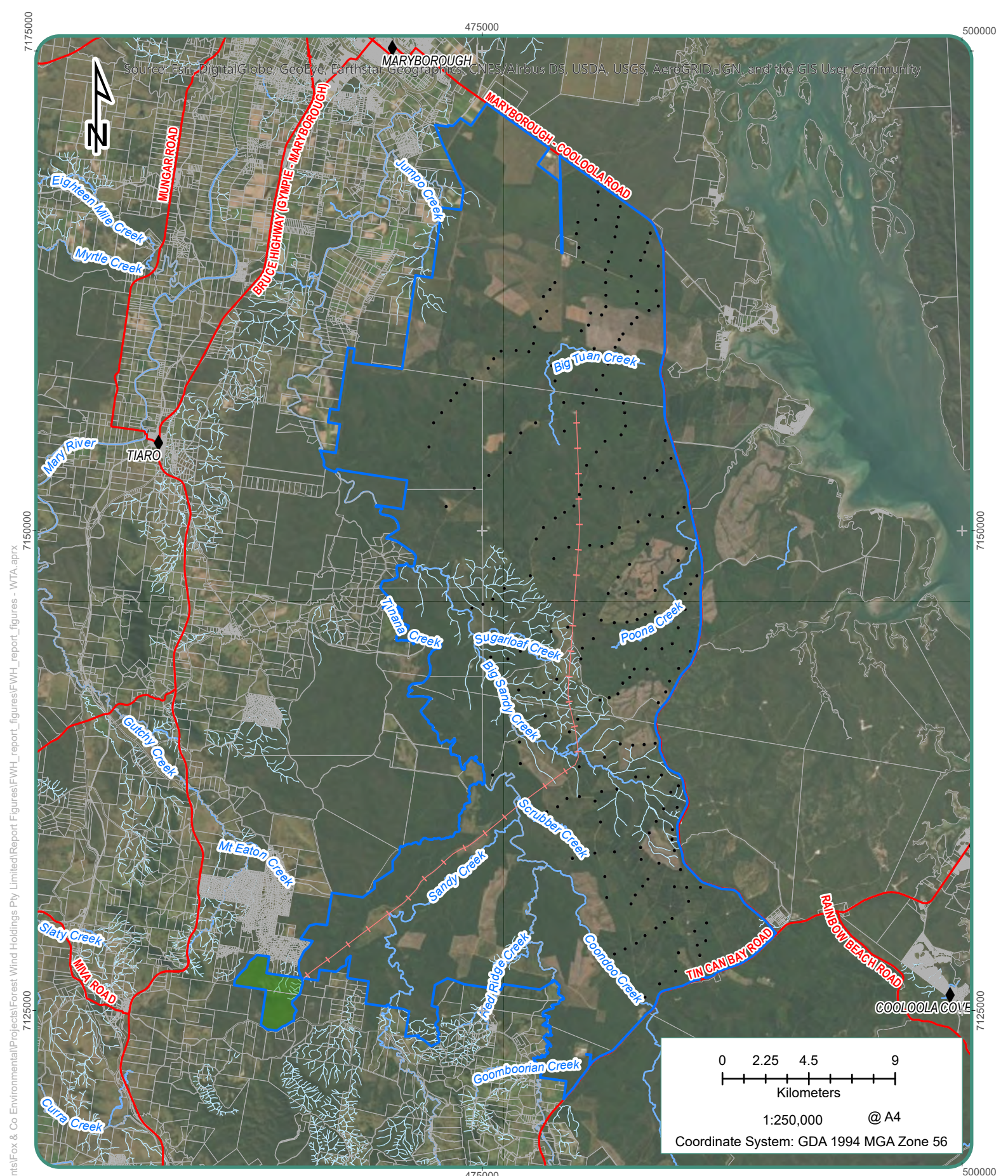
- ◆ Populated places
- FWH Turbine Locations
- State controlled roads
- High voltage transmission line
- ▭ Study area
- MSES Reg veg intersecting a watercourse
- MSES HEV watercourse
- ▭ Property boundaries
- ▭ Native state forest



Date: 7/09/2019

Data Source:
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

TITLE:
Watercourse Identification Map

MAP NO: Figure 16

PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

◆ Populated places	□ Property boundaries
• FWH Turbine Locations	— Watercourse
— State controlled roads	— Drainage feature
- - - High voltage transmission line	■ Native state forest
□ Study area	

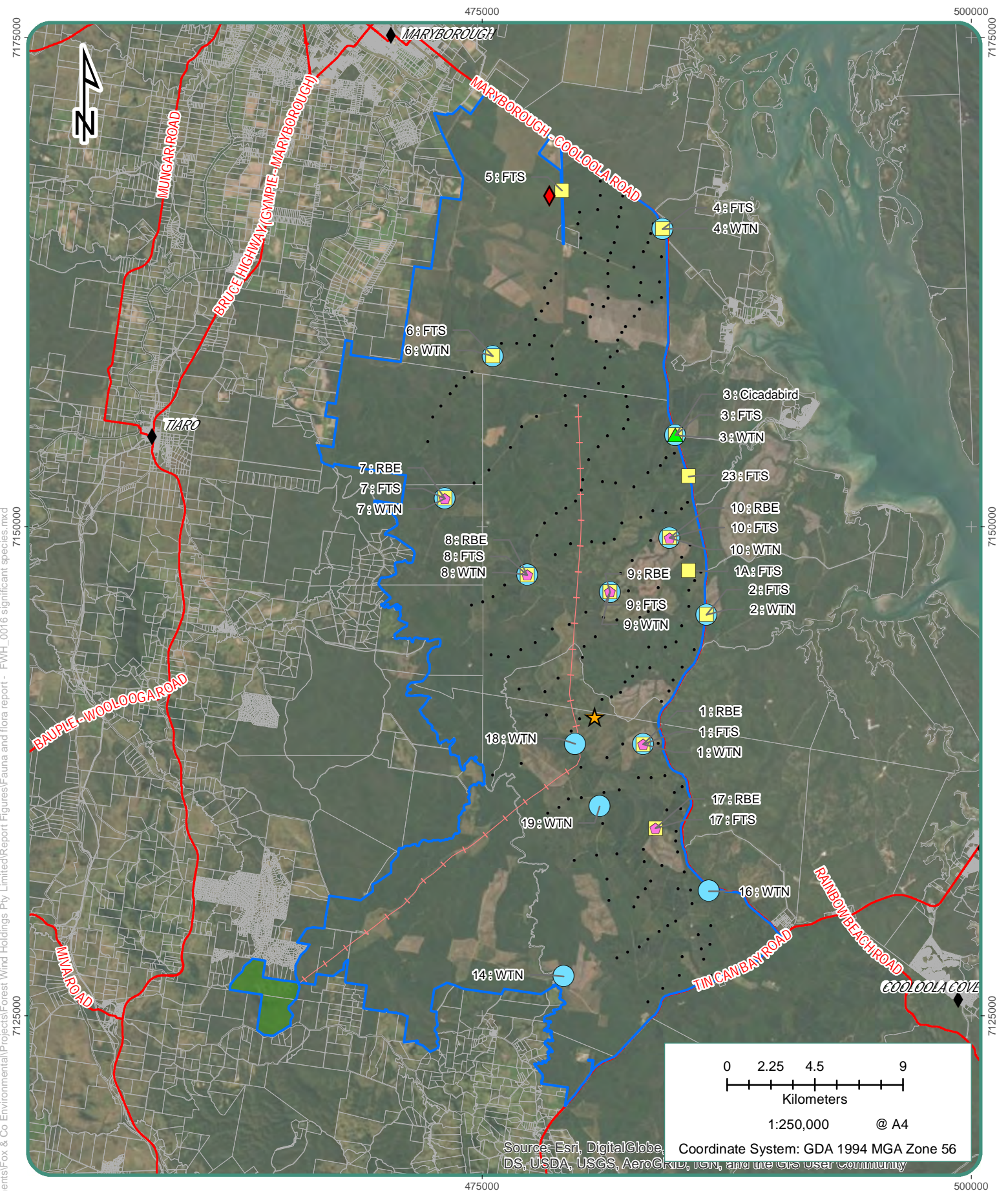
0 2.25 4.5 9
 Kilometers
 1:250,000 @ A4
 Coordinate System: GDA 1994 MGA Zone 56



Date: 7/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.
 Water identification map, © State of Queensland (Department of Natural Resources, Mines and Energy) 2019

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TITLE:
Conservation Significant Species

MAP NO: Figure 17

PROJECT: Forest Wind Holdings Pty Ltd - Fauna and flora report

LEGEND

Wallum froglet	Swamp Crayfish	Native state forest
Cicadabird	Populated Places	
Rainbow bee-eater	FWH Turbine locations	
Fork-tailed swifts	High voltage transmission line	
White-throated Needtail	Study area	

Date: 8/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.

APPENDIX B

Survey Data

Table 21 Species List

Family	Scientific Name	Common Name	EPBC Act	NC Act
Crustaceans				
Parastacidae	<i>Tenuibranchiurus glypticus</i>	Swamp crayfish	-	E
Atyidae	<i>Paratya australiensis</i>	Australian freshwater shrimp	-	-
Parastacidae	<i>Cherax</i>	Crayfish	-	-
Fish				
Melanotaeniidae	<i>Melanotaenia duboulayi</i>	Crimson spotted rainbowfish	-	-
Poecillidae	<i>Gambusia holbrooki</i>	Gambusia	-	-
Eleotridae	<i>Mogurnda adspersa</i>	Purple-spotted gudgeon	-	-
Eleotridae	<i>Hypseleotris compressa</i>	Empire gudgeon	-	-
Reptiles				
Agamidae	<i>Pogona barbata</i>	Eastern bearded dragon	-	-
Varanidae	<i>Varanus varius</i>	Lace monitor	-	-
Elapidae	<i>Hemiaspis signata</i>	Marsh snake	-	-
Elapidae	<i>Demansia psammophis</i>	Yellow-faced whip snake	-	-
Elapidae	<i>Pseudonaja textillis</i>	Eastern brown snake	-	-
Amphibians				
Hylidae	<i>Litoria fallax</i>	Eastern dwarf tree frog	-	-
Hylidae	<i>Litoria latopalmata</i>	Broad-palmed frog	-	-
Hylidae	<i>Litoria rubella</i>	Little red tree frog	-	-
Myobatrachidae	<i>Crinia tinulla</i>	Wallum froglet	-	V
Myobatrachidae	<i>Crinia parinsignifera</i>	Eastern sign-bearing froglet	-	-
Bufonidae	<i>Rhinella marina</i>	Cane toad	-	-
Mammals				
Phascolarctidae	<i>Phascolarctos cinereus</i>	Koala	V	V
Macropodidae	<i>Wallabia bicolor</i>	Swamp wallaby	-	-
Macropodidae	<i>Macropus giganteus</i>	Eastern grey-kangaroo	-	-
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed flying-fox	V	-
Equidae	<i>Equus caballus</i>	Horse	-	-
Suidae	<i>Sus scrofa</i>	Pig	-	-
Canidae	<i>Canis lupus dingo</i>	Dingo	-	-
Rhinolophidae	<i>Rhinolophus megaphyllus</i>	Eastern horseshoe bat	-	-
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	-	-
Vespertilionidae	<i>Chalinolobus nigrogriseus</i>	Hoary wattled bat	-	-
Vespertilionidae	<i>Nyctophilus sp.</i>		-	-
Vespertilionidae	<i>Scotorepens greyii</i>	Little broad-nosed bat	-	-
Miniopteridae	<i>Miniopterus australis</i>	Little bent-wing bat	-	-
Miniopteridae	<i>Miniopterus orianae</i>	Australian bent-wing bat	-	-
Molossidae	<i>Austronomus australis</i>	White-striped freetail bat	-	-
Molossidae	<i>Ozimops ridei</i>	Ride's free-tailed bat	-	-
Molossidae	<i>Ozimops lumsdenae</i>	Northern free-tailed bat	-	-
Emballonuridae	<i>Saccolaimus flaviventris</i>	Yellow-bellied sheath-tail bat	-	-
Birds				
Acanthizidae	<i>Gerygone olivacea</i>	White-throated gerygone	-	-

Family	Scientific Name	Common Name	EPBC Act	NC Act
Accipitridae	<i>Circus assimilis</i>	spotted harrier	-	-
Accipitridae	<i>Elanus caeruleus</i>	Black-winged kite	-	-
Accipitridae	<i>Haliastur sphenurus</i>	Whistling kite	-	-
Alcedinidae	<i>Todiramphus macleayii</i>	Forest kingfisher	-	-
Apodidae	<i>Apus pacificus</i>	Fork-tailed swift	MM, LM	SLC
Apodidae	<i>Hirundapus caudacutus</i>	White-throated needletail	V, MT, LM	SLC
Apodidae	<i>Hirundo neoxena</i>	Welcome swallow	-	-
Ardeidae	<i>Ardea pacifica</i>	White-necked heron	-	-
Artamidae	<i>Cracticus nigrogularis</i>	Pied butcherbird	-	-
Artamidae	<i>Cracticus tibicen</i>	Australian magpie	-	-
Artamidae	<i>Cracticus torquatus</i>	Grey butcherbird	-	-
Artamidae	<i>Strepera graculina</i>	Pied currawong	-	-
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested cockatoo	-	-
Cacatuidae	<i>Zanda funereus</i>	Yellow-tailed black-cockatoo	-	-
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced cuckoo-shrike	-	-
Campephagidae	<i>Coracina tenuirostris</i>	Cicadabird	LM	-
Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	-	-
Cisticolidae	<i>Cisticola exilis</i>	Golden-headed cisticola	-	-
Climacteridae	<i>Cormobates leucophaea</i>	White-throated treecreeper	-	-
Columbidae	<i>Geopelia humeralis</i>	Bar-shouldered dove	-	-
Columbidae	<i>Geopelia striata</i>	Peaceful dove	-	-
Columbidae	<i>Macropygia amboinensis</i>	Brown cuckoo-dove	-	-
Columbidae	<i>Phaps chalcoptera</i>	Common bronzewing	-	-
Columbidae	<i>Ptilinopus superbus</i>	Superb fruit-dove	-	-
Corcoracidae	<i>Grallina cyanoleuca</i>	Magpie-lark	-	-
Corvidae	<i>Corvus orru</i>	Torresian crow	-	-
Cuculidae	<i>Centropus phasianinus</i>	Pheasant coucal	-	-
Cuculidae	<i>Chalcites lucidus</i>	Shining bronze-cuckoo	-	-
Cuculidae	<i>Scythrops novaehollandiae</i>	Channel-billed cuckoo	-	-
Dicruidae	<i>Dicrurus bracteatus</i>	spangled drongo	-	-
Estrildidae	<i>Neochmia temporalis</i>	Red-browed finch	-	-
Estrildidae	<i>Taeniopygia bichenovii</i>	Double-barred finch	-	-
Falconidae	<i>Falco berigora</i>	Brown falcon	-	-
Falconidae	<i>Falco longipennis</i>	Australian hobby	-	-
Falconidae	<i>Falco peregrinus macropus</i>	Peregrine falcon	-	-
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing kookaburra	-	-
Hirundinidae	<i>Petrochelidon nigricans</i>	Tree martin	-	-
Maluridae	<i>Malurus lamberti</i>	Variegated fairy-wren	-	-
Maluridae	<i>Malurus melanocephalus</i>	Red-backed fairy-wren	-	-
Meliphagidae	<i>Lichenostomus chrysops</i>	Yellow-faced honeyeater	-	-
Meliphagidae	<i>Lichmera indistincta</i>	Brown honeyeater	-	-
Meliphagidae	<i>Manorina melanocephala</i>	Noisy miner	-	-
Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	-	-
Meliphagidae	<i>Myzomela sanguinolenta</i>	Scarlet honeyeater	-	-
Meliphagidae	<i>Philemon citreogularis</i>	Little friarbird	-	-
Meliphagidae	<i>Philemon corniculatus</i>	Noisy friarbird	-	-

Family	Scientific Name	Common Name	EPBC Act	NC Act
Meropidae	<i>Merops ornatus</i>	Rainbow bee-eater	LM	-
Monarchidae	<i>Myiagra inquieta</i>	Restless flycatcher	-	-
Monarchidae	<i>Myiagra rubecula</i>	Leaden flycatcher	-	-
Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	-	-
Nectariniidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	-	-
Oriolidae	<i>Oriolus sagittatus</i>	Olive-backed oriole	-	-
Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird	-	-
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey shrike-thrush	-	-
Pachycephalidae	<i>Pachycephala pectoralis</i>	Golden whistler	-	-
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous whistler	-	-
Pardalotidae	<i>Pardalotus striatus</i>	Striated pardalote	-	-
Petroicidae	<i>Eopsaltria australis</i>	Eastern yellow robin	-	-
Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot	-	-
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow lorikeet	-	-
Rhipiduridae	<i>Rhipidura fuliginosa</i>	Grey fantail	-	-
Rhipiduridae	<i>Rhipidura leucophrys</i>	Willie wagtail	-	-
Timaliidae	<i>Zosterops lateralis</i>	Silvereye	-	-

PBC Act: CE – Critically endangered, E – Endangered, V – Vulnerable, MM – Migratory Marine, MT – Migratory Terrestrial Species, ² - MW – Migratory Wetland Species, LM – Listed Marine Species

NC Act - E – Endangered, V – Vulnerable, SLC – Special Least Concern, LC – Least Concern

Introduced species

Table 22 Weeds recorded on WTA

Family	Taxon	Declared	WONS
Asteraceae	<i>Ageratum houstonianum</i>		
Asteraceae	<i>Baccharis halimifolia</i>	3	
Asteraceae	<i>Bidens pilosa</i>		
Asteraceae	<i>Crassocephalum crepidioides</i>		
Asteraceae	<i>Emilia sonchifolia</i>		
Asteraceae	<i>Erigeron sumatrensis</i>		
Asteraceae	<i>Praxelis clematidea</i>		
Leguminosae (Caesalpiniaceae)	<i>Chamaecrista rotundifolia</i>		
Leguminosae (Fabaceae)	<i>Macrotyloma axillare</i> var. <i>axillare</i>		
Leguminosae (Fabaceae)	<i>Stylosanthes guianensis</i>		
Leguminosae (Mimosaceae)	<i>Mimosa pudica</i>		
Malvaceae	<i>Sida cordifolia</i>		
Malvaceae	<i>Sida rhombifolia</i>		
Malvaceae	<i>Urena lobata</i>		
Plantaginaceae	<i>Scoparia dulcis</i>		
Poaceae	<i>Andropogon virginicus</i>		
Poaceae	<i>Eragrostis curvula</i>		
Poaceae	<i>Sporobolus africanus</i>		
Poaceae	<i>Urochloa decumbens</i>		
Polygalaceae	<i>Polygala paniculata</i>		
Verbenaceae	<i>Lantana camara</i>	3	W

Declared *Qld Biosecurity Act 2014.*

- 1 must be reported to Biosecurity Queensland within 24 hours of the sighting, take all reasonable and practical steps to minimise the risk of it spreading
- 2 must be reported within 24 hours Biosecurity Queensland on 13 25 23 must not be distributed either by sale or gift, or released into the environment
- 3 Invasive plant must not be distributed either by sale or gift, or released into the environment
- 4 must not be moved
- 5 must not be kept

WONS *Environmental Protection and Biodiversity Protection Act 1999. Australia 1999.*

- w listed as a weed of national significance under the Commonwealth's *Environmental Protection and Biodiversity Protection Act*.
 All WONS have individual national strategic management plans. Management of lantana (WONS) should be in accordance with established national plan (*Australian Weeds Strategy 2017-2027, Invasive Plants and Animals Committee, 2017*).

Table 23 Vegetation Assessments – WTA

Way point	Estimated Canopy Cover	Estimated Canopy Height (metres)	Structure	Dominant or Codominant species	Subdominant species	Associated species	Notes
43	sparse	14	woodland	<i>Eucalyptus latisinensis</i>	<i>Eucalyptus racemosa</i>		
44	sparse	12	woodland	<i>Eucalyptus latisinensis</i>		<i>Melelaleuca quinquinervia</i> , <i>Eucalyptus exserta</i>	
45	sparse	12	woodland	<i>Eucalyptus latisinensis</i>			
46	sparse	16	woodland	<i>Eucalyptus racemosa</i>		<i>Eucalyptus latisinensis</i>	
48	sparse	12	woodland	<i>Melelaleuca quinquinervia</i>	<i>Eucalyptus latisinensis</i>	<i>Eucalyptus racemosa</i>	
49	sparse	16	woodland	<i>Corymbia gummifera</i>	<i>Melelaleuca quinquinervia</i>	<i>Eucalyptus latisinensis</i>	
50	very sparse	12	open woodland	<i>Eucalyptus latisinensis</i>			Sparse shrub layer to <i>Eucalyptus tereticornis</i> of <i>Melaleuca nodosa</i> , dense ground layer of <i>Baumea juncea</i> . Shallow standing water with <i>Philydrum lanuginosum</i> , <i>Cyperus haspan</i> , <i>Nymphoides exiliflora</i> , <i>Velleia spathulata</i> .
51	dense	2	closed heath/closed sedgeland mosaic	<i>Baumea juncea</i> , <i>Melaleuca pachyphylla</i> , <i>Leptospermum polygalifolium</i>		<i>Xanthorrhoea johnsohnii</i> , <i>Hakea actites</i> , <i>Grevillea reptyans</i>	

Way point	Estimated Canopy Cover	Estimated Canopy Height (metres)	Structure	Dominant or Codominant species	Subdominant species	Associated species	Notes
52	sparse to mid dense	14	woodland to open forest	<i>Melelaleuca quinquinervia</i>			
53	sparse	16	woodland	<i>Eucalyptus latisinensis</i>			
54	sparse	16	woodland	<i>Eucalyptus latisinensis</i>			
55	sparse	12	woodland	<i>Melelaleuca quinquinervia</i>			
56	sparse	14	woodland	<i>Eucalyptus latisinensis</i>		<i>Melelaleuca quinquinervia</i>	ENDANGERED species <i>Macrozamia pauli-guilielmi</i> present in ground layer.
57	mid dense to dense	10	low open forest to low closed forest	<i>Melelaleuca quinquinervia</i>		<i>Eucalyptus latisinensis</i>	
58	sparse	14	woodland	<i>Melelaleuca quinquinervia</i>		<i>Eucalyptus latisinensis</i> , <i>Eucalyptus tereticornis</i>	
59	sparse	18	woodland	<i>Eucalyptus racemosa</i>		<i>Eucalyptus latisinensis</i>	
60	very sparse	20	open woodland	<i>Eucalyptus robusta</i>		<i>Lophostemon suaveolens</i>	Fragmentation due to canopy loss. Understorey with <i>Melaleuca linariifolia</i> , <i>Acacia hubbardiana</i> . Dense sedge/fern ground layer with <i>Chorizandra sphaerocephala</i> , <i>Cyperus polystachyos</i> , <i>Gahnia sieberiana</i> , <i>Hypolepis muelleri</i> .
61	sparse	16	woodland	<i>Eucalyptus racemosa</i> , <i>Allocasuarina littoralis</i>		<i>Lophostemon suaveolens</i> , <i>Melelaleuca quinquinervia</i> , <i>Eucalyptus siderophloia</i> ,	

Way point	Estimated Canopy Cover	Estimated Canopy Height (metres)	Structure	Dominant or Codominant species	Subdominant species	Associated species	Notes
						<i>Banksia integrifolia</i> var. <i>compar</i>	
62	sparse to mid dense	20	woodland to open forest	<i>Eucalyptus tereticornis</i>	<i>Corymbia intermedia</i>	<i>Lophostemon suaveolens</i> , <i>Angophora leiocarpa</i> , <i>Allocasuarina torulosa</i>	
64	sparse to mid dense	20	woodland to open forest	<i>Eucalyptus racemosa</i>	<i>Corymbia intermedia</i>		Heathy understorey with <i>Banksia aemula</i> .
65	mid dense	24	open forest	<i>Eucalyptus racemosa</i> , <i>Corymbia intermedia</i>		<i>Eucalyptus latisinensis</i>	Heathy understorey. <i>Melelaleuca quinquinervia</i> present in wet areas of understorey.
66	sparse	24	woodland	<i>Eucalyptus racemosa</i> , <i>Eucalyptus latisinensis</i>			
67	sparse	20	woodland	<i>Eucalyptus racemosa</i> , <i>Eucalyptus latisinensis</i>		<i>Lophostemon suaveolens</i> , <i>Melelaleuca quinquinervia</i> , <i>Allocasuarina littoralis</i>	Understorey with <i>Melaleuca linariifolia</i> , dense sedge ground layer.
68	sparse	18	woodland	<i>Lophostemon suaveolens</i>			
69	sparse	14	woodland	<i>Eucalyptus racemosa</i>	<i>Eucalyptus carnea</i>	<i>Corymbia intermedia</i>	Understorey with <i>Melaleuca sieberi</i> .
70	sparse	24	woodland	<i>Eucalyptus latisinensis</i>			
71	sparse	18	woodland	<i>Eucalyptus racemosa</i>			
72	sparse	20	woodland	<i>Melelaleuca quinquinervia</i>		<i>Eucalyptus tereticornis</i>	
73	sparse	16	woodland	<i>Eucalyptus racemosa</i>		<i>Eucalyptus latisinensis</i>	
74	sparse to mid dense	18	woodland to open forest	<i>Melelaleuca quinquinervia</i>			

Way point	Estimated Canopy Cover	Estimated Canopy Height (metres)	Structure	Dominant or Codominant species	Subdominant species	Associated species	Notes
75	sparse to very sparse	8	low woodland to low open woodland	<i>Eucalyptus bancroftii</i> , <i>Melelaleuca quinquinervia</i>			Understorey with dense <i>Xanthorrhoea johnsonii</i> and sparse <i>Hakea actites</i> .
76	sparse	8	low woodland	<i>Melaleuca viridiflora</i>			Understorey with dense <i>Xanthorrhoea johnsonii</i> and sparse <i>Hakea actites</i> .
77	sparse to very sparse	8	low woodland to low open woodland	<i>Eucalyptus latisinensis</i>	<i>Melelaleuca quinquinervia</i>	<i>Melaleuca viridiflora</i>	Understorey with <i>Leptospermum polygalifolium</i> and <i>Banksia robur</i> . Dense ground layer of <i>Empodisma minus</i> .
78	sparse to mid dense	26	woodland to open forest	<i>Eucalyptus pilularis</i>			
79	sparse	20	woodland	<i>Eucalyptus racemosa</i>	<i>Eucalyptus latisinensis</i>		
80	sparse	14	woodland	<i>Melelaleuca quinquinervia</i>			
81	sparse to mid dense	20	woodland to open forest	<i>Eucalyptus racemosa</i>			
82	sparse to very sparse	12	woodland to open woodland	<i>Eucalyptus racemosa</i>	<i>Eucalyptus latisinensis</i>		
83	sparse	18	woodland	<i>Eucalyptus latisinensis</i> , <i>Eucalyptus racemosa</i>			<i>Zieria minutiflora</i> present.
84	sparse	18	woodland	<i>Eucalyptus racemosa</i>		<i>Corymbia intermedia</i> , <i>Eucalyptus latisinensis</i>	
85	sparse	16	woodland	<i>Eucalyptus racemosa</i>	<i>Eucalyptus latisinensis</i>		Heathy understorey with <i>Hakea actites</i> .

Way point	Estimated Canopy Cover	Estimated Canopy Height (metres)	Structure	Dominant or Codominant species	Subdominant species	Associated species	Notes
86	sparse	18	woodland	<i>Eucalyptus latisinensis</i>		<i>Corymbia intermedia</i> , <i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i>	
87	sparse to mid dense	24	woodland to open forest	<i>Lophostemon confertus</i>	<i>Eucalyptus latisinensis</i>		Developing rainforest understorey
88	sparse to mid dense	16	woodland to open forest	<i>Eucalyptus racemosa</i>			

Structure terms derived from Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S. and Butler, D.W. (2017) Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland. Version 4.0. Updated May 2017. Queensland Herbarium, Queensland Department of Science, Information Technology and Innovation, Brisbane.
 Taxa derived from Census of the Queensland Flora 2018, Environment and Science, Queensland Government

APPENDIX C

Microbat Report



Microbat Call Identification Report

Prepared for (“Client”):	Fox & Co Environmental
Survey location/project name:	Wide Bay Wind Farm
Survey dates:	14 February - 26 March 2019
Client project reference:	
Job no.:	FOX-1901
Report date:	24 May 2019

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Methods

Survey summary and data received

Two Song Meter bat detectors (1 x SM2BAT and 1 x SM4-FS) were deployed at 12 sites over a six-week period from 14th February to 26th March 2019. Both detectors recorded in full-spectrum mode, saving data as .WAV files. *Balance! Environmental* received 43,462 .WAV files for analysis.

Bat-call analysis and species identification

Call analyses were performed using the Cluster Analysis function of *Kaleidoscope Pro* (Wildlife Acoustics), which scanned all .WAV files and clustered detected bat-calls into groups with similar pulse-characteristics (based on zero-crossing analysis). All clusters were then manually reviewed in spectrogram view and allocated either to single species or groups of difficult-to-differentiate species (“unresolved calls”).

Manual verification of call identities was based on comparison of call spectrograms and derived metrics with those of reference calls from southern Queensland and/or with published call descriptions (e.g. Reinhold et al. 2001). Consideration was also given to the probability of species’ occurrence based on published distribution information (e.g. Churchill 2008; van Dyck *et al.* 2013) and on-line database records (e.g. <http://www.ala.org.au>).

Reporting standard

The format and content of this report follows Australasian Bat Society standards for the interpretation and reporting of bat call data (Reardon 2003), available on-line at <http://www.ausbats.org.au>.

Species nomenclature follows Jackson & Groves (2015).

Results & Discussion

Most (42,880 = 97%) of the WAV files contained only background noise from insects, rain and wind. The SM4 detector failed to record any bat calls from the site surveyed between 27 February – 4 March. The 7330 WAV files recorded during this period by SM4 were ‘swamped’ with insect calls and/or with rain-generated noise.

Within the 582 WAV files with recognisable bat calls, the Cluster Analysis recognised 607 distinct bat calls and grouped them into 33 clusters. Verification of call identities in those clusters resulted in the aggregation of several clusters that contained call-variants of the same species; while some clusters were further subdivided due to the presence of multiple species’ calls that were obvious to the experienced observer.

Up to 14 species were recorded during these surveys. Eleven call-types were positively identified to ten unique species plus the *Nyctophilus* genus (see **Table 1**). Up to three *Nyctophilus* species potentially occur in the study area – *N. bifax*, *N. geoffroyi* and *N. gouldi* – but their calls cannot be reliably differentiated.

Three other call-types were identifiable only to mixed-species groups because they had variable or intermediate pulse-characteristics. Two of those groups contained species that were otherwise reliably identified (*Chalinolobus gouldii*/*Ozimops ridei* and *C. nigrogriseus*/*Scotorepens greyii*). The third group – *Vespadelus troughtoni*/*Chalinolobus morio* – potentially represented two additional species that was not otherwise recorded. Where these “unresolved calls” were encountered, all members of the relevant group were listed as “probable” in **Table 1** unless positively identifiable calls of one or both species were also observed.

Almost 95% (576) of the calls were positively identified, with 83% (504 calls) attributable to just three species: *C. nigrogriseus*; *O. ridei*; and *Saccolaimus flaviventris*. The numbers of calls attributed to each species and “unresolved” group are presented in **Appendix 1**

Sample spectrograms of all identified call types are shown at **Appendix 2**.

References

- Churchill, S. (2008). *Australian Bats*. Jacana Books, Allen & Unwin; Sydney.
- Jackson, S. and Groves, C. (2015). *Taxonomy of Australian Mammals*. CSIRO Publishing, Melbourne.
- Reardon, T. (2003). Standards in bat detector based surveys. *Australasian Bat Society Newsletter* **20**, 41-43.
- Reinhold, L., Law, B., Ford, G. and Pennay, M. (2001). *Key to the bat calls of south-east Queensland and north-east New South Wales*. Department of Natural Resources and Mines, Brisbane.
- van Dyck, S., Gynther, I. and Baker, A. (ed.) (2013). *Field Companion to the Mammals of Australia*. New Holland; Sydney.

Table 1 Microbat species recorded during the Wide Bay surveys, 14th February – 26th March 2019.

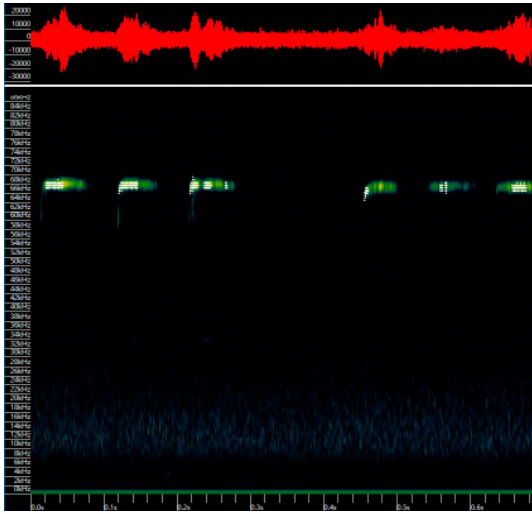
- ◆ = 'definite' - at least one call was attributed unequivocally to the species
- = 'possible' - calls like those of the species were recorded, but were not reliably identified

Deployment dates:	14-20 Feb		20-27 Feb		27 Feb-4 Mar		4-14 Mar		14-20 Mar		20-26 Mar	
Detector:	SM2	SM4	SM2	SM4	SM2	SM4	SM2	SM4	SM2	SM4	SM2	SM4
Species detected												
<i>Rhinolophus megaphyllus</i>					◆	No bats recorded				◆		
<i>Chalinolobus gouldii</i>	◆	◆	◆		◆		◆		◆	◆	◆	◆
<i>Chalinolobus morio</i>			□		□							
<i>Chalinolobus nigrogriseus</i>		◆	◆		◆		◆	◆	◆	◆	◆	◆
<i>Nyctophilus sp.</i>	◆			◆			◆		◆			
<i>Scotorepens greyii</i>			◆		◆		□	□		◆		
<i>Vespadelus troughtoni</i>			□		□							
<i>Miniopterus australis</i>				◆	◆		◆				◆	
<i>Miniopterus orianae</i>			◆		◆		◆				◆	◆
<i>Austronomus australis</i>		◆		◆	◆					◆		◆
<i>Ozimops ridei</i>	◆	◆	□		◆		◆		◆	◆	◆	◆
<i>Ozimops lumsdenae</i>										◆	◆	◆
<i>Saccolaimus flaviventris</i>	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆

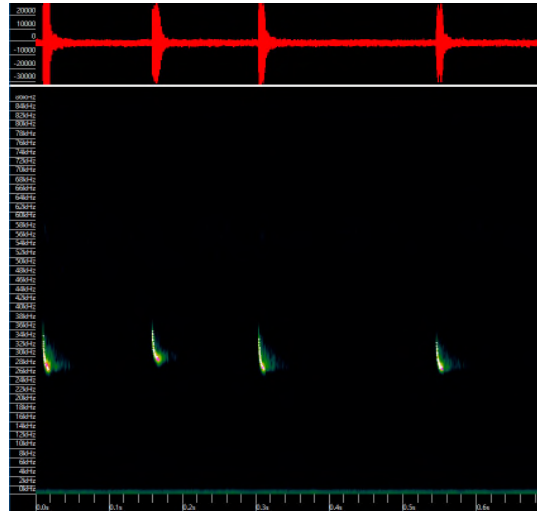
Appendix 1 Numbers of calls attributed to species or unresolved species groups for the Wide bay survey, 14th February – 26th March 2019.

Deployment dates:	14-20 Feb		20-27 Feb		27 Feb-4 Mar		4-14 Mar		14-20 Mar		20-26 Mar		Species total
	Detector:	SM2	SM4	SM2	SM4	SM2	SM4	SM2	SM4	SM2	SM4		
Positively identified calls													
<i>Rhinolophus megaphyllus</i>					1					3			4
<i>Chalinolobus gouldii</i>	1	3	1		1		1			2	2	6	17
<i>Chalinolobus nigrogriseus</i>		5	12		1		1	1	1	16	10	17	64
<i>Nyctophilus sp.</i>	1			1			1		1				4
<i>Scotorepens greyii</i>			51		1					1			53
<i>Miniopterus australis</i>				4	11		7				1		23
<i>Miniopterus orianae</i>			6		2		4				1	4	17
<i>Austronomus australis</i>		3		1	2					2		1	9
<i>Ozimops ridei</i>	2	7			10		2		1	14	7	116	159
<i>Ozimops lumsdenae</i>										6	1	9	16
<i>Saccolaimus flaviventris</i>	7	29	1	2	17		23	6	4	28	2	91	210
Unresolved calls													
<i>C. gouldii</i> / <i>O. ridei</i>	1		1		1							4	7
<i>C. nigrogriseus</i> / <i>S. greyii</i>		2	10		3		2	1					18
<i>Vespadelus troughtoni</i> / <i>Chalinolobus morio</i>			5		1								6
Site total	12	49	87	8	51		41	8	7	72	24	248	607

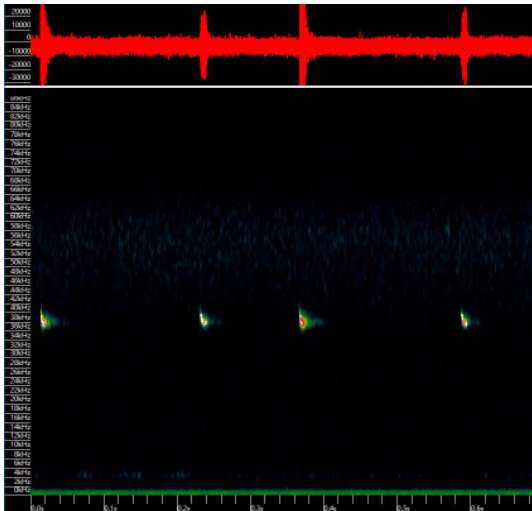
Appendix 2 Representative call sequences from the Wide Bay survey, February-March 2019.
True-time spectrograms; x-axis scale = 20 ms per tick-mark



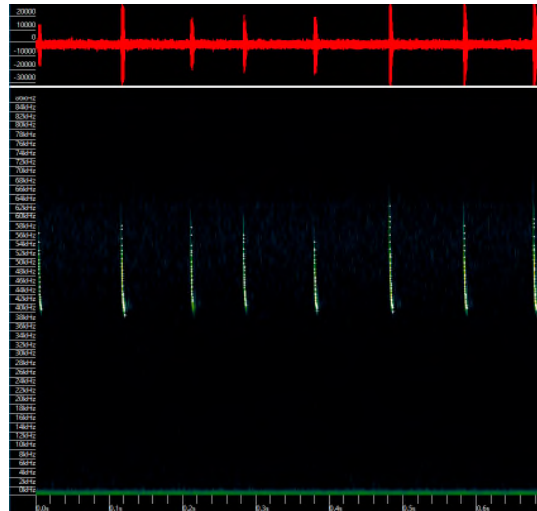
Rhinolophus megaphyllus



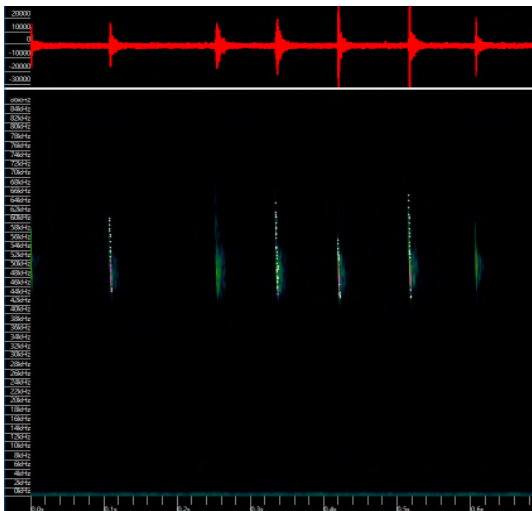
Chalinolobus gouldii



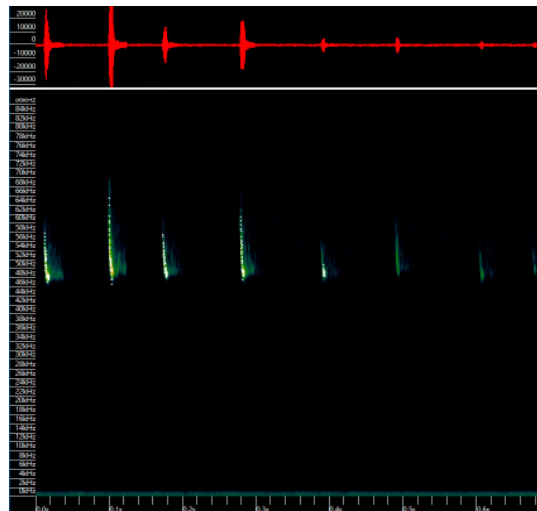
Chalinolobus nigrogriseus



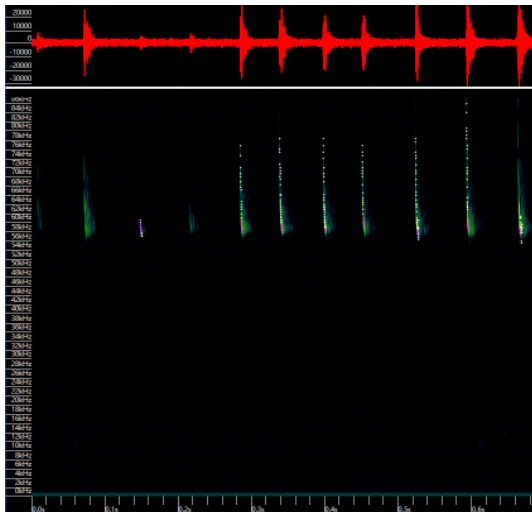
Scotorepens greyii



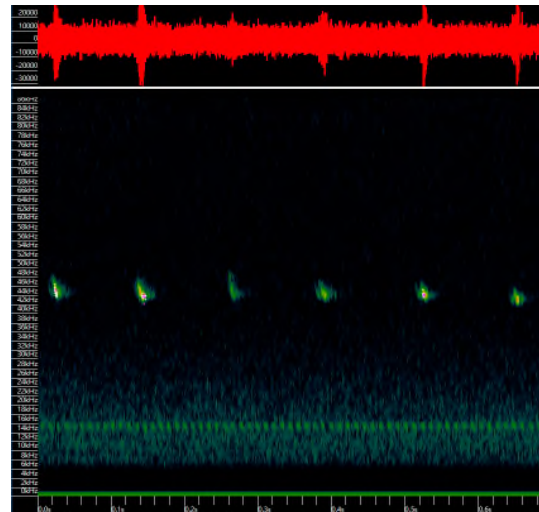
Nyctophilus sp.



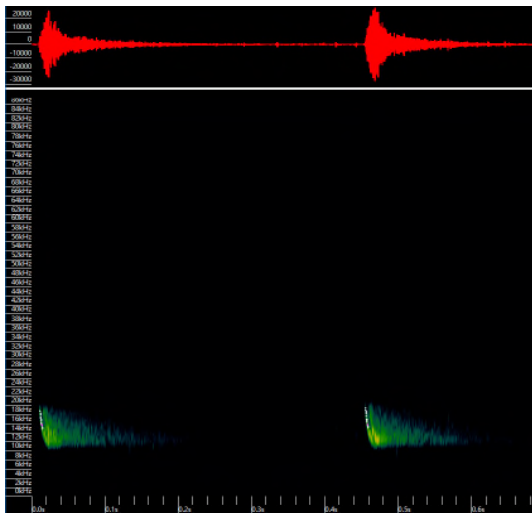
Vespadelus troungtoni / *Chalinolobus morio*



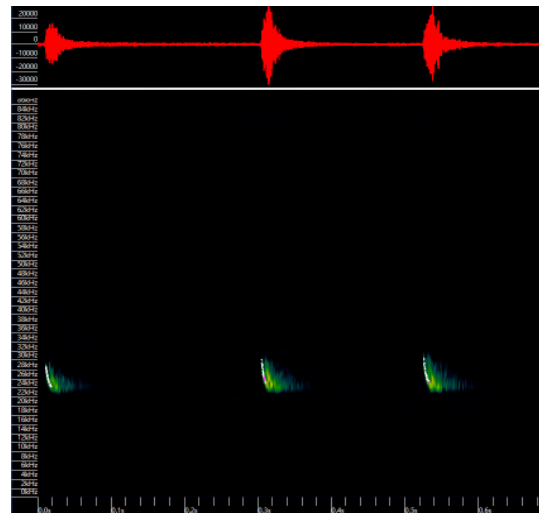
Miniopterus australis



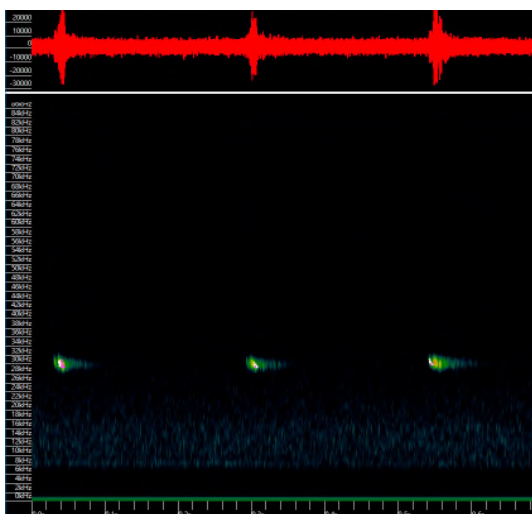
Miniopterus orianae oceanensis



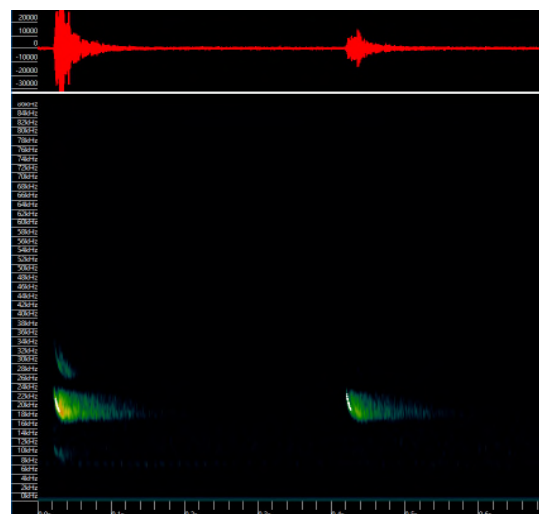
Austronomus australis



Ozimops lumsdenae



Ozimops ridei



Saccolaimus flaviventris

APPENDIX D

Likelihood of Occurrence

Table 24 Likelihood of Occurrence. WTA - Threatened Fauna including Migratory Birds

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
Reptiles				
<i>Delma torquata</i> Collared Delma	V	V	Typically associated with western facing ridgelines supporting dry open eucalypt and acacia woodlands with an open midstorey and groundcover of native grasses, thick leaf litter and loose rocks.	Low potential to occur No previous records
<i>Elseya albagula</i> Southern (white-throated) snapping turtle	CE	E	Found only in Queensland in the Fitzroy, Mary and Burnett Rivers and associated smaller drainages in south eastern Queensland. White throated snapping turtles do occur in non-flowing waters, but typically at much reduced densities (conservation advice, white-throated snapping turtle, 2014)	Moderate potential to occur. No previous records in WTA. Would not occur in pine plantations. Only potential habitat within Project Area is Tinana Creek.
<i>Elusor macrurus</i> Mary River Turtle	E	E	Restricted to permanent flowing streams and large pool habitats of the Mary River catchment.	Moderate potential to occur. No previous records in WTA. Would not occur in pine plantations. Only potential habitat within Project Area is Tinana Creek. Tinana Creek is not impacted by the Project therefore no impacts likely.
<i>Egernia rugosa</i> Yakka Skink	V	V	The Yakka Skink is known to occur in open dry sclerophyll forest, woodland and scrub. The core habitat of this species is within the Mulga Lands and Brigalow Belt South Bioregions (DoE, 2019)	Low potential to occur No previous records
<i>Furina dunmalli</i> Dunmall's snake	V	V	Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level (DoE, 2019).	Low potential to occur No previous records
Amphibians				

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Adelotus brevis</i> Tusked Frog	-	V	Breeds in ponds and slow-moving sections of streams in rainforests, wet sclerophyll forests and, less commonly, dry open forest. Usually is found under logs, stones or leaf litter near puddles, creeks and ponds The call is a slow "cluck" repeated several times a minute. (Curtis & Dennis, 2012)	High potential to occur Previous records (1) in wind turbine search area Wildnet: 2014 Waterways avoided and therefore no likely impacts. ESCP measures to manage potential impacts to water quality and therefore mitigate potential indirect impacts.
<i>Crinia tinnula</i> Wallum Froglet	-	V	Restricted to coastal wallum and associated with wet heath, Melaleuca swamps, wallum lakes and sedge swamps. Also known to occur in disturbed habitat including recently burnt heath and 4WD-affected sites (Curtis & Dennis, 2012) The call is a short high-pitched ring "tching...tching" like the tinkling of a bell.	Known to occur Identified during surveys in roadside ditch in non-remnant area. Core wallum froglet habitat in remnant areas avoided and therefore no likely impacts in remnant habitat areas. Drainage lines and roadside ditches in low-lying areas where previous wallum habitat occurred (remnant pre-clearing) may potentially provide suitable habitat during periods of inundation. These roadside drains and ditches may provide suitable breeding habitat due to the short hydroperiods and lack of introduced exotic fish species. To mitigate potential impacts, recommend Species Management Plan (SMP) for wallum froglet for track

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				<p>upgrade works required in potential wallum froglet habitat.</p> <p>Pre-clearance surveys will also identify areas (if any) where a SRIA may be required due to potential protected wildlife habitat in non-remnant areas. Locations identified during detailed design.</p>
<p><i>Litoria cooloolensis</i> Cooloola sedgefrog</p>	-	NT	<p>The terrestrial freshwater species is found in sandy coastal and island freshwater lakes and wallum creeks, where it has a preference for dense reed beds. It is a spring and summer breeder, with males calling from reeds or trees around freshwater lakes. Eggs are deposited on submerged vegetation; larvae are free-swimming. (Hines, Meyer, Hero, Newell, & Clarke, 2004)</p>	<p>High potential to occur Previous records (1) in WTA Wildnet: 1974</p> <p>Possible habitat in fragmented remnant areas. Remnant areas avoided and therefore no likely impacts.</p>
<p><i>Litoria freycineti</i> Wallum Rocketfrog</p>	-	V	<p>In south-east Queensland it is restricted to coastal sandy wallum habitat. Found mainly around sedge swamps, drainage lines and perched lakes. Has also been found some distance from water in eucalypt forest near areas of wet heath (Curtis & Dennis, 2012)</p>	<p>High potential to occur Previous records (1) in WTA Wildnet: 2009</p> <p>Possible habitat in fragmented remnant areas. Remnant areas avoided and therefore no likely impacts.</p> <p>Drainage lines and roadside ditches in low-lying areas where previous wallum habitat occurred (remnant pre-clearing) may potentially provide suitable habitat during periods of inundation.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				<p>To mitigate potential impacts, recommend Species Management Plan (SMP) for wallum froglet for track upgrade works required in potential wallum froglet habitat.</p> <p>Pre-clearance surveys will also identify areas (if any) where a SRIA may be required due to potential protected wildlife habitat in non-remnant areas. Locations identified during detailed design.</p>
<p><i>Litoria olongburensis</i> Wallum Sedge Frog</p>	V	V	<p>Found in ephemeral, semi-permanent and permanent wetlands with emergent reeds, ferns and/or sedges, in undisturbed coastal wallum of South-East Queensland to northern NSW. Often not sympatric with <i>Litoria fallax</i> and generally found in fish free environments. Rarely occurs if gambusia is present.</p> <p>The call is a soft 'buzzing'.(Curtis & Dennis, 2012)</p> <p>n these areas, habitat has become highly fragmented, leaving small isolated populations</p>	<p>Moderate potential to occur.</p> <p>No previous records in WTA although there are previous records in Toolara State Forest.</p> <p>Possible habitat in fragmented remnant areas. Remnant areas avoided and therefore no likely impacts.</p>
<p><i>Mixophyes fleayi</i> Fleay's Frog</p>	E	E	<p>Fleay's Frog is narrowly and disjunctly distributed in wet forests from the Conondale Range in south-east Queensland, south to Yabbra Scrub in north-east New South Wales. While the majority of records for the species are from altitudes above 400 m, Fleay's Frog is also known from lowland rainforest; 200 m (DoE, 2019).</p> <p>In Queensland, populations are currently known from the Conondale Range, Lamington Plateau and the northern section of Main Range, Mt Barney area and Currumbin and Tallebudgera Creek below Springbrook Plateau (DoE, 2019)</p>	<p>Low potential to occur</p> <p>No previous records.</p> <p>Area outside of current known populations.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Mixophyes iteratus</i> Giant Barred Frog	E	E	<p>In south-eastern Queensland, the Giant Barred Frog is known from Doongul Creek in the Burrum River catchment, at scattered locations in the Mary River catchment downstream to Kenilworth, the Upper Stanley River, Caboolture River and Coomera River.</p> <p>Occurs along shallow rocky streams in rainforest, wet sclerophyll forest and farmland between 100 and 1000m or deep, slow moving streams with steep banks in lowland areas. Rainforests, Antarctic beech or wet sclerophyll forests with rainforest understorey.</p>	<p>High potential to occur Previous records (1) in WTA Wildnet: 2014 Possible habitat in fragmented remnant areas. Remnant areas avoided and therefore no likely impacts. Likely habitat along Tinana Creek which is being avoided.</p>
Mammals				
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	V	V	<p>In Queensland, records are known from sandstone escarpments in the Carnarvon, Expedition Ranges and Blackdown Tablelands. It is likely that these areas support a high proportion of the Queensland populations of the Large-eared Pied Bat, although estimates of the number of individuals present and their distribution in these areas has not been established. Additional records exist in the Scenic Rim near the NSW/Queensland border. The populations in this area appear to be reliant on the presence of roosts in volcanic rock types (Hoye 2005). (DoE, 2018)</p>	<p>Low potential to occur No previous records</p>
<i>Dasyurus hallucatus</i> Northern Quoll	E	-	<p>The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas, eucalypt forest and woodlands, rainforests, sandy lowlands and beaches, shrubland, grasslands and desert. Northern Quolls are also known to occupy non rocky lowland habitats such as beach scrub communities in central Queensland. Northern Quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Rocky habitats are usually of high relief, often rugged and dissected but can also include tor fields or caves in low lying areas such as in Western Australia. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds (Department of the Environment, 2014a).</p>	<p>Low potential to occur No previous records. No suitable habitat in the study area.</p>
<i>Dasyurus maculatus maculatus</i> Spotted-tail Quoll	E	V	<p>Preference for mature wet forest habitat, especially in areas with rainfall 600 mm/year. Unlogged forest or forest that has been less disturbed by timber</p>	<p>Low potential to occur No previous records.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			<p>harvesting is also preferable. This subspecies has been recorded from a wide range of habitats.</p> <p>Prey-rich (small mammals (including possums), birds, reptiles, frogs) habitats are preferable (Department of the Environment, 2015f).</p>	No suitable habitat in the study area.
<p><i>Petauroides volans</i> <i>volans</i> Southern greater glider</p>	V	V	<p>The greater glider is an arboreal nocturnal marsupial, largely restricted to eucalypt forests and woodlands. It is primarily folivorous, with a diet mostly comprising eucalypt leaves, and occasionally flowers (DoEE, 2019).</p> <p>The greater glider is considered to be particularly sensitive to forest clearance and to intensive logging (DoEE, 2019). They have a low persistence in small forest fragments, and disperse poorly across vegetation that is not native forest. The vegetation within the Turbine Area is highly fragmented and is unlikely to support a population of greater gliders.</p>	<p>Low potential to occur No previous records.</p>
<p><i>Phascolarctos cinereus</i> Koala</p>	V	V	<p>Scattered populations throughout Qld, including moist forests in coastal areas, subhumid woodlands in southern and central regions, and along watercourses in semiarid eucalypt forested landscapes in the west. May also be found along non-riverine communities in semi-arid areas.</p> <p>Preferred habitat includes a range of temperate, sub-tropical and tropical forest, woodlands and semiarid vegetation types dominated by eucalyptus species. Also known to be limited to altitudes <800 m ASL and may be affected by temperature and leaf moisture in the western and northern parts of its range (Department of the Environment, 2014d).</p>	<p>High potential to occur</p> <p>May occur in remnant patches along waterway corridors where suitable habitat occurs (provided suitable connectivity). May utilise creek lines for movement corridors within remnant vegetation in the scoping area. Remnant areas avoided and therefore no likely impacts.</p>
<p><i>Potorous tridactylus</i> <i>tridactylus</i> Long-nosed Potoroo</p>	V	V	<p>There is no consistent pattern to the habitat of the Long-nosed Potoroo (SE Mainland); it can be found in wet eucalypt forests to coastal heaths and scrubs. The main factors would appear to be access to some form of dense vegetation for shelter and the presence of an abundant supply of fungi for food (Curtis & Dennis, 2012)</p>	<p>Low potential to occur No suitable habitat exists in pine plantations or study area. Potential habitat in remnant heath vegetation in adjacent Poona National Park to the north.</p>
<p><i>Ornithorhynchus anatinus</i></p>	-	SLC	<p>Platypuses occur in freshwater systems from tropical rainforest lowlands and plateaus of far northern Queensland to cold, high altitudes of Tasmania and</p>	High potential to occur

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
Platypus			the Australian Alps. They feed in both slow-moving and rapid (riffle) parts of streams, but show preference to coarser bottom substrates, particularly cobbles and gravel. The individuals use rocky crevices and stream debris as shelters, or they burrow under the roots of vegetation near the stream. Favoured habitat for the species includes a river or a stream with earth banks and native vegetation that provides shading of the stream and cover near the bank. (Australian museum, 2019)	<p>Previous records (1) within wind turbine search area.</p> <p>Wildnet: 2002</p> <p>Suitable habitat exists in some permanent creeks within the study area. Waterways avoided and therefore no likely impacts.</p>
<p><i>Pteropus poliocephalus</i></p> <p>Grey-headed Flying-fox</p>	V	-	<p>A canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands (DoEE, 2019).</p> <p>Roost sites are typically located near water, such as lakes, rivers or the coast.</p>	<p>High potential to occur.</p> <p>No camps within WTA.</p> <p>Known camps within 50km of the WTA.</p> <p>Refer impact assessment for GHFF.</p>
<p><i>Tachyglossus aculeatus</i></p> <p>Short-beaked echidna</p>	-	SLC	The Short-beaked Echidna lives in forests and woodlands, heath, grasslands and arid environments.	<p>Known to occur</p> <p>Previous records (1) within wind turbine search area.</p> <p>Wildnet: 2010</p> <p>Remnant areas avoided and therefore no likely impacts. Pre-clearance surveys in all areas (including non-remnant areas) will also include assessments for short-beaked echidna.</p>
<p><i>Xeromys myoides</i></p> <p>Water mouse</p>	V	V	Found in habitats including mangroves and the associated saltmarsh, sedgelands, clay pans, heathlands and freshwater wetlands (Department of the Environment, 2015t).	<p>Moderate potential to occur</p> <p>Previous records within Tuan State Forest and 1 record (Wildnet 1999) in the wind turbine search.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				Suitable habitat is remnant freshwater wetlands areas. Remnant areas avoided and therefore no likely impacts.
Fish				
<i>Maccullochella mariensis</i> Mary River cod	E	-	<p>The Mary River Cod occurs in three natural subpopulations (Lake Macdonald, Tinana Creek and Coondoo Creek upstream of Tinana Barrage, and upper Obi Obi Creek) in different tributary systems of the Mary River which are isolated from one another by impoundments and the main river channel. ((Conservation advice, 2016)</p> <p>The Mary River Cod occurs mainly in pools within relatively undisturbed tributaries, preferring relatively large and deep (0.8 to 3.2 m) shaded pools with abundant, slowly flowing water. Submerged logs and branches (snags) are used as cover from which to ambush prey, as resting sites, and as nesting sites. (Conservation Advice, 2016)</p>	<p>High potential to occur Previous records within Toolara and Tuan State Forests. Previous records (Wildnet 1995) in Wind Turbine Search area.</p> <p>Potential habitat exists in Tinana Creek. Waterways avoided and therefore no likely impacts. Likely habitat in Tinana Creek which is being avoided.</p>
<i>Nannoperca oxleyana</i> Oxleyan Pygmy Perch	E	V	Occurs in coastal <i>Banksia</i> -dominated heath or wallum habitats. Usually inhabit waters with a high proportion of aquatic plant cover, i.e. between 60-80% (Department of the Environment, 2015k).	<p>High potential to occur Previous records within Toolara State Forests. Previous records (Wildnet 1994) in Wind Turbine Search area.</p> <p>Potential to occur in smaller creeks and pools within the remnant waterways. Waterways avoided and therefore no likely impacts.</p> <p>Any potential culvert upgrades are expected to be minor, however should be undertaken in accordance with an</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				approved EMP or SMP to ensure impacts to water quality and potential habitat are mitigated.
<i>Neoceratodus forsteri</i> Australian lungfish	V	protected species under the <i>Qld Fish and Oyster Act 1914</i>	The Australian Lungfish's natural distribution is the Mary, Burnett and Brisbane River systems and (possibly) the Pine River system but translocated populations persist in the Coomera, Condamine, Albert and Logan Rivers. (Department of the Environment, 2015m) The species is restricted to areas of permanent water and cannot live in saline waters or migrate through sea water. Still or slow-flowing, shallow, vegetated pools with clear or turbid water are required to spawn and feed. Emergent or submerged vegetation are essential for successful deposition of eggs and for providing refuges for juveniles. (Department of the Environment, 2015m)	High potential to occur Previous records (Wildnet 1992) in Wind Turbine Search area. Suitable habitat exists within Tinana Creek. Waterways avoided and therefore no likely impacts. Likely habitat in Tinana Creek which is being avoided.
<i>Pseudomugil mellis</i> Honey Blue Eye	V	V	Inhabits slightly acidic (pH 4.4–6.8), clear and tannin-stained lakes, streams and wetlands with sandy or muddy bottoms in coastal heath (wallum) ecosystem. The species usually occurs where there is little or no flow, and the fish can find shelter in dense, aquatic vegetation (Department of the Environment, 2015r).	Moderate potential to occur No previous records however potential to occur in remnant creeks and pools within the study area. Waterways avoided and therefore no likely impacts. Any potential culvert upgrades are expected to be minor, however should be undertaken in accordance with an approved EMP or SMP to ensure impacts to water quality and potential habitat are mitigated.
Birds				

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Anthochaera Phrygia</i> Regent Honeyeater	CE	E	Patchy distribution between south-east Queensland and central Victoria. It primarily occurs in box-ironbark woodland, but also occurs in other forest types. The species primarily feeds on nectar and, to a lesser extent, insects and their exudates (lerps and honeydew). It mainly feeds on nectar from eucalypts and mistletoes and it prefers taller and larger diameter trees for foraging. Movement through the landscape is governed by the flowering of select eucalypt species. Department of the Environment (2018).	Low potential to occur No previous records. No suitable habitat in the study area.
<i>Botaurus poiciloptilus</i> Australian Bittern	E	-	Occurs predominantly in densely vegetated freshwater wetlands, reed beds, swamps, streams. Queensland population considered to be mostly confined to a few coastal swamps. (Simpson & Day, 2004)	Low potential to occur. No previous records May occur in the adjacent Wide Bay Military Training Area Wetland.
<i>Calidris canutus</i> Red Knot, Knot (also in Migratory Bird Table)	M, Ma, E	E	Found in flocks on large, sheltered intertidal sand and mudflats during the austral summer. Feed on bivalves, crustaceans and other invertebrates at the receding tide. Rarely encountered inland. Northern Arnhem Land coast is important land during the non-breeding season (Garnett, S.T., Szabo, J.K., and Dutson, 2011)	Low potential to occur No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.
<i>Calidris ferruginea</i> Curlew Sandpiper (also in migratory bird table)	CE, LM, MI	E	Mainly occur in both fresh and brackish waters on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms but are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand (Higgins & Davies, 1996). Curlew Sandpipers forage on mudflats and nearby shallow water and generally roost on bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh (Higgins & Davies, 1996).	Low potential to occur. No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Calidris tenuirostris</i> Great Knot (also in Migratory Bird Table)	M, Ma, CE	E	Inhabit the same habitat as Red Knot, and are often found in flocks with, the Red Knot (see above)(Garnett, S.T., Szabo, J.K., and Dutson, 2011)	Low potential to occur No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.
<i>Charadrius leschenaultii</i> Greater Sand Plover (also in Migratory Bird Table)	M, Ma, V	V	Only seen in Australia from July-December, with an influx of individuals into the Top End of the NT during October. Inhabit littoral and estuarine habitats, mainly on sheltered beaches with large sand or mudflats, though observations have been made in estuary lagoons, inshore reefs, small rocky islands and sand cays on coral reefs. Occasionally sighted on near-coastal salt lakes and brackish swamps. Roosting generally takes place on sand-spits and banks on beaches or in tidal lagoons, higher up the beach than other waders (can be well above the high tide mark) (Department of the Environment, 2016a)	Low potential to occur No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.
<i>Calyptorhynchus lathami lathami</i> (eastern subspecies) Glossy Black-Cockatoo	-	v	The Glossy Black-Cockatoo is highly dependent on the distribution of Allocasuarina species and is found in woodland dominated by Allocasuarina and in open forests where it forms a substantial middle layer. Often confined to remnant Allocasuarina patches surrounded by cleared farmlands. Requires tree hollows for breeding. South-east Queensland has the three of the most significant populations in Australia: Moreton Bay, Gold Coast Hinterland and Noosa. (Glossy Black Conservancy, 2010)	Low potential to occur Based on current distribution of this sub-species, preferred habitat and behaviour, likelihood of occurrence is considered low and therefore collision risk is considered to be low. Last record from WTA was in 2001 (Wildnet)
<i>Charadrius mongolus</i> Lesser Sand Plover	M, Ma, E	E	Recorded along most of the coastline of the NT, in particular the North Arnhem coast, Mud Blue Bay, coast between Anson Bay and Murgarella creek and the Port McArthur area (Chatto, 2003). Inhabits mud and sandflats in sheltered bays, estuaries, harbours, and occasionally rocky outcrops, sandy beaches and coral reefs. Roosting occurs near foraging areas (Department of the Environment, 2019).	Low potential to occur No previous records and no suitable habitat within the wind turbine search area.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			Migratory shorebird of the EAA. Seven important non-breeding sites in Australia; one being the Great Sandy Strait.	Low potential to occur within study area due to specific habitat requirements.
<i>Cyclopsitta diophthalma coxeni</i> Coxen's Fig-Parrot	E	E	Occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest.	Low potential to occur No previous records. No suitable habitat in the study area.
<i>Erythrotriorchis radiatus</i> Red goshawk	V	E	Occurs in coastal and sub-coastal areas in riverine, wooded and forested lands of tropical and warm-temperate Australia. Known to prefer forest and woodland with a mosaic of vegetation types, large prey populations (birds), and permanent water. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest, and rainforest margins. The Red Goshawk nests in large trees, frequently the tallest and most massive in a tall stand, and nest trees are invariably within one km of permanent water (DoEE, 2019). The Red Goshawk spends much of its time below the canopy, but it has been observed regularly flying just above the canopy.	Low potential to occur No previous records and no suitable habitat in the pine plantations.
<i>Geophaps scripta scripta</i> Squatter Pigeon	V	V	open-forests to sparse, open-woodlands and scrub that are mostly dominated in the overstorey by <i>Eucalypts</i> , <i>Corymbia</i> , <i>Acoacia</i> or <i>Callitirs</i> species, remanant, regroth or partly modified and within 3km of water bodies or courses. Department of the Environment (2018).	Low potential to occur No previous records and no suitable habitat exists. Considered locally extinct.
<i>Hirundapus caudacutus</i> White-throated Needletail	V	SLC	Summer migrant (October – April). Occurs in high open spaces above wide range of habitats, such as oceans, ranges and headlands (Morcombe, 2003). The White-throated Needletail is widespread in eastern and south-eastern Australia (Barrett et al. 2003; Blakers et al. 1984; Higgins 1999). In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains (DoEE, 2019) There are no published estimates of the extent of occurrence of the White-throated Needletail in Australia, although the species occurs at numerous and widespread sites in eastern Australia (DoEE, 2019)	Known to occur Identified during BUS surveys on WTA. Refer risk assessment.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			<p>In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground (DoEE, 2019).</p> <p>They often forage in areas of updraughts, such as ridges, cliffs or sand-dunes, or in the smoke of bushfires, or in whirlwinds. They often forage along the edges of low pressure systems, which both lift their food sources and assist with their flight, and it is said that they follow these systems across Australia (DoEE, 2019).</p>	
<i>Lathamus discolor</i> Swift Parrot	E, LM	E	<p>Occurs in dry sclerophyll eucalypt forests and woodlands (occasionally wet sclerophyll forests).</p> <p>The Swift Parrot is endemic to south-eastern Australia. It breeds only in Tasmania, and migrates to mainland Australia in autumn (to “overwinter”: returns to Tasmania in early August). Recent Queensland records are from the Gold Coast, Noosa, Toowoomba, Warwick and Lockyer Valley areas (Department of the Environment, 2014c).</p>	<p>Low potential to occur No suitable habitat exists within the study area</p>
<i>Ninox strenua</i> Powerful Owl	-	V	<p>Found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses.</p> <p>Known to roost in sheltered groves of midstorey trees, or sometime pine plantations (Curtis et al. 2012)</p> <p>Mainly on the eastern side of the Great Dividing Range (Morcombe, 2003).</p>	<p>High potential to occur Previous records (Wildnet 2010) in wind turbine search area. Suitable habitat exists in the remnant vegetation. Refer risk assessment.</p>
<i>Limosa lapponica baueri</i> Bar-tailed Godwit (also in Migratory Birds)	Ma, M, V	V	<p>Inhabits mainly in coastal areas such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays, around beds of seagrass, saltmarsh, coastal sewage farms and saltworks, saltlakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. Rarely found on inland wetlands or in areas of short grass, such as farmland, paddocks and airstrips (Morcombe, 2003).</p> <p>Breeds in eastern Russia and Alaska (Migratory Shorebirds of the East Asian – Australiasian Flyway)</p> <p>Migratory shorebird of the EAA. Seven important non-breeding sites in Australia; one being the Great Sandy Strait.</p>	<p>Low potential to occur No previous records and no suitable habitat within the wind turbine search area.</p> <p>Low potential to occur within study area due to specific habitat requirements.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Limosa lapponica menzbieri</i> Northern Siberian Bar-tailed Godwit (also in Migratory Birds)	Ma, M, CE	E	As per <i>Limosa lapponica baueri</i> , although breeds in northern central Russia (Migratory Shorebirds of the East Asian – Australasian Flyway). Migratory shorebird of the EAA. Seven important non-breeding sites in Australia; one being the Great Sandy Strait.	Low potential to occur No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.
<i>Numenius madagascariensis</i> Eastern Curlew (also in Migratory Birds)	CE, LM, MI	E	Associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sand flats (Morcombe, 2003). Migratory shorebird of the EAA. Non-breeding period in Australia (Bamford et al, 2008).	Low potential to occur No previous records and no suitable habitat within the wind turbine search area. Low potential to occur within study area due to specific habitat requirements.
<i>Pachyptila turtur subantarctica</i> Fairy prion (southern)	V	-	Breeding is currently known from only from two rock stacks off Macquarie Island (DoE, 2019).	Low potential to occur. Marine species
<i>Pezoporus Wallicus wallicus</i> Ground Parrot	-	V	The Ground Parrot (eastern) is terrestrial. It occurs mostly in coastal heathland or sedgeland with very dense cover and a high density of the parrot's food plants. In south-east Queensland, it occurs mostly in closed, subtropical graminoid heathlands (consisting of grass-trees, with a high diversity of sedges, rushes and low shrubs), either moist or dry. Within heathlands, dry habitats are used from mid autumn to late spring, and wet habitats at other times. It is sometimes found in open Banksia woodlands with a heath understorey, in closed fernland around shallow creeks on plains, or in sedges at swamp margins (DoE, 2019)	Moderate potential to occur Previous records (3) (Wildnet, 1984) in Wind Turbine Search Area. Limited suitable remnant habitat within WTA. Possible habitat in Poona National Park, north of the project area. Refer risk assessment.
<i>Poephila cincta cincta</i> Southern Black-throated Finch	E	E	Occurs mainly in grassy, open woodlands and forests, typically dominated by Eucalyptus, Corymbia and Melaleuca, and occasionally in tussock grasslands or other habitats (for example freshwater wetlands), often along or near watercourses, or in the vicinity of water.	Low potential to occur No previous records and no suitable habitat exists. Considered locally extinct.
<i>Rostratula australis</i>	E, LM, MW	V	Variety of habitats but generally requires presence of water. Inhabits shallow terrestrial freshwater wetlands, including temporary and permanent lakes,	Moderate potential to occur.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
Australian painted snipe (Syn. <i>Rostratula benghalensis</i>)			swamps and claypans. They also use inundated or waterlogged grassland or saltmarsh, dams, rice crops, sewage farms and bore drains (Department of the Environment, 2019).	<p>Previous records (1) within Wind Turbine Search area. Wildnet: 2007.</p> <p>Possible suitable habitat exists in the freshwater habitats within remnant vegetation.</p> <p>May occur in the adjacent Wide Bay Military Training Area Wetland. Refer risk assessment.</p>
<i>Turnix melanogaster</i> Black-breasted Button-quail	V	V	Prefer drier low closed forests, particularly semi-evergreen vine thickets restricted to coastal and near-coastal regions of south-eastern Queensland and north-eastern New South Wales. Deep leaf litter seems important (Department of the Environment, 2014g).	Low potential to occur. No previous records and no suitable habitat.
Crustaceans				
<i>Tenuibranchiurus glypticus</i> Swamp crayfish	-	E	<p>Reportedly world's smallest crayfish, being fully grown at 25 mm. Unlike other crayfish in South-east Queensland, fingers of claws open and close vertically rather than horizontally or obliquely. Body greyish-brown. Difficult to find due to small size, cryptic colouration and well-developed burrowing habits (Qld Museum, 2019).</p> <p>Paperbark swamps and shallow drainage channels. Prefers to burrow into damp clay but is occasionally found in peaty sand. Woodgate, Qld, south to at least southern Brisbane area (Qld Museum, 2019).</p>	<p>Known to occur</p> <p>Identified during field surveys. Waterways avoided and therefore no likely impacts.</p>
Insects				
<i>Argynnis hyperbius inconstans</i> Australian fritillary	CE	E	<p>Restricted to open, coastal, grassy sedgeland and wetlands where its larval food plant, <i>Viola betonicifolia</i>, is distributed. It is also sometimes found in disturbed areas (e.g. the drainage ditches of sugarcane farms) or in association with water course plant communities when its food plant <i>Viola betonicifolia</i> is present.</p> <p>The larval food plant, <i>Viola betonicifolia</i>, grows as a small, insignificant ground herb in association with <i>Lomandra longifolia</i> (long leaved matrush)</p>	Low potential to occur. No previous records and no suitable habitat.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			and grasses, especially the grass <i>Imperata cylindrica</i> (bladey grass), in the Melaleuca wetland plant community	
<i>Phyllodes imperialis smithersi</i> Pink Underwing Moth	E	-	The Pink Underwing Moth is distributed from Kin Kin Creek south-east of Gympie in Queensland, to Bellingen in northern NSW (Sands 2012). The NSW Scientific Committee indicates that the species is known from five locations, of which Mary Cairncross Scenic Reserve, near Maleny (Queensland), contains the only confirmed breeding habitat (DoE, 2019). Found below the altitude of 600 m in undisturbed, subtropical rainforest on rich volcanic soils and fertile alluvium.	Low potential to occur. No previous records and Project is north of current known distribution.

EPBC Act (species listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Aust.): Ex= Extinct CE = Critically Endangered E = Endangered, V = Vulnerable, MM = Migratory Marine, MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine MI=Listed Migratory

NC Act (species listed under the Nature Conservation (Wildlife) Regulation 2006 Act (NC Act), QLD):PE: Extinct in the Wild CE: Critically Endangered E = Endangered, V = Vulnerable, NT = Near Threatened, SLC = Special Least Concern, C = Least Concern

Table 25 Likelihood of Occurrence – WTA - Flora

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Acacia attenuata</i>	V	V	<p>This species occurs on flat coastal lowland plains, at altitudes of lower than 30 m above sea level, typically occurring in seasonally waterlogged areas of wet heathland or heathland margins, open forest and woodland communities, and specifically on sandy poorly drained soils or peat swamps which are infertile. The species has been recorded growing in shrublands with <i>Leptospermum whitei</i> and <i>Baekkea frutescens</i>; in wallum with <i>Banksia aemula</i> and <i>Eucalyptus robusta</i>; in woodlands with <i>Corymbia trachyphloia</i>, <i>E. umbra</i> and <i>Banksia oblongifolia</i>; and in open forests of <i>E. umbra</i>, <i>E. racemosa</i> and <i>Melaleuca quinquenervia</i> and has been found in disturbed environments, such as roadsides subject to vegetation control. (Department of the Environment, 2019)</p>	<p>High potential to occur</p> <p>Previous records within Toolara State Forest (Wildlife Online) and Wind Turbine Search Area (Wildnet: 2010)</p> <p>Remnant areas avoided and therefore no likely impacts within remnant areas.</p> <p>Species such as <i>A. attenuata</i> have been found in disturbed areas such as roadsides subject to vegetation control (outside of the WTA). As such, it is possible this species may occur in low-lying roadside areas within the WTA, yet outside of remnant areas. The Plantation Licensee undertakes plantation maintenance of woody weeds every 3 – 4 years using machines and/or prescribed burning and eventually (year 27) clear fells the compartment. Nonetheless, as they are known to occur in disturbed roadside areas, it is possible <i>A. attenuata</i> may be present in the low-lying plantations</p> <p>Pre-clearance surveys are required along existing access tracks should they require additional widening for the Project. These tracks will be identified prior to development.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				<p>Surveys along access tracks would be in areas below 30m above sea level (ie. in areas where previous suitable habitat may have occurred).</p> <p>The commercial forestry operation regularly undertakes slashing and herbicide treatment within the pine plantations which reduces the likelihood of threatened species such as <i>A. attenuata</i> to occur in the actual pine plantation stands of timber.</p>
<i>Arthraxon hispidus</i> Hairy-joint grass	V	V	<p><i>A. hispidus</i> is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps (Queensland CRA/RFA Steering Committee, 1998; DECC NSW, 2005), as well as woodland (Queensland Herbarium, 2011). In the South-East Queensland Bioregion, <i>A. hispidus</i> has also been recorded growing around freshwater springs on coastal foreshore dunes, in shaded small gullies, on creek banks, and on sandy alluvium in creek beds in open forests (Queensland CRA/RFA Steering Committee, 1998), and also with bog mosses in mound springs (Queensland Herbarium, 2011). (DES, 2018)</p>	<p>Low potential to occur. No previous records and no suitable habitat.</p>
<i>Baloghia marmorata</i> Marbled Balogia	V	V	<p>Found in subtropical rainforest/notophyll vine forest and wet sclerophyll forest (brush box woodland) with rainforest understorey between 150 and 550 m above sea level (Queensland Herbarium, 2008).</p>	<p>Low potential to occur. No previous records and no suitable habitat.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			Confined to the Lismore district, in north-east NSW, and the Tamborine Mountains and Springbrook, in south-east Queensland. <i>Baloghia marmorata</i> Conservation Advice (2008)	
<i>Boronia rivularis</i> Wide Bay boronia	-	NT	Known to occur only on Fraser Island and in the Cooloola area. Grows to 5m in height and found in damp gullies on the banks of creeks, usually in the shade of trees. Forms linear populations along creek lines (Qld Government, STC). May flower from Spring to late Summer. Preferred substrate is sandy, waterlogged soils (Qld Government, STC). Mainly regenerates from a stored soil seed bank after fire, although some resprouting may also occur (Qld Government, STC). Extreme fluctuations in population numbers are likely following wild fire where the adult plants are killed and have to regenerate from a soil seed bank. Many <i>Boronia</i> species are also capable of resprouting from the rootstock, depending on the severity of the fire event and this is also the case for <i>B. rivularis</i> (Qld Gov, STC). Depending on the fire spread and intensity, it is possible that entire populations can be killed at any one time.	High Potential to Occur Previous records (2) exist in the Wind Turbine Search Area (Wildnet, 2010). May occur in the remnant vegetation along some waterways. Remnant areas avoided and therefore no likely impacts. As it forms linear populations along creek lines, and clearing along riparian areas is avoided, potential impacts are considered low.
<i>Bosistoa transversa</i> (<i>Bosistoa selwynii</i>) Three-leaved Bosistoa, Yellow Satinheart	V	-	Three-leaved Bosistoa grows in lowland subtropical rainforest up to 300 m above sea level. (Department of the Environment, 2019)	Low potential to occur No previous records and no suitable habitat exists
<i>Cryptocarya foetida</i> Stinking Cryptocarya, Stinking Laurel	V	V	The Stinking Cryptocarya is restricted to coastal sands, or if not, then close to the coast, occurring in littoral rainforest on old sand dunes and subtropical rainforests over slate and occasionally on basalt to an altitude of 150 m.	Low potential to occur No previous records and no suitable habitat exists

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			Associated species include <i>Syzygium hemilamprum</i> (Broad-leaved Lilly Pilly), <i>Acronychia imperforata</i> (Beach Acronychia), <i>Cryptocarya triplinervis</i> (Three-veined Laurel), <i>Cupaniopsis anacardioides</i> (Tuckeroo), <i>Flindersia bennettiana</i> (Bennet's Ash), <i>Lophostemon confertus</i> (Brush Box) and <i>Syzygium luehmannii</i> (Small-leaved Lilly Pilly). (Department of the Environment, 2019)	
<i>Cryptostylis hunteriana</i> Leafless Tongue-orchid	V	-	The Leafless Tongue-orchid has been reported to occur in a wide variety of habitats including heathlands, heathy woodlands, sedgeland, <i>Xanthorrhoea</i> spp. plains, dry sclerophyll forests (shrub/grass sub-formation and shrubby sub-formation), forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests (grassy sub-formation). Soils are generally considered to be moist and sandy, however, this species is also known to grow in dry or peaty soils. In south east Queensland, the associated plant community is <i>Banksia</i> spp./ <i>Eucalyptus</i> spp. wallum heath. (Department of the Environment, 2019). Tin Can Bay is the northern most distribution of this species.	Low potential to occur No previous records. Unlikely to occur in pine plantations. Suitable habitat in the remnant vegetation patches although the study area is outside of the current known range.
<i>Cupaniopsis shirleyana</i> Wedge-leaf tuckeroo	V	V	Wedge-leaf Tuckeroo is known from south-eastern Queensland over a range of approximately 450 km, between Brisbane and Curtis Island (SHG, 2006). Wedge-leaf Tuckeroo occurs in a number of small populations throughout its range, in dry rainforest and scrubby urbanised areas on moderate to very steep slopes, screeslope gullies and rocky stream channels at elevations of 60–550 m above sea level (DoE, 2019))	Low potential to occur No previous records or suitable habitat
<i>Fontainea rostrata</i>	V	V	<i>Fontainea rostrata</i> is a tree or shrub growing 7–12 m high and is known from ten sites in the Gympie district, Teddington Weir and Mt Theebine near Glenwood, in Queensland, covering a distance of 100 km (BRI	High potential to occur (Tinana Creek). Suitable habitat along Tinana Creek.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			<p>collection records, n.d.). This species occurs in notophyll vine forest on soil derived from metamorphic rock (DoE, 2019).</p> <p>The main potential threats to <i>Fontainea rostrata</i> include clearing of vegetation, fire, invasion by weeds, and potential impacts of stochastic events due to restricted distribution.</p>	Tinana Creek avoided and therefore no likely impacts.
<p><i>Macadamia integrifolia</i> Macadamia nut</p>	V	V	<p>The Macadamia Nut is a medium-sized tree which can grow to approximately 20 m in height with a similar crown width, giving the tree a rounded shape. The Macadamia Nut grows in remnant rainforest, preferring partially open areas such as rainforest edges.</p>	<p>Moderate potential to occur No previous records. Only suitable habitat is associated with Tinana Creek in areas with transitional rainforest. No suitable habitat exists in the eastern portion of the study area. Tinana Creek avoided and therefore no likely impacts.</p>
<p><i>Macadamia ternifolia</i> Small-fruited Queensland Nut</p>	V	V	<p>Habitat is fragmented and found within lowland warm complex notophyll vine forest and <i>Araucarian notophyll</i> vine forest</p> <p>Historically, the species was recorded east of the Main Divide from Kin Kin, near Gympie; and south to the Pine River, north of Brisbane. Following extensive habitat clearing, the species is now considered extremely rare in the wild and is restricted to an area between Mount (Mt) Pinbarren (northern extent) and Mary Cairncross Park near Maleny (southern extent) (a distance of almost 50 km) (Barry & Thomas 1994). (DoE, 2018)</p>	<p>Low potential to occur No previous records and no suitable habitat exists. Considered outside of known range.</p>
<p><i>Macrozamia pauli-guilielmi</i> Pineapple Zamia</p>	E	E	<p><i>Macrozamia pauli-guilielmi</i> occurs in lowland (5–230 m altitude) open forest or woodland (wallum) dominated by banksias or eucalypts, or in shrub land or heath land, generally on stabilised sand dunes. ((DoEE, 2019)</p>	<p>Known to occur Identified during surveys Micro-siting and pre-clearance surveys may be required to avoid Pineapple Zamia.</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Macrozamia parcifolia</i>	V	V	<i>Macrozamia parcifolia</i> occurs in tall open forest communities with a sparse to dense shrubby understorey, at altitudes between 120-220m above sea level. It grows on stony ridges and slopes, on well-drained, hard, red-brown clay loam soils of basaltic origin.	Low potential to occur No suitable habitat exists and no previous records
<i>Phaius australis</i> Lesser Swamp-orchid	E	E	The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedgeland wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp Mahogany are found. Typically, the Lesser Swamp-orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (<i>Lophostemon suaveolens</i>)), swampy rainforest (often with sclerophyll emergents), or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (<i>Archontophoenix cunninghamiana</i>) or Cabbage Tree Palm (<i>Livistona australis</i>). This orchid species is relatively adaptable in its requirements for light and soil type. Soils range from acidic waterlogged peat, with a pH of 4.2 to peaty-sand, with a pH of 7.0. Soil parent materials include marine aeolian sand, the most common substrate, alluvium, granite, metasediments, hailstone gravel and sandstone. Soil types on sand range from shallow peat to humus/groundwater podzol. (Department of the Environment, 2015p)	Moderate potential to occur No previous records. Remnant areas avoided and therefore no likely impacts.
<i>Pterostylis chaetophora</i>	-	E	The preferred habitat of <i>Pterostylis chaetophora</i> is seasonally moist, dry sclerophyll forest with a grass and shrub understorey	Moderate potential to occur Previous record (1) in Wind Turbine Search Area (Wildnet. 1995). Remnant areas avoided and therefore no likely impacts.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<p><i>Samadera bidwillii</i> Quassia</p>	V	V	<p>Endemic to Queensland and occurs in lowland rainforest most commonly but can also be found in other forest types. Commonly found in areas adjacent to watercourses. Found on a range of soil types including lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils. (DoE, 2019)</p> <p>Quassia is a small shrub or tree that grows to about 6 m in height, with red flowers and red fruit occurring from November to March. Branchlets are ribbed, with fine, pale-brown hairs. Its leaves are 4.5–9 cm long, 6–12 mm wide, glabrous (hairless) or sometimes silky to pubescent only on the lower surface, with secondary veins numerous and regularly arranged. Leaves are stiff and leathery, narrow-elliptic or lanceolate, blunt or bluntly pointed, the margins bent under. They are green, glossy and hairless above, and sparsely hairy below. Quassia flowers occur in clusters of 1–4, and each flower has 8–10 stamens, with filaments densely villous (covered in small hairs) on the outer surface, the sepals are 0.75 to 1 mm long and the red petals are approximately 2.5 mm in length. The fruit are ovoid-ellipsoid, 1 cm long, hairy and sometimes appear winged</p> <p>Quassia is endemic to Queensland and is currently known to occur in several localities between Scawfell Island, near Mackay, and Goomborian, north of Gympie. Quassia has been confirmed as occurring in at least 40 sites. Included within this range are a number of populations along the Mary River; Tinana Creek, Tallegalla Weir, Teddington Weir pondage, and from Teddington Weir to Tiana Barrage (DoEE, 2019)</p>	<p>High potential to occur Previous records within Tuan State Forest (Wildlife Online). Known to occur along Tinana Creek. Remnant areas and Tinana Creek avoided and therefore no likely impacts.</p>
<p><i>Sophora fraseri</i></p>	V	V	<p><i>Sophora fraseri</i> is a subtropical shrub, that normally grows in wet sclerophyll forest and a range of rainforest types. It has been reported growing in hilly terrain on hillslopes at altitudes at altitudes from 60 to 660m, mostly shallow stony to shaly soils, of loam to clay</p>	<p>Low potential to occur No suitable habitat exists and no previous records</p>

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			texture derived from sandstone or basalt rocks. Associated species include: <i>Corymbia citriodora</i> , <i>Eucalyptus carnea</i> , <i>E. microcorys</i> , <i>E. acmenoides</i> , <i>E. propinqua</i> and <i>Lophostemon confertus</i> . The shrub appears to prefer growing along rainforest margins, in eucalypt forests in the vicinity of rainforests or in large canopy gaps in closed forest communities (DES, 2019)	
<i>Thesium australe</i> Austral Toadflax, Toadflax	V	V	<p>Austral Toadflax is semi-parasitic on roots of Kangaroo Grass (<i>Themeda triandra</i>) and a range of other grass species. The species occurs in subtropical, temperate and subalpine climates over a wide range of altitudes on soils derived from sedimentary, igneous and metamorphic geology including black clay loams to yellow podzolics and peaty loams. (DoE, 2019)</p> <p>Austral Toadflax occurs in shrubland, grassland or woodland, often on damp sites. Vegetation types include open grassy heath dominated by Swamp Myrtle (<i>Leptospermum myrtifolium</i>), Small-fruit Hakea (<i>Hakea microcarpa</i>), Alpine Bottlebrush (<i>Callistemon sieberi</i>), Woolly Grevillea (<i>Grevillea lanigera</i>), Coral Heath (<i>Epacris microphylla</i>) and <i>Poa</i> spp. (Griffith 1991); Kangaroo Grass grassland surrounded by <i>Eucalyptus</i> woodland; and grassland dominated by Barbed-wire Grass (<i>Cymbopogon refractus</i>). (DoE, 2019)</p> <p>The species flowers and fruits throughout the year on the coast and during summer at higher altitudes. In subalpine and tableland climates, the species dies back to rootstock during winter and resprouts in spring. In coastal areas the species persists all year round and may live for longer than two years. (DoE, 2019)</p>	Low potential to occur No suitable habitat exists and no previous records
<i>Triunia robusta</i> Glossy Spice Bush	E	E	<i>Triunia robusta</i> is restricted to a small area on Queensland's Sunshine Coast, between Pomona and	Low potential to occur No suitable habitat exists and no previous records

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			<p>Woombye, mainly in the Maroochy River catchment area.</p> <p>The main habitat is notophyll vine forest, or mixed tall open forest developing a rainforest understorey in the absence of fire.</p> <p><i>Triunia robusta</i> Conservation Advice (2008)</p>	Possible habitat along Tinana Creek although outside of current known distribution.
<i>Xanthostemon oppositifolius</i> Southern Penda	V	V	<p>It is known from Kin Kin-Boreen Point–Cooroy District, near Noosa; Teddington Weir, south of Maryborough; and Granite Creek and Broken Creek, south-west of Miriam Vale (DoE, 2019).</p> <p>In southern locations, southern penda occurs predominantly in riparian communities on slightly acid clayey sands to sandy clays derived from sedimentary and metasedimentary rocks. Associated vegetation includes notophyll vine forest, simple notophyll mixed tall closed forest with <i>Araucaria cunninghamii</i> var. <i>cunninghamii</i> (hoop pine) emergents or in transitional rainforest where the upper stratum is composed mostly of tall sclerophyll elements with rainforest species restricted to a developing understorey or mid-storey (DoE, 2019). At Granite Creek sites, it occurs on hillside on metasediments or old volcanic rocks in araucarian notophyll vine forest (DoE, 2019).</p>	<p>High potential to occur</p> <p>Previous records within Toolara State Forest (Wildlife Online).</p> <p>Only suitable habitat is along creeks in Western portion of study area such as Tinana Creek.</p> <p>Remnant areas and Tinana Creek avoided and therefore no likely impacts.</p> <p>No suitable habitat in eastern portion of the study area.</p>

EPBC Act (species listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Aust.): Ex= Extinct CE = Critically Endangered E = Endangered, V = Vulnerable, MM = Migratory Marine, MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine MI=Listed Migratory

NC Act (species listed under the Nature Conservation (Wildlife) Regulation 2006 Act (NC Act), QLD):PE: Extinct in the Wild CE: Critically Endangered E = Endangered, V = Vulnerable, NT = Near Threatened, SLC = Special Least Concern, C = Least Concern

Table 26 Likelihood of Occurrence. WTA - Migratory Birds

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Anous stolidus</i> Common Noddy	MM, LM	SLC	In Australia, the Common Noddy occurs mainly in ocean off the Queensland coast, but the species also occurs off the north-west and central Western Australia coast. During the breeding season, the Common Noddy usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals or cays of coral or sand (DoE, 2019)	Low potential to occur Low potential to occur within study area due to specific habitat requirements.
<i>Apus pacificus</i> Fork-tailed swift	LM, MM	SLC	Summer migrant (October – April). Occurs in low to very high airspace over variety of habitats including rainforest and semi-arid areas. Known to be most active in front of summer storm fronts (Morcombe, 2003).	Known to occur Identified during BUS surveys Refer risk assessment.
Migratory Terrestrial				
<i>Cuculus optatus</i> Oriental cuckoo	MT	SLC	Vegetated habitats such as monsoon rainforest, wet sclerophyll forest, open woodlands and appears quite often along edges of forests, or ecotones between forest types. This cuckoo feeds arboreally, foraging for invertebrates on loose bark on the trunks and branches of trees, and among the foliage, including in mistletoes. It will forage from the ground, but requires shrubs or trees from which it sallies and returns to consume prey items. <i>Appendix A: Supporting information for each of the 14 migratory listed birds (draft guidelines)</i>	Moderate potential to occur No previous records although suitable habitat exists in the adjacent National Park and remnant vegetation patches. Refer risk assessment.
<i>Hirundapus caudacutus</i> White-throated Needletail	V, MT	SLC	Summer migrant (October – April). Occurs in high open spaces above wide range of habitats, such as oceans, ranges and headlands (Morcombe, 2003). The White-throated Needletail is widespread in eastern and south-eastern Australia. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains (DoE, 2019) There are no published estimates of the extent of occurrence of the White-throated Needletail in Australia, although the species occurs at numerous and widespread sites in eastern Australia (DoE, 2019) In Australia, the White-throated Needletail is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground (DoE, 2019).	Known to occur Identified during BUS surveys on WTA. Refer risk assessment.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			They often forage in areas of updraughts, such as ridges, cliffs or sand-dunes, or in the smoke of bushfires, or in whirlwinds. They often forage along the edges of low pressure systems, which both lift their food sources and assist with their flight, and it is said that they follow these systems across Australia (DoE, 2019).	
<i>Monarcha melanopsis</i> Black-faced monarch	LM, MT	SLC	Found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating into the south-east during summer (Morcombe, 2003)	High potential to occur Previous records (1) in Wind Turbine Search Area. Wildnet, 2005. Suitable habitat exists in remnant vegetation patches. Refer risk assessment.
<i>Monarcha trivirgatus</i> (syn. <i>Symposiachrus trivirgatus</i>) Spectacled Monarch	LM, MT	SLC	Resident of NE Queensland and migrates to SE Queensland. Found mainly in rainforests but also can be found in mangroves, swamps and watercourse thickets. (Morcombe, 2003)	High potential to occur Previous records (7) in Wind Turbine Search Area. Wildnet, 2007. Suitable habitat exists in remnant vegetation patches. Refer risk assessment.
<i>Myiagra cyanoleuca</i> Satin Flycatcher	MT	SLC	Satin Flycatchers are eucalypt forest and woodland inhabitants. They are particularly common in tall wet sclerophyll forest, often in gullies or along water courses. In woodlands they prefer open, grassy woodland. The diversity of occupied habitats expands during migration, with the species recorded in most wooded habitats. <i>Appendix A: Supporting information for each of the 14 migratory listed birds (draft guidelines)</i>	High potential to occur Previous records (1) in Wind Turbine Search Area. Wildnet, 1974. Suitable habitat exists in remnant vegetation patches. Refer risk assessment.
<i>Rhipidura rufifrons</i> Rufous Fantail	LM, MT	SLC	Found in rainforest, dense wet eucalypt and monsoon forest, swamps, riverside vegetation. Found in open country on migration.(Morcombe, 2003)	High potential to occur Previous records (8) in Wind Turbine Search Area. Wildnet, 2007.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				Suitable habitat exists in remnant vegetation patches. Refer risk assessment.
<i>Actitis hypoleucos</i> Common Sandpiper	MW, LM	SLC	The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. The Common Sandpiper has been recorded in estuaries and deltas of streams, as well as on banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and claypans, and occasionally piers and jetties. The muddy margins utilised by the species are often narrow, and may be steep. The species is often associated with mangroves, and sometimes found in areas of mud littered with rocks or snags (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Arenaria interpres</i> Ruddy Turnstone	MI, LM	SLC	The Ruddy Turnstone is widespread within Australia during its non-breeding period of the year. It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	MW, LM	SLC	In Queensland, they are recorded in most regions, being widespread along much of the coast and are very sparsely scattered inland. prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Calidris alba</i> Sanderling	MW, LM	SLC	Almost always found on the coast, mostly on open sandy beaches exposed to open sea-swell, and also on exposed sandbars and spits, and shingle banks, where they forage in the wave-wash zone and amongst rotting seaweed.	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			They are occasional in the Gulf of Carpentaria and Torres Strait. Scattered records occur in mid-east and south-east Queensland from Townsville and Alva Beach, south to Fraser Island, and around Moreton Bay and Point Danger, including on offshore islands. (DoE, 2019)	considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Calidris canutus</i> Red Knot, Knot	M, LM, E, MW	E	Found in flocks on large, sheltered intertidal sand and mudflats during the austral summer. Feed on bivalves, crustaceans and other invertebrates at the receding tide. Rarely encountered inland. Northern Arnhem Land coast is important land during the non-breeding season (Garnett, S.T., Szabo, J.K., and Dutson, 2011)	Low potential to occur One (1) previous record from the Great Sandy National Park (Wildlife Online). Low potential to occur within study area due to specific habitat requirements.
<i>Calidris ferruginea</i> Curlew sandpiper	CE, MI, LM	E	Mainly occur in both fresh and brackish waters on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms but are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand (Higgins & Davies, 1996). Curlew Sandpipers forage on mudflats and nearby shallow water and generally roost on bare dry shingle, shell or sand beaches, sandspits and islets in or around coastal or near-coastal lagoons and other wetlands, occasionally roosting in dunes during very high tides and sometimes in saltmarsh (Higgins & Davies, 1996).	Low potential to occur. No previous records and no suitable habitat within the wind turbine search area.
<i>Calidris melanotos</i> Pectoral sandpiper	MW, LM		In Queensland, most records for the Pectoral Sandpiper occur around Cairns. prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Calidris ruficollis</i> Red-necked Stint	MI, LM		Mostly found in coastal areas, including in sheltered inlets, bays, lagoons and estuaries with intertidal mudflats, often near spits, islets and banks and, sometimes, on protected sandy or coralline shores. Occasionally they have	Low potential to occur

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			been recorded on exposed or ocean beaches, and sometimes on stony or rocky shores, reefs or shoals (DoE)	Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Calidris subminuta</i> Long-toed Stint	MI, LM	SLC	Regular summer visitor to Australia, but uncommon in the east. In Queensland the Long-toed Stint has been recorded at Mount Isa, Lytton, Cairns, Dynevor Downs. Prefer shallow freshwater or brackish wetlands including lakes, swamps, river floodplains, streams, lagoons and sewage ponds (DoE, 2019)	Low potential to occur No suitable habitat within the WTA.
<i>Calidris tenuirostris</i> Great Knot	M, LM, CE	E	Inhabit the same habitat as Red Knot, and are often found in flocks with, the Red Knot (see above)(Garnett, S.T., Szabo, J.K., and Dutson, 2011)	Low potential to occur Low potential to occur within study area due to specific habitat requirements. 1 previous record in Great Sandy National Park (Wildlife Online).
<i>Charadrius bicinctus</i> Double-banded Plover	MW, LM	SLC	Found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Charadrius leschenaultii</i> Greater Sand Plover	M, LM, V	V	Only seen in Australia from July-December, with an influx of individuals into the Top End of the NT during October. Inhabit littoral and estuarine habitats, mainly on sheltered beaches with large sand or mudflats, though observations have been made in estuary lagoons, inshore reefs, small rocky islands and sand cays on coral reefs. Occasionally sighted on near-coastal salt lakes and brackish swamps. Roosting generally takes place on sand-spits and banks on beaches or in tidal lagoons, higher up the beach than other waders	Low potential to occur Previous records exist for Great Sandy Strait although it is not considered an internationally important site for this species.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
			(can be well above the high tide mark) (Department of the Environment, 2016a)	
<i>Charadrius mongolus</i> Lesser Sand Plover	M, LM	SLC	Recorded along most of the coastline of the NT, in particular the North Arnhem coast, Mud Blue Bay, coast between Anson Bay and Murgarella creek and the Port McArthur area (Chatto, 2003). Inhabits mud and sandflats in sheltered bays, estuaries, harbours, and occasionally rocky outcrops, sandy beaches and coral reefs. Roosting occurs near foraging areas (Department of the Environment, 2019). Migratory shorebird of the EAA. Seven important non-breeding sites in Australia; one being the Great Sandy Strait.	Known to occur in Great Sandy Straits as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Gallinago hardwickii</i> Latham's Snipe	MW, LM	SLC	In Australia, Latham's Snipe occurs in permanent and ephemeral wetlands up to 2000 m above sea-level. They usually inhabit open, freshwater wetlands with low, dense vegetation (e.g. swamps, flooded grasslands or heathlands, around bogs and other water bodies) (DoE, 2019)	Low potential to occur. No previous records and no suitable habitat within the wind turbine search area.
<i>Limosa lapponica</i> Bar-tailed Godwit	MW, LM	SLC	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh (DoE, 2019). The Great Sandy Strait is Site of International Importance (DoE, 2019)	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Limosa limosa</i> Black-tailed Godwit	MW, LM	SLC	Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh. The Great Sandy Strait is Site of International Importance (DoE, 2019)	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Numenius madagascariensis</i> Eastern Curlew	CE, LM, MI	E	Associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sand flats (Morcombe, 2003). Migratory shorebird of the EAA. Non-breeding period in Australia (Bamford et al, 2008).	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Numenius phaeopus</i> Whimbrel	LM, MI	SLC	Often found in mudflats of estuaries, particularly those with mangroves. Occasionally found on sandy or rocky beaches, on coral or rocky islets, or on intertidal reefs and platforms (Department of the Environment, 2015n). Migratory shorebird of the EAA. Non-breeding period in Australia (Bamford et al, 2008).	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Pandion haliaetus</i> (Syn. <i>P. cristatus</i>) Eastern osprey	LM, MI	SLC	Eastern ospreys occur in littoral and coastal habitats and terrestrial wetlands, and occasionally travel inland along major rivers. They require extensive areas of open fresh, brackish or saline water for foraging. (Department of the Environment, 2019)	Low potential to occur No previous records and no suitable breeding or foraging habitat exists within the study area.
<i>Pluvialis fulva</i> Pacific Golden Plover	MW, LM	SLC	Usually inhabits coastal habitats, though it occasionally occurs around inland wetlands. Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as <i>Sarcocornia</i> , or beds of seagrass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in saltworks. Moreton Bay is a Site of International Importance for this species.	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not considered an internationally important site for this species. No suitable habitat within the WTA.

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Pluvialis squatarola</i> Grey Plover	MW, LM	SLC	Usually forage on large areas of exposed mudflats and beaches of sheltered coastal shores such as inlets, estuaries and lagoons. They also occasionally feed in pasture and at the muddy margins of inland wetlands such as lakes, swamps and bores. Great Sandy Strait is Site of International Importance (DoE, 2019)	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Tringa brevipes</i> Grey-tailed tattler (also named <i>Heteroscelus brevipes</i> in the PMST)	Ma, M	SLC	Within Australia, the Grey-tailed Tattler has a primarily northern coastal distribution and is found in most coastal regions. In Queensland it is found along the entire coast, with small numbers located in the Gulf of Carpentaria. The Grey-tailed Tattler is often found on sheltered coasts with reefs and rock platforms or with intertidal mudflats. It can also be found at intertidal rocky, coral or stony reefs as well as platforms and islets that are exposed at low tide. It has been found around shores of rock, shingle, gravel or shells and also on intertidal mudflats in embayments, estuaries and coastal lagoons, especially fringed with mangroves (Department of the Environment, 2016d). Migratory shorebird of the EAA. The Great Sandy Strait is an important non-breeding site in Australia (Bamford et al., 2008).	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Tringa nebularia</i> Common greenshank	LM, MW	SLC	It occurs in sheltered coastal habitats, typically with large mudflats and saltmarsh, mangroves or seagrass. Habitats include embayments, harbours, river estuaries, deltas and lagoons and are recorded less often in round tidal pools, rock-flats and rock platforms (Department of the Environment, 2015s). Migratory shorebird of the EAA. The Great Sandy Strait is an important non-breeding site in Australia (Bamford et al., 2008).	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Tringa stagnatilis</i> Marsh Sandpiper	MW, LM	SLC	Lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, salt pans, saltmarshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and saltworks (DoE, 2019)	Low potential to occur Possible habitat exists in Great Sandy Strait although it is not

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				considered an internationally important site for this species. No suitable habitat within the WTA.
<i>Xenus cinereus</i> Terek Sandpiper	Ma, LM	SLC	Forages mostly in the open, on soft wet intertidal mudflats or in sheltered estuaries, embayments, harbours or lagoons. The species has also been recorded on islets, mudbanks, sandbanks and spits, and near mangroves and occasionally in samphire (<i>Halosarcia spp.</i>). Birds are seldom near the edge of water, however, birds may wade into the water (Department of the Environment, 2019). here appear to be two waves of migration down the eastern coast: one in August or September and one in November (Department of the Environment, 2019) Widespread in coastal Queensland, from south-east of the Gulf of Carpentaria, north to Torres Strait and along the eastern coast to south-east Australia. Migratory shorebird of the EAA. The Great Sandy Strait is an important non-breeding site in Australia (Bamford et al., 2008).	Known to occur in the Great Sandy Strait as a summer migrant (non-breeding). Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
Listed Marine				
<i>Anseranas semipalmata</i> Magpie Goose	LM	LC	Wetland Species. More common north of Rockhampton.	Moderate potential to occur. Possible flyover although unlikely due to lack of suitable freshwater wetland habitat.
<i>Ardea alba</i> (<i>Syn. A. modesta</i>) Great Egret, White Egret	LM, MW	LC	Widespread in Australia. Recorded in a wide range of wetland habitats including flooded pastures, dams, estuarine mudflats, mangroves and reefs and usually frequents shallow water. (Department of the Environment, 2015b; Morcombe, 2003)	Moderate potential to occur. No previous records
<i>Ardea ibis</i> Cattle egret (<i>Syn. Bubulcus ibis</i>)	LM, MW	LC	Occurs in moist pastures with tall grass, shallow open wetlands and margins and also mudflats (Morcombe, 2003).	Moderate potential to occur. No previous records

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
<i>Charadrius ruficapillus</i> Red-capped Plover	LM	LC	Most common and widespread of Australia's beach-nesting shorebirds. Usually inhabit wide, bare sandflats or mudflats at the margins of saline, brackish or freshwater wetlands where they forage by using their characteristic 'stop-run-peck' method, taking small invertebrates from the surface (Birdlife Australia, 2019)	Known to occur in the Great Sandy Strait Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas
<i>Haliaeetus leucogaster</i> White-bellied sea-eagle	LM	LC	Occurs in predominantly coastal areas although also occurs far inland on large pools of rivers. Mostly over islands, reefs, headlands, beaches and estuaries. Known to occur on seasonally inundated swamps, lagoons and floodplains (Morcombe, 2003).	Known to occur (flyover) No roosting habitat observed in the study area although would roost in the adjacent National Park. Possible fly-over species due to large home ranges.
<i>Himantopus himantopus</i> Black-winged Stilt	LM	LC	Usually forage by wading in water up to belly deep, but also feed along the muddy margins of wetlands, regularly forming large, noisy feeding flocks, often in association with Banded Stilts and Red-necked Avocets (Birdlife Australia, 2019)	Known to occur in the Great Sandy Strait Unlikely to be at risk of rotor strike due to specific habitat requirements that restrict the species distribution to intertidal areas Observed at Poona during BUS surveys (Oct 2018)
<i>Merops ornatus</i> Rainbow bee-eater	LM	LC	Summer migrant (September – April) although in northern Australia they remain and breed. Occurs in open woodlands, semi-arid scrub, grasslands, clearing in heavier forests, farmlands and coastal areas. Avoids heavy forests due to hindrance to feeding (i.e. Catching insects) (Morcombe, 2003).	Known to occur. Observed during BUS surveys
<i>Recurvirostra novaehollandiae</i> Red-necked Avocet	LM	LC	Feeds on aquatic insects and their larvae, crustaceans and seeds. It wades in shallow water, sweeping its bill back and forth just below the surface to catch prey. Found throughout mainland Australia, but breeds mainly in the south-western interior. Out of breeding season, it visits most of the rest of Australia (Birdlife Australia, 2019)	Likely to occur in the Great Sandy Strait Unlikely to be at risk of rotor strike due to specific habitat

Species Name	EPBC Act Status	NC Act Status	Habitat Preference	Likelihood of Occurrence
				requirements that restrict the species distribution to intertidal areas
<i>Coracina tenuirostris</i> Cicadabird	LM	LC	Occurs in the foliage canopy of diverse forests and woodlands as well as mangroves and paperbark swamps. A migratory visitor to south eastern Australia (Morcombe, 2003).	Known to occur Observed on 1 occasion during BUS surveys
Reptiles				
<i>Crocodylus porosus</i> Estuarine Crocodile	MW, LM	LC	Crocodile known to occur in the Great Sandy Straits. No suitable habitat within Study Area.	Not in project area.

EPBC Act (species listed under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Aust.): Ex= Extinct CE = Critically Endangered E = Endangered, V = Vulnerable, MM = Migratory Marine, MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine MI=Listed Migratory

NC Act (species listed under the Nature Conservation (Wildlife) Regulation 2006 Act (NC Act), QLD):PE: Extinct in the Wild CE: Critically Endangered E = Endangered, V = Vulnerable, NT = Near Threatened, SLC = Special Least Concern, C = Least Concern

APPENDIX E

Searches



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: 04/09/19 14:59:24

[Summary](#)

[Details](#)

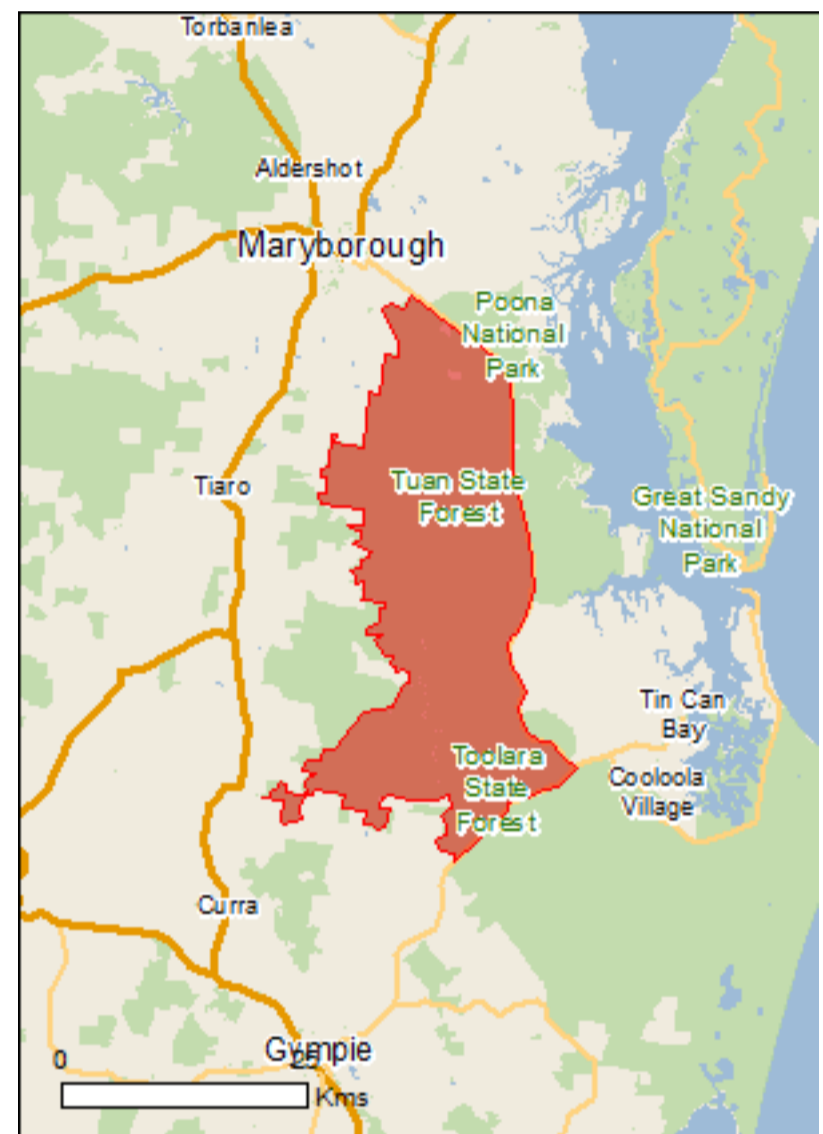
[Matters of NES](#)

[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: 1.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	61
Listed Migratory Species:	33

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:	1
Commonwealth Heritage Places:	1
Listed Marine Species:	43
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	2
Regional Forest Agreements:	None
Invasive Species:	40
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)

[\[Resource Information \]](#)

Name	Proximity
Great sandy strait (including great sandy strait, tin can bay and tin can	Within Ramsar site

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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Erythrorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat known to occur within area

Name	Status	Type of Presence
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica baueri Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Bar-tailed Godwit (menzbieri) [86432]	Critically Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat likely to occur within area
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area
Fish		
Maccullochella mariensis Mary River Cod [83806]	Endangered	Species or species habitat known to occur within area
Nannoperca oxleyana Oxleyan Pygmy Perch [64468]	Endangered	Species or species habitat likely to occur within area
Neoceratodus forsteri Australian Lungfish, Queensland Lungfish [67620]	Vulnerable	Species or species habitat known to occur within area
Pseudomugil mellis Honey Blue-eye [26180]	Vulnerable	Species or species habitat likely to occur within area
Frogs		
Litoria olongburensis Wallum Sedge Frog [1821]	Vulnerable	Species or species habitat may occur within area
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat known to occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species

Name	Status	Type of Presence
Phyllodes imperialis smithersi Pink Underwing Moth [86084]	Endangered	habitat may occur within area Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	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 may occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE Mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Xeromys myoides Water Mouse, False Water Rat, Yirrkoo [66]	Vulnerable	Species or species habitat known to occur within area
Plants		
Acacia attenuata [10690]	Vulnerable	Species or species habitat known to occur within area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Baloghia marmorata Marbled Baloghia, Jointed Baloghia [8463]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat likely to occur within area
Cossinia australiana Cossinia [3066]	Endangered	Species or species habitat likely to occur within area
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat likely to occur within area

Name	Status	Type of Presence
Fontainea rostrata [24039]	Vulnerable	Species or species habitat likely to occur within area
Fontainea venosa [24040]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia ternifolia Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat likely to occur within area
Macrozamia parcifolia [64682]	Vulnerable	Species or species habitat likely to occur within area
Macrozamia pauli-guilielmi Pineapple Zamia [5712]	Endangered	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat known to occur within area
Sophora fraseri [8836]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
Triunia robusta Glossy Spice Bush [14747]	Endangered	Species or species habitat likely to occur within area
Xanthostemon oppositifolius Penda, Southern Penda, Luya's Hardwood [8738]	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area
Egernia rugosa Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area
Elseya albagula Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat known to occur within area
Elusor macrurus Mary River Turtle, Mary River Tortoise [64389]	Endangered	Species or species habitat known to occur within area
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to 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		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris alba Sanderling [875]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Calidris ruficollis Red-necked Stint [860]		Species or species habitat known to occur within area
Calidris subminuta Long-toed Stint [861]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris tenuirostris Great Knot [862]	Critically Endangered	Species or species habitat known to occur within area
Charadrius bicinctus Double-banded Plover [895]		Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Tringa brevipes Grey-tailed Tattler [851]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land

[\[Resource Information \]](#)

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name

Defence - TIN CAN BAY TRAINING AREA

Commonwealth Heritage Places

[\[Resource Information \]](#)

Name	State	Status
Natural		
Wide Bay Military Reserve	QLD	Listed place

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		

[Actitis hypoleucos](#)

Common Sandpiper [59309]

Species or species habitat likely to occur within area

[Anseranas semipalmata](#)

Magpie Goose [978]

Species or species habitat may occur within area

[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species habitat likely to occur within area

[Ardea alba](#)

Great Egret, White Egret [59541]

Species or species habitat known to occur within area

[Ardea ibis](#)

Cattle Egret [59542]

Breeding likely to occur within area

[Arenaria interpres](#)

Ruddy Turnstone [872]

Species or species habitat known to occur within area

[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Species or species habitat known to occur within area

[Calidris alba](#)

Sanderling [875]

Species or species habitat known to occur within area

[Calidris canutus](#)

Red Knot, Knot [855]

Endangered

Species or species habitat may occur within area

[Calidris ferruginea](#)

Curlew Sandpiper [856]

Critically Endangered

Species or species habitat known to occur within area

[Calidris melanotos](#)

Pectoral Sandpiper [858]

Species or species habitat may occur within area

[Calidris ruficollis](#)

Red-necked Stint [860]

Species or species habitat known to occur within area

[Calidris subminuta](#)

Long-toed Stint [861]

Species or species habitat known to occur within area

[Calidris tenuirostris](#)

Great Knot [862]

Critically Endangered

Species or species

Name	Threatened	Type of Presence
Charadrius bicinctus Double-banded Plover [895]		habitat known to occur within area Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat known to occur within area
Charadrius ruficapillus Red-capped Plover [881]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Heteroscelus brevipes Grey-tailed Tattler [59311]		Species or species habitat known to occur within area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Limosa limosa Black-tailed Godwit [845]		Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Numenius phaeopus Whimbrel [849]		Species or species habitat known to occur

Name	Threatened	Type of Presence within area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat known to occur within area
Pluvialis squatarola Grey Plover [865]		Species or species habitat known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet [871]		Species or species habitat known to 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 known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat known to occur within area
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat known to occur within area

Reptiles

Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
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Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Poona	QLD
Tinana Creek	QLD

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 Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		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
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known 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
Equus caballus Horse [5]		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
Feral deer Feral deer species in Australia [85733]		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 norvegicus Brown Rat, Norway Rat [83]		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

Name	Status	Type of Presence
habitat likely to occur within area		
Plants		
<p><i>Annona glabra</i> Pond Apple, Pond-apple Tree, Alligator Apple, Bullock's Heart, Cherimoya, Monkey Apple, Bobwood, Corkwood [6311] <i>Anredera cordifolia</i></p>		Species or species habitat likely to occur within area
<p>Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, <i>Anredera</i>, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643] <i>Asparagus aethiopicus</i></p>		Species or species habitat likely to occur within area
<p><i>Asparagus</i> Fern, Ground <i>Asparagus</i>, Basket Fern, Sprengi's Fern, Bushy <i>Asparagus</i>, Emerald <i>Asparagus</i> [62425] <i>Asparagus africanus</i></p>		Species or species habitat likely to occur within area
<p>Climbing <i>Asparagus</i>, Climbing <i>Asparagus</i> Fern [66907] <i>Asparagus plumosus</i> Climbing <i>Asparagus</i>-fern [48993]</p>		Species or species habitat likely to occur within area
<p><i>Cabomba caroliniana</i> Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171] <i>Chrysanthemoides monilifera</i></p>		Species or species habitat likely to occur within area
<p>Bitou Bush, Boneseed [18983] <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush [16332]</p>		Species or species habitat may occur within area
<p><i>Cryptostegia grandiflora</i> Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913] <i>Dolichandra unguis-cati</i></p>		Species or species habitat likely to occur within area
<p>Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119] <i>Eichhornia crassipes</i></p>		Species or species habitat likely to occur within area
<p>Water Hyacinth, Water Orchid, Nile Lily [13466] <i>Hymenachne amplexicaulis</i></p>		Species or species habitat likely to occur within area
<p><i>Hymenachne</i>, Olive <i>Hymenachne</i>, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754] <i>Lantana camara</i></p>		Species or species habitat likely to occur within area
<p>Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892] <i>Parthenium hysterophorus</i></p>		Species or species habitat likely to occur within area
<p><i>Parthenium</i> Weed, Bitter Weed, Carrot Grass, False Ragweed [19566] <i>Sagittaria platyphylla</i></p>		Species or species habitat likely to occur within area
<p>Delta Arrowhead, Arrowhead, Slender Arrowhead [68483] <i>Salix</i> spp. except <i>S.babylonica</i>, <i>S.x calodendron</i> & <i>S.x reichardtii</i></p>		Species or species habitat likely to occur within area
<p>Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497] <i>Salvinia molesta</i></p>		Species or species habitat likely to occur within area
<p><i>Salvinia</i>, Giant <i>Salvinia</i>, Aquarium Watermoss, Kariba Weed [13665]</p>		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Reptiles

Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area
Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]		Species or species habitat may occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
Wide Bay Military Training Area C	QLD

Caveat

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

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

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

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

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-25.627227 152.844173,-25.626608 152.844173,-25.675507 152.846233,-25.697783 152.846233,-25.71325 152.846233,-25.766443 152.862712,-25.810339 152.866145,-25.8295 152.859965,-25.844332 152.851726,-25.849894 152.844859,-25.857309 152.842113,-25.864105 152.845546,-25.872137 152.844173,-25.880787 152.852412,-25.893759 152.859279,-25.907966 152.853099,-25.925258 152.859279,-25.934521 152.871638,-25.934521 152.881938,-25.94687 152.893611,-25.957366 152.904597,-25.970948 152.889491,-25.972182 152.885371,-25.977121 152.870265,-25.980824 152.862712,-25.985145 152.843486,-25.991317 152.842799,-26.0123 152.821513,-26.018471 152.8119,-26.033279 152.792674,-26.025875 152.793361,-26.025258 152.780315,-26.016619 152.776881,-26.011683 152.785121,-26.006746 152.786494,-26.001809 152.786494,-25.99934 152.784434,-25.995637 152.781688,-25.990083 152.788554,-25.989465 152.791301,-25.978972 152.788554,-25.98391 152.778941,-25.982059 152.761775,-25.98391 152.759715,-25.98391 152.752162,-25.978972 152.734309,-25.980207 152.728816,-25.990083 152.725383,-25.990083 152.735683,-26.004895 152.729503,-26.006746 152.72195,-26.00366 152.718516,-26.00366 152.710963,-25.991934 152.713023,-25.989465 152.691051,-25.985762 152.691051,-25.978355 152.692424,-25.974034 152.665645,-25.97959 152.664271,-25.978972 152.657405,-25.990083 152.651225,-25.998106 152.653972,-26.000575 152.647105,-26.003043 152.638179,-25.99934 152.634059,-25.98391 152.638179,-25.980207 152.618953,-25.980207 152.624446,-25.977121 152.625819,-25.973417 152.629253,-25.967861 152.635432,-25.969096 152.640239,-25.975886 152.640239,-25.978972 152.654658,-25.976503 152.658092,-25.966627 152.657405,-25.960453 152.665645,-25.957984 152.653972,-25.950575 152.658778,-25.950575 152.672511,-25.940696 152.673884,-25.941931 152.684184,-25.909819 152.710963,-25.906113 152.737743,-25.893142 152.744609,-25.888817 152.748042,-25.886347 152.752849,-25.877698 152.751475,-25.874609 152.746669,-25.877698 152.739802,-25.873991 152.739802,-25.87152 152.734309,-25.865341 152.737056,-25.865341 152.729503,-25.85113 152.721263,-25.846186 152.727443,-25.846186 152.71371,-25.842478 152.712337,-25.838152 152.722636,-25.836298 152.725383,-25.825792 152.72607,-25.825174 152.729503,-25.820847 152.729503,-25.818993 152.708217,-25.815284 152.71165,-25.810339 152.710963,-25.807866 152.710963,-25.803539 152.710277,-25.804776 152.702037,-25.798594 152.70341,-25.793648 152.69929,-25.791793 152.708217,-25.784992 152.708903,-25.783756 152.716457,-25.778809 152.717143,-25.771389 152.70135,-25.767061 152.708903,-25.760259 152.70753,-25.759022 152.69929,-25.75593 152.696544,-25.756548 152.710277,-25.74356 152.71165,-25.739849 152.671138,-25.729334 152.668391,-25.729953 152.676631,-25.717581 152.677318,-25.718199 152.671825,-25.709538 152.672511,-25.70892 152.678691,-25.681695 152.682124,-25.681695 152.686244,-25.689739 152.684184,-25.692833 152.71165,-25.646417 152.716457,-25.648893 152.725383,-25.616082 152.730876,-25.617321 152.741176,-25.606176 152.741862,-25.578308 152.728129,-25.573353 152.738429,-25.577689 152.746669,-25.567779 152.753535,-25.627227 152.844173

Acknowledgements

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

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
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- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
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- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

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

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

WildNet Records Species List

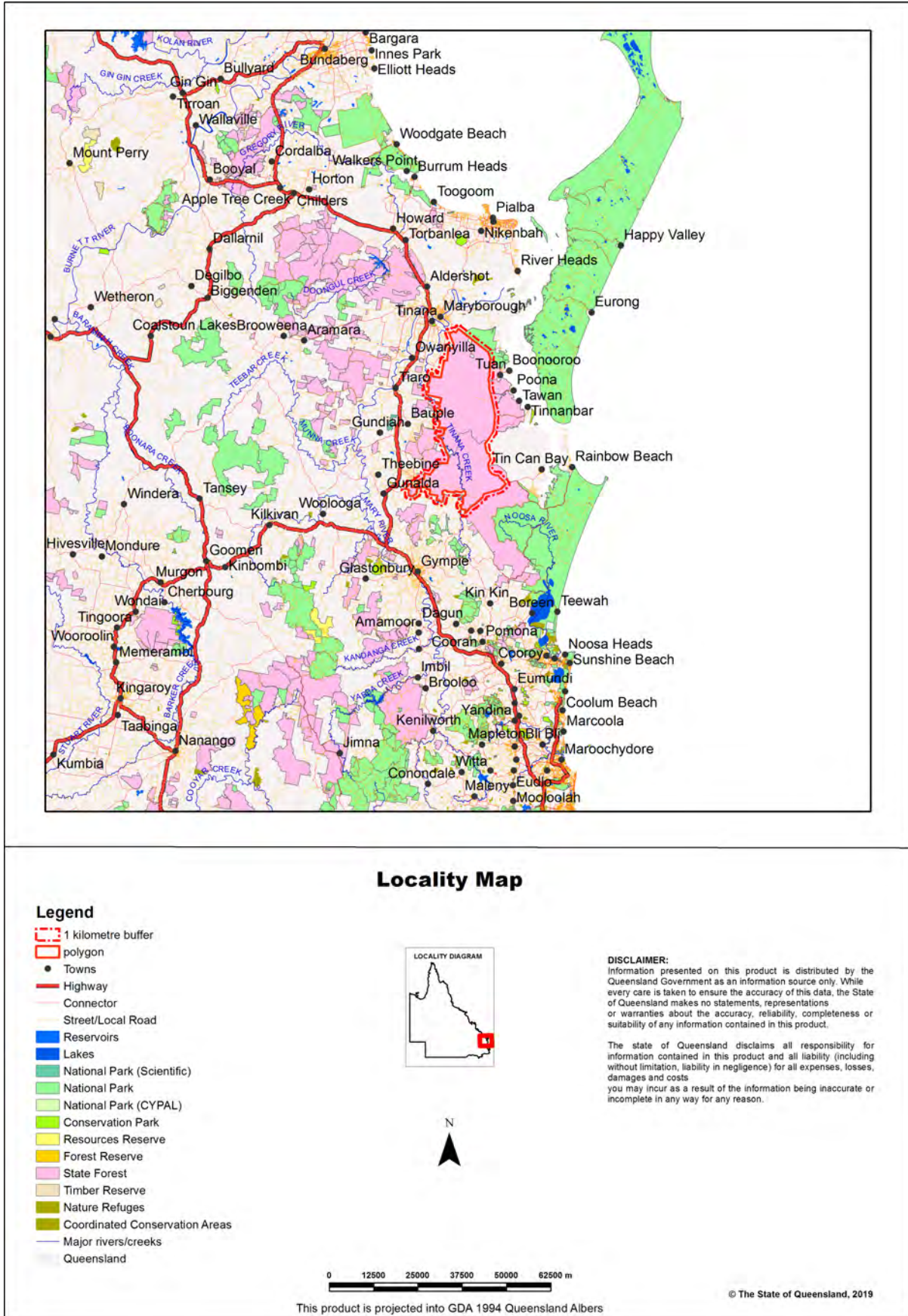


For the selected area of interest 68039.12ha

Current as at 02/09/2019

WildnetFWProject

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest .

Table 1. Area of interest details

Size (ha)	68,039.12
Local Government(s)	Gympie Regional, Fraser Coast Regional
Bioregion(s)	Southeast Queensland
Subregion(s)	Great Sandy, Gympie Block, Burnett - Curtis Coastal Lowlands
Catchment(s)	Mary, Noosa

Protected Area(s)

The following estates and/or reserves are located in the area of interest:

Toolara State Forest
 Neerdie State Forest 2
 Bauple State Forest
 Tuan State Forest
 Tinana Creek Conservation Park
 Poona National Park

World Heritage Area(s)

No World Heritage Areas are located within the area of interest.

Ramsar Area(s)

No Ramsar Areas are located within the area of interest.

Species List

Introduction

This Species List report is derived only from records from the WildNet database managed by the Department of Environment and Science. Other data sources may provide additional information on species occurrence.

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species does not occur in the report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area.

Table 2 lists the animals recorded within the area of interest and its one kilometre buffer.

Table 3 lists the plants recorded within the area of interest and its one kilometre buffer.

Table 4 lists the fungi recorded within the area of interest and its one kilometre buffer.

Table 5 lists the protists recorded within the area of interest and its one kilometre buffer.

Table 2. Animals recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
26910	Actinopterygii	Anguillidae	<i>Anguilla reinhardtii</i>	longfin eel	None	None	0	8	04/02/1993
26941	Actinopterygii	Clupeidae	<i>Nematalosa erebi</i>	bony bream	None	None	0	1	03/02/1993
26952	Actinopterygii	Eleotridae	<i>Gobiomorphus australis</i>	striped gudgeon	None	None	0	1	02/02/1993
18168	Actinopterygii	Eleotridae	<i>Mogurnda adspersa</i>	southern purplespotted gudgeon	None	None	0	3	18/06/2010

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
26968	Actinopterygii	Eleotridae	<i>Philypnodon grandiceps</i>	flathead gudgeon	None	None	0	2	04/02/1993
27024	Actinopterygii	Melanotaeniidae	<i>Melanotaenia duboulayi</i>	crimsonspotted rainbowfish	None	None	0	8	30/09/1994
18169	Actinopterygii	Percichthyidae	<i>Maccullochella mariensis</i>	Mary River cod	None	E	7	9	30/03/2009
18167	Actinopterygii	Percichthyidae	<i>Nannoperca oxleyana</i>	Oxleyan pygmy perch	V	E	0	1	30/09/1994
27054	Actinopterygii	Plotosidae	<i>Tandanus tandanus</i>	freshwater catfish	None	None	0	5	18/06/2010
27059	Actinopterygii	Pseudomugilidae	<i>Pseudomugil signifer</i>	Pacific blue eye	None	None	0	1	30/09/1994
27061	Actinopterygii	Retropinnidae	<i>Retropinna semoni</i>	Australian smelt	None	None	0	1	02/02/1993
716	Amphibia	Bufoidea	<i>Rhinella marina</i>	cane toad	None	None	0	13	01/02/2018
627	Amphibia	Hylidae	<i>Litoria caerulea</i>	common green treefrog	C	None	0	3	02/02/2018
629	Amphibia	Hylidae	<i>Litoria cooloolensis</i>	Cooloola sedgefrog	NT	None	1	1	03/04/1974
608	Amphibia	Hylidae	<i>Litoria fallax</i>	eastern sedgefrog	C	None	0	14	11/02/2018
609	Amphibia	Hylidae	<i>Litoria freycineti</i>	wallum rocketfrog	V	None	0	2	26/02/2009
611	Amphibia	Hylidae	<i>Litoria gracilentia</i>	graceful treefrog	C	None	0	5	24/02/2018
614	Amphibia	Hylidae	<i>Litoria latopalmata</i>	broad palmed rocketfrog	C	None	0	3	02/02/2018
615	Amphibia	Hylidae	<i>Litoria lesueuri sensu lato</i>	stony creek frog	C	None	0	4	03/12/2014
604	Amphibia	Hylidae	<i>Litoria nasuta</i>	striped rocketfrog	C	None	1	7	16/02/2018
596	Amphibia	Hylidae	<i>Litoria peronii</i>	emerald spotted treefrog	C	None	0	2	03/12/2014
600	Amphibia	Hylidae	<i>Litoria rubella</i>	ruddy treefrog	C	None	1	2	01/02/2018
29174	Amphibia	Hylidae	<i>Litoria wilcoxii</i>	eastern stony creek frog	C	None	0	10	12/02/2018
706	Amphibia	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog	V	None	0	1	03/12/2014
681	Amphibia	Limnodynastidae	<i>Limnodynastes peronii</i>	striped marshfrog	C	None	0	13	25/02/2018
684	Amphibia	Limnodynastidae	<i>Limnodynastes tasmaniensis</i>	spotted grassfrog	C	None	0	24	08/02/2002
673	Amphibia	Limnodynastidae	<i>Limnodynastes terraereginae</i>	scarlet sided pobblebonk	C	None	0	2	03/02/2018
696	Amphibia	Myobatrachidae	<i>Crinia parinsignifera</i>	beeping froglet	C	None	0	3	25/03/2010
698	Amphibia	Myobatrachidae	<i>Crinia signifera</i>	clicking froglet	C	None	0	4	07/04/2009
686	Amphibia	Myobatrachidae	<i>Crinia tinnula</i>	wallum froglet	V	None	3	27	24/02/2018
676	Amphibia	Myobatrachidae	<i>Mixophyes iteratus</i>	giant barred frog	E	E	0	4	03/12/2014
661	Amphibia	Myobatrachidae	<i>Pseudophryne raveni</i>	copper backed broodfrog	C	None	0	4	25/03/2010
633	Amphibia	Myobatrachidae	<i>Uperoleia fusca</i>	dusky gungan	C	None	0	2	08/11/2008

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640	Amphibia	Myobatrachidae	<i>Uperoleia sp.</i>	None	None	None	1	1	12/12/1977
1423	Aves	Acanthizidae	<i>Acanthiza pusilla</i>	brown thornbill	C	None	0	10	21/01/2007
1408	Aves	Acanthizidae	<i>Gerygone levigaster</i>	mangrove gerygone	C	None	0	1	19/09/1971
1410	Aves	Acanthizidae	<i>Gerygone mouki</i>	brown gerygone	C	None	0	13	06/05/2007
1396	Aves	Acanthizidae	<i>Gerygone olivacea</i>	white-throated gerygone	C	None	0	24	06/05/2007
1397	Aves	Acanthizidae	<i>Gerygone palpebrosa</i>	fairy gerygone	C	None	0	1	06/03/2001
1382	Aves	Acanthizidae	<i>Sericornis frontalis</i>	white-browed scrubwren	C	None	0	17	06/05/2007
1384	Aves	Acanthizidae	<i>Sericornis magnirostra</i>	large-billed scrubwren	C	None	0	5	11/02/2007
1371	Aves	Acanthizidae	<i>Smicromis brevirostris</i>	weebill	C	None	0	3	22/02/1995
1729	Aves	Accipitridae	<i>Accipiter fasciatus</i>	brown goshawk	C	None	0	2	26/03/2006
1730	Aves	Accipitridae	<i>Accipiter novaehollandiae</i>	grey goshawk	C	None	0	2	30/07/2006
1732	Aves	Accipitridae	<i>Aquila audax</i>	wedge-tailed eagle	C	None	0	6	22/02/1995
1721	Aves	Accipitridae	<i>Aviceda subcristata</i>	Pacific baza	C	None	0	9	09/04/2006
1722	Aves	Accipitridae	<i>Circus approximans</i>	swamp harrier	C	None	0	1	29/09/2001
1723	Aves	Accipitridae	<i>Circus assimilis</i>	spotted harrier	C	None	0	1	03/06/2002
1725	Aves	Accipitridae	<i>Elanus axillaris</i>	black-shouldered kite	C	None	0	2	31/12/1974
1720	Aves	Accipitridae	<i>Haliastur indus</i>	brahminy kite	C	None	0	1	19/09/1971
1707	Aves	Accipitridae	<i>Haliastur sphenurus</i>	whistling kite	C	None	0	5	19/08/2001
1710	Aves	Accipitridae	<i>Hieraaetus morphnoides</i>	little eagle	C	None	0	1	31/07/1994
1712	Aves	Accipitridae	<i>Lophoictinia isura</i>	square-tailed kite	C	None	0	2	28/12/2013
1702	Aves	Accipitridae	<i>Pandion cristatus</i>	eastern osprey	SL	None	0	1	19/09/1971
1305	Aves	Acrocephalidae	<i>Acrocephalus australis</i>	Australian reed-warbler	C	None	0	2	19/09/2000
1973	Aves	Aegothelidae	<i>Aegotheles cristatus</i>	Australian owl-nightjar	C	None	0	3	29/09/2001
1776	Aves	Alcedinidae	<i>Ceyx azureus</i>	azure kingfisher	C	None	0	10	06/05/2007
1992	Aves	Anatidae	<i>Anas castanea</i>	chestnut teal	C	None	0	1	19/09/1971
1993	Aves	Anatidae	<i>Anas gracilis</i>	grey teal	C	None	0	1	10/11/2007
1998	Aves	Anatidae	<i>Anas superciliosa</i>	Pacific black duck	C	None	0	12	10/11/2007
1999	Aves	Anatidae	<i>Aythya australis</i>	hardhead	C	None	0	1	10/11/2007
2003	Aves	Anatidae	<i>Chenonetta jubata</i>	Australian wood duck	C	None	0	10	06/05/2007
1279	Aves	Anhingidae	<i>Anhinga novaehollandiae</i>	Australasian darter	C	None	0	2	10/11/2007
1963	Aves	Anseranatidae	<i>Anseranas semipalmata</i>	magpie goose	C	None	0	1	10/11/2007

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1829	Aves	Ardeidae	<i>Ardea alba modesta</i>	eastern great egret	C	None	0	3	19/09/2000
1831	Aves	Ardeidae	<i>Ardea intermedia</i>	intermediate egret	C	None	0	2	10/11/2007
1832	Aves	Ardeidae	<i>Ardea pacifica</i>	white-necked heron	C	None	0	3	09/03/2001
1830	Aves	Ardeidae	<i>Bubulcus ibis</i>	cattle egret	C	None	0	1	19/09/2000
1840	Aves	Ardeidae	<i>Egretta garzetta</i>	little egret	C	None	0	1	19/09/1971
1826	Aves	Ardeidae	<i>Egretta novaehollandiae</i>	white-faced heron	C	None	0	9	08/04/2007
1818	Aves	Ardeidae	<i>Nycticorax caledonicus</i>	nankeen night-heron	C	None	0	1	04/02/2007
1659	Aves	Artamidae	<i>Artamus cyanopterus</i>	dusky woodswallow	C	None	0	1	31/12/1974
1660	Aves	Artamidae	<i>Artamus leucorhynchus</i>	white-breasted woodswallow	C	None	0	2	10/11/2007
1646	Aves	Artamidae	<i>Artamus minor</i>	little woodswallow	C	None	0	1	26/04/1971
1649	Aves	Artamidae	<i>Artamus superciliosus</i>	white-browed woodswallow	C	None	0	1	31/12/1974
1654	Aves	Artamidae	<i>Cracticus nigrogularis</i>	pied butcherbird	C	None	0	19	25/03/2007
1644	Aves	Artamidae	<i>Cracticus tibicen</i>	Australian magpie	C	None	0	31	06/05/2007
1656	Aves	Artamidae	<i>Cracticus torquatus</i>	grey butcherbird	C	None	0	21	06/05/2007
1645	Aves	Artamidae	<i>Strepera graculina</i>	pied currawong	C	None	0	20	06/05/2007
1956	Aves	Burhinidae	<i>Burhinus grallarius</i>	bush stone-curlew	C	None	0	2	07/04/2009
1191	Aves	Cacatuidae	<i>Cacatua galerita</i>	sulphur-crested cockatoo	C	None	0	18	06/05/2007
1196	Aves	Cacatuidae	<i>Calyptorhynchus banksii</i>	red-tailed black-cockatoo	C	None	0	2	19/09/1971
1185	Aves	Cacatuidae	<i>Calyptorhynchus funereus</i>	yellow-tailed black-cockatoo	C	None	0	17	08/04/2007
1171	Aves	Cacatuidae	<i>Calyptorhynchus lathami</i>	glossy black-cockatoo	V	None	0	1	21/08/2001
1193	Aves	Cacatuidae	<i>Eolophus roseicapilla</i>	galah	C	None	0	23	06/05/2007
1636	Aves	Campephagidae	<i>Coracina novaehollandiae</i>	black-faced cuckoo-shrike	C	None	0	27	06/05/2007
1637	Aves	Campephagidae	<i>Coracina papuensis</i>	white-bellied cuckoo-shrike	C	None	0	9	29/09/2001
1639	Aves	Campephagidae	<i>Coracina tenuirostris</i>	cidabird	C	None	0	9	04/02/2007
1640	Aves	Campephagidae	<i>Lalage leucomela</i>	varied triller	C	None	0	3	01/04/2007
1642	Aves	Campephagidae	<i>Lalage tricolor</i>	white-winged triller	C	None	0	1	31/12/1974
1089	Aves	Casuariidae	<i>Dromaius novaehollandiae</i>	emu	C	None	0	8	21/04/2001
1940	Aves	Charadriidae	<i>Elsayornis melanops</i>	black-fronted dotterel	C	None	0	1	31/12/1974
27774	Aves	Charadriidae	<i>Vanellus miles</i>	masked lapwing	C	None	0	3	10/11/2007

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1933	Aves	Charadriidae	<i>Vanellus miles novaehollandiae</i>	masked lapwing (southern subspecies)	C	None	0	4	19/09/2000
1294	Aves	Cisticolidae	<i>Cisticola exilis</i>	golden-headed cisticola	C	None	0	6	14/01/2007
1628	Aves	Climacteridae	<i>Climacteris picumnus</i>	brown treecreeper	C	None	0	2	31/07/1994
1617	Aves	Climacteridae	<i>Cormobates leucophaea</i>	white-throated treecreeper	C	None	0	6	08/04/2007
18293	Aves	Climacteridae	<i>Cormobates leucophaea metastasis</i>	white-throated treecreeper (southern)	C	None	0	16	21/08/2001
1803	Aves	Columbidae	<i>Columba leucomela</i>	white-headed pigeon	C	None	0	3	25/03/2007
1810	Aves	Columbidae	<i>Geopelia humeralis</i>	bar-shouldered dove	C	None	0	17	06/05/2007
1797	Aves	Columbidae	<i>Geopelia striata</i>	peaceful dove	C	None	0	15	12/03/2001
1787	Aves	Columbidae	<i>Leucosarcia melanoleuca</i>	wonga pigeon	C	None	0	9	06/05/2007
1789	Aves	Columbidae	<i>Lopholaimus antarcticus</i>	topknot pigeon	C	None	0	2	05/11/2005
1791	Aves	Columbidae	<i>Macropygia amboinensis</i>	brown cuckoo-dove	C	None	0	15	06/05/2007
1793	Aves	Columbidae	<i>Ocyphaps lophotes</i>	crested pigeon	C	None	0	9	06/05/2007
1774	Aves	Columbidae	<i>Streptopelia chinensis</i>	spotted dove	None	None	0	13	06/05/2007
1779	Aves	Coraciidae	<i>Eurystomus orientalis</i>	dollarbird	C	None	0	15	25/03/2007
1603	Aves	Corcoracidae	<i>Corcorax melanorhamphos</i>	white-winged chough	C	None	0	6	22/02/1995
1609	Aves	Corvidae	<i>Corvus orru</i>	Torresian crow	C	None	0	51	10/11/2007
1754	Aves	Cuculidae	<i>Cacomantis flabelliformis</i>	fan-tailed cuckoo	C	None	0	14	01/04/2007
1750	Aves	Cuculidae	<i>Cacomantis pallidus</i>	pallid cuckoo	C	None	0	2	29/09/2001
1743	Aves	Cuculidae	<i>Cacomantis variolosus</i>	brush cuckoo	C	None	0	9	01/07/2006
1751	Aves	Cuculidae	<i>Centropus phasianinus</i>	pheasant coucal	C	None	0	10	28/01/2006
1744	Aves	Cuculidae	<i>Chalcites basalus</i>	Horsfield's bronze-cuckoo	C	None	0	7	14/01/2007
1745	Aves	Cuculidae	<i>Chalcites lucidus</i>	shining bronze-cuckoo	C	None	0	8	06/05/2007
1756	Aves	Cuculidae	<i>Chalcites minutillus barnardi</i>	Eastern little bronze-cuckoo	C	None	0	1	02/12/2000
1738	Aves	Cuculidae	<i>Eudynamis orientalis</i>	eastern koel	C	None	0	5	23/04/2006
1740	Aves	Cuculidae	<i>Scythrops novaehollandiae</i>	channel-billed cuckoo	C	None	0	6	14/01/2007
1601	Aves	Dicruridae	<i>Dicrurus bracteatus</i>	spangled drongo	C	None	0	30	06/05/2007

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1366	Aves	Estrildidae	<i>Lonchura castaneothorax</i>	chestnut-breasted mannikin	C	None	0	6	28/01/2007
1359	Aves	Estrildidae	<i>Neochmia temporalis</i>	red-browed finch	C	None	0	17	08/04/2007
1342	Aves	Estrildidae	<i>Taeniopygia bichenovii</i>	double-barred finch	C	None	0	8	19/09/2000
1949	Aves	Eurostopodidae	<i>Eurostopodus mystacalis</i>	white-throated nightjar	C	None	0	2	04/11/2008
1716	Aves	Falconidae	<i>Falco berigora</i>	brown falcon	C	None	0	2	28/02/2001
1704	Aves	Falconidae	<i>Falco cenchroides</i>	nankeen kestrel	C	None	0	2	19/09/1971
1678	Aves	Gruidae	<i>Grus rubicunda</i>	brolga	C	None	0	1	26/08/1956
1767	Aves	Halcyonidae	<i>Dacelo novaeguineae</i>	laughing kookaburra	C	None	0	40	18/02/2007
1760	Aves	Halcyonidae	<i>Todiramphus macleayii</i>	forest kingfisher	C	None	0	15	01/04/2007
1761	Aves	Halcyonidae	<i>Todiramphus pyrrhopygius</i>	red-backed kingfisher	C	None	0	1	31/12/1974
1762	Aves	Halcyonidae	<i>Todiramphus sanctus</i>	sacred kingfisher	C	None	0	7	10/12/2006
1572	Aves	Hirundinidae	<i>Hirundo neoxena</i>	welcome swallow	C	None	0	22	10/11/2007
1585	Aves	Hirundinidae	<i>Petrochelidon ariel</i>	fairy martin	C	None	0	5	10/11/2007
1573	Aves	Hirundinidae	<i>Petrochelidon nigricans</i>	tree martin	C	None	0	7	08/04/2007
1928	Aves	Jacaniidae	<i>Irediparra gallinacea</i>	comb-crested jacana	C	None	0	3	10/11/2007
1896	Aves	Laridae	<i>Hydroprogne caspia</i>	Caspian tern	SL	None	0	1	19/09/1971
1556	Aves	Maluridae	<i>Malurus lamberti</i>	variegated fairy-wren	C	None	0	9	15/10/2006
1558	Aves	Maluridae	<i>Malurus melanocephalus</i>	red-backed fairy-wren	C	None	0	27	06/05/2007
1289	Aves	Megaluridae	<i>Megalurus timoriensis</i>	tawny grassbird	C	None	0	2	19/09/2000
1694	Aves	Megapodiidae	<i>Alectura lathamii</i>	Australian brush-turkey	C	None	0	1	06/03/2001
1542	Aves	Meliphagidae	<i>Anthochaera chrysoptera</i>	little wattlebird	C	None	0	16	15/10/2006
1523	Aves	Meliphagidae	<i>Caligavis chrysops</i>	yellow-faced honeyeater	C	None	0	20	06/05/2007
1539	Aves	Meliphagidae	<i>Entomyzon cyanotis</i>	blue-faced honeyeater	C	None	0	21	08/04/2007
1517	Aves	Meliphagidae	<i>Lichenostomus melanops</i>	yellow-tufted honeyeater	C	None	0	3	29/09/2001
1497	Aves	Meliphagidae	<i>Lichmera indistincta</i>	brown honeyeater	C	None	0	25	08/04/2007
1500	Aves	Meliphagidae	<i>Manorina melanocephala</i>	noisy miner	C	None	0	24	18/02/2007
1504	Aves	Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's honeyeater	C	None	0	50	06/05/2007
1507	Aves	Meliphagidae	<i>Melithreptus albugularis</i>	white-throated honeyeater	C	None	0	40	06/05/2007

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1483	Aves	Meliphagidae	<i>Melithreptus gularis</i>	black-chinned honeyeater	C	None	0	3	22/02/1995
1485	Aves	Meliphagidae	<i>Melithreptus lunatus</i>	white-naped honeyeater	C	None	0	3	12/03/2001
1488	Aves	Meliphagidae	<i>Myzomela obscura</i>	dusky honeyeater	C	None	0	1	19/09/2000
1489	Aves	Meliphagidae	<i>Myzomela sanguinolenta</i>	scarlet honeyeater	C	None	0	28	01/04/2007
1493	Aves	Meliphagidae	<i>Philemon citreogularis</i>	little friarbird	C	None	0	19	28/01/2007
1494	Aves	Meliphagidae	<i>Philemon corniculatus</i>	noisy friarbird	C	None	0	45	06/05/2007
1482	Aves	Meliphagidae	<i>Phylidonyris niger</i>	white-cheeked honeyeater	C	None	0	10	29/09/2001
1471	Aves	Meliphagidae	<i>Plectorhyncha lanceolata</i>	striped honeyeater	C	None	0	3	22/02/1995
1513	Aves	Meliphagidae	<i>Ptilotula fusca</i>	fuscous honeyeater	C	None	0	1	31/07/1994
1764	Aves	Meropidae	<i>Merops ornatus</i>	rainbow bee-eater	C	None	0	29	06/05/2007
1594	Aves	Monarchidae	<i>Carterornis leucotis</i>	white-eared monarch	C	None	0	1	06/03/2001
1589	Aves	Monarchidae	<i>Grallina cyanoleuca</i>	magpie-lark	C	None	0	29	10/11/2007
1595	Aves	Monarchidae	<i>Monarcha melanopsis</i>	black-faced monarch	SL	None	0	3	22/10/2005
1599	Aves	Monarchidae	<i>Myiagra cyanoleuca</i>	satin flycatcher	SL	None	0	1	31/12/1974
1600	Aves	Monarchidae	<i>Myiagra inquieta</i>	restless flycatcher	C	None	0	10	25/03/2007
1586	Aves	Monarchidae	<i>Myiagra rubecula</i>	leaden flycatcher	C	None	0	26	01/04/2007
1597	Aves	Monarchidae	<i>Symposiachrus trivirgatus</i>	spectacled monarch	SL	None	0	8	08/04/2007
1455	Aves	Motacillidae	<i>Anthus novaeseelandiae</i>	Australasian pipit	C	None	0	5	06/03/1995
1611	Aves	Nectariniidae	<i>Dicaeum hirundinaceum</i>	mistletoebird	C	None	0	21	08/04/2007
1453	Aves	Neosittidae	<i>Daphoenositta chrysoptera</i>	varied sittella	C	None	0	4	22/02/1995
1442	Aves	Oriolidae	<i>Oriolus sagittatus</i>	olive-backed oriole	C	None	0	19	18/02/2007
1444	Aves	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian figbird	C	None	0	35	06/05/2007
1449	Aves	Pachycephalidae	<i>Colluricincla harmonica</i>	grey shrike-thrush	C	None	0	27	06/05/2007
1450	Aves	Pachycephalidae	<i>Colluricincla megarhyncha</i>	little shrike-thrush	C	None	0	12	25/03/2007
1436	Aves	Pachycephalidae	<i>Pachycephala pectoralis</i>	golden whistler	C	None	0	37	06/05/2007
1437	Aves	Pachycephalidae	<i>Pachycephala rufiventris</i>	rufous whistler	C	None	0	22	18/06/2006
1389	Aves	Pardalotidae	<i>Pardalotus punctatus</i>	spotted pardalote	C	None	0	15	08/04/2007
1392	Aves	Pardalotidae	<i>Pardalotus striatus</i>	striated pardalote	C	None	0	36	06/05/2007

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1360	Aves	Passeridae	<i>Passer domesticus</i>	house sparrow	None	None	0	2	30/09/1978
1284	Aves	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian pelican	C	None	0	3	12/08/1999
1347	Aves	Petroicidae	<i>Eopsaltria australis</i>	eastern yellow robin	C	None	0	27	04/02/2007
1339	Aves	Petroicidae	<i>Microeca fascians</i>	jacky winter	C	None	0	8	06/03/1995
1332	Aves	Petroicidae	<i>Petroica rosea</i>	rose robin	C	None	0	2	30/07/2006
1261	Aves	Phalacrocoracidae	<i>Microcarbo melanoleucos</i>	little pied cormorant	C	None	0	8	14/01/2007
1263	Aves	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	little black cormorant	C	None	0	8	10/11/2007
1264	Aves	Phalacrocoracidae	<i>Phalacrocorax varius</i>	pied cormorant	C	None	0	2	06/03/2001
1687	Aves	Phasianidae	<i>Coturnix ypsilophora</i>	brown quail	C	None	0	3	19/09/2000
1955	Aves	Podargidae	<i>Podargus strigoides</i>	tawny frogmouth	C	None	0	3	03/12/2014
1271	Aves	Podicipedidae	<i>Podiceps cristatus</i>	great crested grebe	C	None	0	1	10/11/2007
1260	Aves	Podicipedidae	<i>Polyocephalus polyocephalus</i>	hoary-headed grebe	C	None	0	1	19/09/2000
1249	Aves	Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian grebe	C	None	0	3	10/11/2007
1318	Aves	Pomatostomidae	<i>Pomatostomus temporalis</i>	grey-crowned babbler	C	None	0	7	06/03/1995
1180	Aves	Psittacidae	<i>Alisterus scapularis</i>	Australian king-parrot	C	None	0	5	06/05/2007
1182	Aves	Psittacidae	<i>Aprosmictus erythropterus</i>	red-winged parrot	C	None	0	1	31/01/1978
1147	Aves	Psittacidae	<i>Parvipsitta pusilla</i>	little lorikeet	C	None	0	8	30/04/2006
1135	Aves	Psittacidae	<i>Pezoporus wallicus wallicus</i>	ground parrot	V	None	0	4	31/12/1984
1136	Aves	Psittacidae	<i>Platycercus adscitus</i>	pale-headed rosella	C	None	0	13	06/05/2007
1124	Aves	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	scaly-breasted lorikeet	C	None	0	18	25/03/2007
1125	Aves	Psittacidae	<i>Trichoglossus haematodus moluccanus</i>	rainbow lorikeet	C	None	0	56	06/05/2007
1623	Aves	Psophodidae	<i>Psophodes olivaceus</i>	eastern whipbird	C	None	0	26	08/04/2007
1177	Aves	Ptilonorhynchidae	<i>Ailuroedus crassirostris</i>	green catbird	C	None	0	1	09/04/2006
1686	Aves	Rallidae	<i>Fulica atra</i>	Eurasian coot	C	None	0	2	10/11/2007
1673	Aves	Rallidae	<i>Gallinula tenebrosa</i>	dusky moorhen	C	None	0	2	19/09/2000
1662	Aves	Rallidae	<i>Porphyrio melanotus</i>	purple swamphen	C	None	0	3	10/11/2007
1893	Aves	Recurvirostridae	<i>Himantopus himantopus</i>	black-winged stilt	C	None	0	1	10/11/2007

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1575	Aves	Rhipiduridae	<i>Rhipidura albiscapa</i>	grey fantail	C	None	0	29	06/05/2007
1576	Aves	Rhipiduridae	<i>Rhipidura leucophrys</i>	willie wagtail	C	None	0	24	10/11/2007
1578	Aves	Rhipiduridae	<i>Rhipidura rufifrons</i>	rufous fantail	SL	None	0	11	11/02/2007
1883	Aves	Rostratulidae	<i>Rostratula australis</i>	Australian painted snipe	V	E	0	1	10/11/2007
1857	Aves	Scolopacidae	<i>Gallinago hardwickii</i>	Latham's snipe	SL	None	0	2	10/11/2007
1102	Aves	Strigidae	<i>Ninox boobook</i>	southern boobook	C	None	0	7	03/12/2014
1107	Aves	Strigidae	<i>Ninox strenua</i>	powerful owl	V	None	0	3	10/10/2010
1303	Aves	Sturnidae	<i>Sturnus vulgaris</i>	common starling	None	None	0	1	19/09/1971
1822	Aves	Threskiornithidae	<i>Platalea flavipes</i>	yellow-billed spoonbill	C	None	0	2	10/11/2007
1823	Aves	Threskiornithidae	<i>Platalea regia</i>	royal spoonbill	C	None	0	2	19/09/2000
1825	Aves	Threskiornithidae	<i>Plegadis falcinellus</i>	glossy ibis	SL	None	0	1	19/09/1971
1812	Aves	Threskiornithidae	<i>Threskiornis molucca</i>	Australian white ibis	C	None	0	11	06/05/2007
1800	Aves	Threskiornithidae	<i>Threskiornis spinicollis</i>	straw-necked ibis	C	None	0	1	19/08/2001
1276	Aves	Timaliidae	<i>Zosterops lateralis</i>	silveryeye	C	None	0	19	25/03/2007
1082	Aves	Turnicidae	<i>Turnix velox</i>	little button-quail	C	None	0	1	06/05/2007
1109	Aves	Tytonidae	<i>Tyto longimembris</i>	eastern grass owl	C	None	0	1	26/08/1956
19149	Insecta	Nymphalidae	<i>Acraea andromacha andromacha</i>	glasswing	None	None	0	1	02/12/2000
19133	Insecta	Nymphalidae	<i>Hypocysta adiante adiante</i>	orange ringlet	None	None	0	1	02/12/2000
19110	Insecta	Pieridae	<i>Belenois java teutonia</i>	caper white	None	None	0	1	02/12/2000
1067	Mammalia	Canidae	<i>Canis lupus familiaris</i>	dog	None	None	0	1	03/01/1978
803	Mammalia	Dasyuridae	<i>Dasyurus maculatus maculatus</i>	spotted-tailed quoll (southern subspecies)	V	E	0	1	31/12/1946
811	Mammalia	Dasyuridae	<i>Planigale maculata</i>	common planigale	C	None	9	12	04/04/1979
714	Mammalia	Dugongidae	<i>Dugong dugon</i>	dugong	V	None	0	1	14/09/1997
1006	Mammalia	Emballonuridae	<i>Saccolaimus flaviventris</i>	yellow-bellied sheath-tail bat	C	None	1	2	06/04/1978
901	Mammalia	Macropodidae	<i>Macropus giganteus</i>	eastern grey kangaroo	C	None	0	3	19/12/1980
904	Mammalia	Macropodidae	<i>Macropus rufogriseus</i>	red-necked wallaby	C	None	0	2	22/02/1995
885	Mammalia	Macropodidae	<i>Wallabia bicolor</i>	swamp wallaby	C	None	0	2	22/03/1979
954	Mammalia	Miniopteridae	<i>Miniopterus australis</i>	little bent-wing bat	C	None	0	1	03/12/2014
22061	Mammalia	Molossidae	<i>Mormopterus ridei</i>	eastern free-tailed bat	C	None	0	1	19/02/2009

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772	Mammalia	Muridae	<i>Melomys burtoni</i>	grassland melomys	C	None	0	2	23/03/1979
759	Mammalia	Muridae	<i>Melomys cervinipes</i>	fawn-footed melomys	C	None	0	1	04/11/2002
761	Mammalia	Muridae	<i>Melomys sp.</i>	None	None	None	0	1	10/10/2010
764	Mammalia	Muridae	<i>Mus musculus</i>	house mouse	None	None	11	16	05/04/1979
741	Mammalia	Muridae	<i>Rattus fuscipes</i>	bush rat	C	None	0	1	10/10/2010
734	Mammalia	Muridae	<i>Rattus tunneyi</i>	pale field-rat	C	None	1	2	05/04/1979
724	Mammalia	Muridae	<i>Xeromys myoides</i>	water mouse	V	V	0	1	08/04/1999
836	Mammalia	Ornithorhynchidae	<i>Ornithorhynchus anatinus</i>	platypus	SL	None	0	2	31/12/2002
784	Mammalia	Peramelidae	<i>Isoodon macrourus</i>	northern brown bandicoot	C	None	0	1	02/07/1976
879	Mammalia	Petauridae	<i>Petaurus norfolcensis</i>	squirrel glider	C	None	0	2	04/11/2008
860	Mammalia	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala	V	V	0	8	17/11/2018
1080	Mammalia	Suidae	<i>Sus scrofa</i>	pig	None	None	0	1	17/12/1980
838	Mammalia	Tachyglossidae	<i>Tachyglossus aculeatus</i>	short-beaked echidna	SL	None	0	1	10/10/2010
972	Mammalia	Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's wattled bat	C	None	0	2	03/12/2014
973	Mammalia	Vespertilionidae	<i>Chalinolobus morio</i>	chocolate wattled bat	C	None	0	1	03/12/2014
943	Mammalia	Vespertilionidae	<i>Scoteanax rueppellii</i>	greater broad-nosed bat	C	None	1	4	24/05/1988
931	Mammalia	Vespertilionidae	<i>Scotorepens greyii</i>	little broad-nosed bat	C	None	0	1	04/01/1978
933	Mammalia	Vespertilionidae	<i>Scotorepens sp.</i>	None	None	None	0	1	04/01/1978
574	Reptilia	Agamidae	<i>Chlamydosaurus kingii</i>	frilled lizard	C	None	0	1	16/12/1993
567	Reptilia	Agamidae	<i>Diporiphora australis</i>	tommy roundhead	C	None	2	2	12/01/1979
561	Reptilia	Agamidae	<i>Diporiphora nobbi</i>	nobbi	C	None	3	4	17/11/2005
554	Reptilia	Agamidae	<i>Intellagama lesueurii</i>	eastern water dragon	C	None	0	4	03/12/2014
556	Reptilia	Agamidae	<i>Pogona barbata</i>	bearded dragon	C	None	0	3	21/03/2001
519	Reptilia	Boidae	<i>Morelia spilota</i>	carpet python	C	None	0	2	20/04/2014
30272	Reptilia	Chelidae	<i>Eelseya albagula</i>	southern snapping turtle	E	CE	0	6	03/04/1979
56	Reptilia	Chelidae	<i>Elusor macrurus</i>	Mary River turtle	E	E	0	4	01/11/2012
54	Reptilia	Chelidae	<i>Wollumbinia latisternum</i>	saw-shelled turtle	C	None	0	2	23/03/1979
508	Reptilia	Colubridae	<i>Tropidonophis mairii</i>	freshwater snake	C	None	2	5	03/12/2014
404	Reptilia	Diplodactylidae	<i>Amalosia rhombifer</i>	zig-zag gecko	C	None	0	1	04/01/1978
457	Reptilia	Elapidae	<i>Cryptophis nigrescens</i>	eastern small-eyed snake	C	None	0	1	20/03/1979

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
477	Reptilia	Elapidae	<i>Hemiaspis signata</i>	black-bellied swamp snake	C	None	4	6	20/03/1979
467	Reptilia	Elapidae	<i>Notechis scutatus</i>	eastern tiger snake	C	None	0	1	31/12/1972
470	Reptilia	Elapidae	<i>Oxyuranus scutellatus</i>	coastal taipan	C	None	1	2	05/10/1979
444	Reptilia	Elapidae	<i>Vermicella annulata</i>	bandy-bandy	C	None	0	1	04/11/2002
312	Reptilia	Scincidae	<i>Calyptotis scutirostrum</i>	scute-snouted calyptotis	C	None	1	5	15/12/1978
31898	Reptilia	Scincidae	<i>Cryptoblepharus pulcher pulcher</i>	elegant snake-eyed skink	C	None	0	3	05/04/1979
243	Reptilia	Scincidae	<i>Ctenotus taeniolatus</i>	copper-tailed skink	C	None	2	3	23/03/1979
184	Reptilia	Scincidae	<i>Lampropholis delicata</i>	dark-flecked garden sunskink	C	None	19	21	05/04/1979
83	Reptilia	Typhlopidae	<i>Anilius wiedii</i>	brown-snouted blind snake	C	None	0	1	24/02/1978
78	Reptilia	Varanidae	<i>Varanus gouldii</i>	sand monitor	C	None	0	1	28/02/2001
26926	Sarcopterygii	Ceratodontidae	<i>Neoceratodus forsteri</i>	Australian lungfish	None	V	0	7	30/03/2009

Table 3. Plants recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
8602	Charophyceae	Characeae	<i>Chara</i>	None	C	None	1	1	31/05/2001
16375	Equisetopsida	Acanthaceae	<i>Pseuderanthemum variabile</i>	pastel flower	C	None	1	3	03/05/2001
32728	Equisetopsida	Amaranthaceae	<i>Alternanthera denticulata</i> var. <i>denticulata</i>	None	C	None	1	1	31/05/2001
16720	Equisetopsida	Anacardiaceae	<i>Mangifera indica</i>	mango	None	None	0	1	21/05/1994
11769	Equisetopsida	Anacardiaceae	<i>Schinus terebinthifolius</i>	None	None	None	0	1	11/12/1997
8144	Equisetopsida	Annonaceae	<i>Melodorum leichhardtii</i>	None	C	None	2	3	27/11/1997
16434	Equisetopsida	Annonaceae	<i>Polyalthia nitidissima</i>	polyalthia	C	None	1	1	02/01/2005
15545	Equisetopsida	Apiaceae	<i>Centella asiatica</i>	None	C	None	0	1	27/11/1997
16703	Equisetopsida	Apiaceae	<i>Mackinlaya macrosciadea</i>	mackinlaya	C	None	0	2	02/12/1997
15152	Equisetopsida	Apiaceae	<i>Platysace linearifolia</i>	None	C	None	1	2	11/12/1997
19732	Equisetopsida	Apocynaceae	<i>Alyxia ruscifolia</i>	None	C	None	0	2	27/11/1997
8353	Equisetopsida	Apocynaceae	<i>Alyxia sharpei</i>	None	C	None	0	1	15/12/1997
9698	Equisetopsida	Apocynaceae	<i>Carissa ovata</i>	currantbush	C	None	0	2	11/12/1997
17050	Equisetopsida	Apocynaceae	<i>Gomphocarpus physocarpus</i>	balloon cottonbush	None	None	0	1	26/11/1997
11205	Equisetopsida	Apocynaceae	<i>Marsdenia coronata</i>	slender milkvine	V	None	1	1	10/04/1995
12361	Equisetopsida	Apocynaceae	<i>Melodinus australis</i>	southern melodinus	C	None	1	2	26/11/1997
11155	Equisetopsida	Apocynaceae	<i>Nerium oleander</i>	oleander	None	None	1	1	17/11/2000
16528	Equisetopsida	Apocynaceae	<i>Parsonsia</i>	None	C	None	0	1	27/11/1997

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
16526	Equisetopsida	Apocynaceae	<i>Parsonsia straminea</i>	monkey rope	C	None	0	3	11/12/1997
16059	Equisetopsida	Apocynaceae	<i>Tabernaemontana pandacaqui</i>	banana bush	C	None	0	5	27/11/1997
17952	Equisetopsida	Araliaceae	<i>Astrotricha longifolia</i>	star hair bush	C	None	2	2	24/10/1997
8462	Equisetopsida	Araliaceae	<i>Polyscias elegans</i>	celery wood	C	None	0	2	11/12/1997
18040	Equisetopsida	Araucariaceae	<i>Agathis robusta</i>	kauri pine	C	None	2	9	02/01/2005
14858	Equisetopsida	Arecaceae	<i>Archontophoenix cunninghamiana</i>	piccabeen palm	C	None	1	10	15/12/1997
12821	Equisetopsida	Arecaceae	<i>Calamus muelleri</i>	lawyer vine	C	None	0	3	10/12/1997
15226	Equisetopsida	Arecaceae	<i>Livistona</i>	None	C	None	0	1	09/12/1997
12776	Equisetopsida	Arecaceae	<i>Livistona australis</i>	cabbage tree palm	C	None	1	2	02/12/1997
17937	Equisetopsida	Aspleniaceae	<i>Asplenium australasicum</i>	None	C	None	0	1	09/12/1997
14051	Equisetopsida	Asteraceae	<i>Ageratum houstonianum</i>	blue billygoat weed	None	None	0	1	21/05/1994
15612	Equisetopsida	Asteraceae	<i>Baccharis halimifolia</i>	groundsel bush	None	None	0	5	11/12/1997
19371	Equisetopsida	Asteraceae	<i>Conyza</i>	None	None	None	0	1	21/05/1994
14676	Equisetopsida	Asteraceae	<i>Crassocephalum crepidioides</i>	thickhead	None	None	0	1	21/05/1994
8407	Equisetopsida	Asteraceae	<i>Praxelis clematidea</i>	None	None	None	2	2	04/02/2014
15129	Equisetopsida	Asteraceae	<i>Pterocaulon redolens</i>	None	C	None	1	1	21/02/1995
15103	Equisetopsida	Asteraceae	<i>Rutidosia murchisonii</i>	None	C	None	1	1	12/05/1990
12063	Equisetopsida	Blechnaceae	<i>Blechnum camfieldii</i>	None	C	None	1	1	31/12/1994
17818	Equisetopsida	Blechnaceae	<i>Blechnum nudum</i>	fishbone water fern	C	None	1	1	31/12/1994
14614	Equisetopsida	Blechnaceae	<i>Doodia caudata</i>	None	C	None	0	1	26/11/1997
11191	Equisetopsida	Boraginaceae	<i>Echium plantagineum</i>	Paterson's curse	None	None	1	1	11/12/1969
17594	Equisetopsida	Byttneriaceae	<i>Commersonia bartramia</i>	brown kurrajong	C	None	0	3	01/12/1997
12549	Equisetopsida	Byttneriaceae	<i>Seringia arborescens</i>	None	C	None	1	1	07/11/2000
13867	Equisetopsida	Campanulaceae	<i>Lobelia</i>	None	C	None	0	1	27/11/1997
17725	Equisetopsida	Capparaceae	<i>Capparis arborea</i>	brush caper berry	C	None	0	1	03/12/1997
18012	Equisetopsida	Casuarinaceae	<i>Allocasuarina littoralis</i>	None	C	None	2	17	19/08/2006
18014	Equisetopsida	Casuarinaceae	<i>Allocasuarina torulosa</i>	None	C	None	0	9	15/12/1997
9087	Equisetopsida	Casuarinaceae	<i>Casuarina cunninghamiana</i>	None	C	None	0	1	26/11/1997
14636	Equisetopsida	Celastraceae	<i>Denhamia celastroides</i>	broad-leaved boxwood	C	None	2	3	09/12/1997
16115	Equisetopsida	Chenopodiaceae	<i>Suaeda australis</i>	None	C	None	1	1	23/02/1999
17593	Equisetopsida	Commelinaceae	<i>Commelina</i>	None	C	None	0	2	27/11/1997

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10033	Equisetopsida	Commelinaceae	<i>Commelina diffusa</i>	wandering jew	C	None	1	1	03/05/2001
16599	Equisetopsida	Commelinaceae	<i>Murdannia graminea</i>	murdannia	C	None	0	1	11/12/1997
16399	Equisetopsida	Convolvulaceae	<i>Polymeria</i>	None	C	None	0	1	26/11/1997
14124	Equisetopsida	Cucurbitaceae	<i>Zehneria cunninghamii</i>	slender cucumber	C	None	1	1	01/06/2012
16377	Equisetopsida	Cunoniaceae	<i>Pseudoweinmannia lachnocarpa</i>	rose marara	C	None	1	1	02/01/2005
16207	Equisetopsida	Cunoniaceae	<i>Schizomeria ovata</i>	white cherry	C	None	1	1	26/07/1995
12065	Equisetopsida	Cupressaceae	<i>Callitris rhomboidea</i>	dune cypress pine	C	None	1	1	13/04/1995
14832	Equisetopsida	Cyperaceae	<i>Baumea muelleri</i>	None	C	None	1	1	20/11/1991
14833	Equisetopsida	Cyperaceae	<i>Baumea teretifolia</i>	None	C	None	1	1	24/07/1995
18197	Equisetopsida	Cyperaceae	<i>Caustis blakei</i> subsp. <i>blakei</i>	None	C	None	2	2	09/09/1997
17659	Equisetopsida	Cyperaceae	<i>Caustis recurvata</i>	None	C	None	3	5	11/12/1997
14754	Equisetopsida	Cyperaceae	<i>Chorizandra sphaerocephala</i>	None	C	None	1	1	24/07/1995
13965	Equisetopsida	Cyperaceae	<i>Cyperus bowmanni</i>	None	C	None	1	1	10/04/1995
17512	Equisetopsida	Cyperaceae	<i>Cyperus brevifolius</i>	Mullumbimby couch	None	None	1	1	31/05/2001
17515	Equisetopsida	Cyperaceae	<i>Cyperus difformis</i>	rice sedge	C	None	1	1	02/05/2001
17523	Equisetopsida	Cyperaceae	<i>Cyperus haspan</i> subsp. <i>haspan</i>	None	C	None	1	1	31/05/2001
17527	Equisetopsida	Cyperaceae	<i>Cyperus laevis</i>	None	C	None	2	2	31/05/2001
14664	Equisetopsida	Cyperaceae	<i>Cyperus lucidus</i>	None	C	None	2	2	27/11/1997
17474	Equisetopsida	Cyperaceae	<i>Cyperus pilosus</i>	None	C	None	1	1	02/05/2001
17475	Equisetopsida	Cyperaceae	<i>Cyperus polystachyos</i> var. <i>polystachyos</i>	None	C	None	2	2	31/05/2001
17479	Equisetopsida	Cyperaceae	<i>Cyperus sphaeroideus</i>	None	C	None	0	1	15/03/2015
17485	Equisetopsida	Cyperaceae	<i>Cyperus trinervis</i>	None	C	None	3	3	31/05/2001
17105	Equisetopsida	Cyperaceae	<i>Fimbristylis cinnamometorum</i>	None	C	None	1	1	10/01/2015
17107	Equisetopsida	Cyperaceae	<i>Fimbristylis dichotoma</i>	common fringe-rush	C	None	1	1	20/02/1995
17078	Equisetopsida	Cyperaceae	<i>Gahnia aspera</i>	None	C	None	0	2	26/11/1997
11977	Equisetopsida	Cyperaceae	<i>Isolepis cernua</i>	nodding club rush	C	None	3	3	03/05/2001
16870	Equisetopsida	Cyperaceae	<i>Isolepis inundata</i>	swamp club rush	C	None	2	2	31/05/2001
9381	Equisetopsida	Cyperaceae	<i>Lepidosperma laterale</i>	None	C	None	1	2	29/12/1999
16808	Equisetopsida	Cyperaceae	<i>Lepidosperma laterale</i> var. <i>laterale</i>	None	C	None	1	1	08/05/1995
16809	Equisetopsida	Cyperaceae	<i>Lepidosperma longitudinale</i>	pithy sword sedge	C	None	1	1	09/05/1995
16812	Equisetopsida	Cyperaceae	<i>Lepironia articulata</i>	None	C	None	2	2	03/05/2001
16295	Equisetopsida	Cyperaceae	<i>Rhynchospora rubra</i>	None	C	None	1	1	09/05/1995

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16211	Equisetopsida	Cyperaceae	<i>Schoenus apogon var. apogon</i>	None	C	None	1	1	24/07/1995
16894	Equisetopsida	Dennstaedtiaceae	<i>Hypolepis muelleri</i>	swamp bracken	C	None	1	1	31/12/1994
16340	Equisetopsida	Dennstaedtiaceae	<i>Peridium esculentum</i>	common bracken	C	None	0	8	15/12/1997
16950	Equisetopsida	Dilleniaceae	<i>Hibbertia</i>	None	C	None	0	1	15/12/1997
16941	Equisetopsida	Dilleniaceae	<i>Hibbertia linearis</i>	None	C	None	0	1	11/12/1997
14496	Equisetopsida	Dilleniaceae	<i>Hibbertia linearis var. floribunda</i>	None	C	None	1	1	22/09/1967
11555	Equisetopsida	Dilleniaceae	<i>Hibbertia vestita</i>	None	C	None	0	3	26/11/1997
17398	Equisetopsida	Ebenaceae	<i>Diospyros pentamera</i>	myrtle ebony	C	None	1	3	03/12/1997
17335	Equisetopsida	Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	ash quandong	C	None	1	2	11/12/1997
18111	Equisetopsida	Ericaceae	<i>Acrotriche aggregata</i>	red cluster heath	C	None	0	5	15/12/1997
30300	Equisetopsida	Ericaceae	<i>Agortia pedicellata</i>	None	C	None	2	3	15/03/2015
17269	Equisetopsida	Ericaceae	<i>Epacris pulchella</i>	wallum heath	C	None	1	1	22/09/1967
16793	Equisetopsida	Ericaceae	<i>Leucopogon</i>	None	C	None	0	1	11/12/1997
16142	Equisetopsida	Ericaceae	<i>Sprengelia sprengelioides</i>	sprengelia	C	None	1	1	01/06/1999
17281	Equisetopsida	Eriocaulaceae	<i>Eriocaulon australe</i>	None	C	None	1	1	09/05/1995
14542	Equisetopsida	Eriocaulaceae	<i>Eriocaulon nanum</i>	None	C	None	1	1	09/05/1995
20126	Equisetopsida	Euphorbiaceae	<i>Alchornea</i>	None	None	None	0	1	10/12/1997
17561	Equisetopsida	Euphorbiaceae	<i>Croton insularis</i>	Queensland cascarilla	C	None	0	1	27/11/1997
16715	Equisetopsida	Euphorbiaceae	<i>Mallotus philippensis</i>	red kamala	C	None	0	1	27/11/1997
15834	Equisetopsida	Euphorbiaceae	<i>Ricinocarpus pinifolius</i>	wedding bush	C	None	0	1	11/12/1997
15663	Equisetopsida	Fabaceae	<i>Aeschynomene brevifolia</i>	None	C	None	1	1	07/03/1995
10913	Equisetopsida	Fabaceae	<i>Aeschynomene falcata</i>	None	None	None	1	1	17/11/2000
15683	Equisetopsida	Fabaceae	<i>Aotus lanigera</i>	pointed aotus	C	None	1	1	22/09/1967
15609	Equisetopsida	Fabaceae	<i>Austrostenisia blackii</i>	bloodvine	C	None	0	1	26/11/1997
15539	Equisetopsida	Fabaceae	<i>Castanospermum australe</i>	black bean	C	None	0	2	01/12/1997
15529	Equisetopsida	Fabaceae	<i>Chorizema parviflorum</i>	eastern flame pea	C	None	0	1	11/12/1997
15478	Equisetopsida	Fabaceae	<i>Crotalaria</i>	None	C	None	0	2	11/12/1997
14625	Equisetopsida	Fabaceae	<i>Daviesia filipes</i>	None	C	None	0	1	26/11/1997
15462	Equisetopsida	Fabaceae	<i>Desmodium</i>	None	C	None	0	1	11/12/1997
15457	Equisetopsida	Fabaceae	<i>Desmodium gunnii</i>	None	C	None	1	1	20/02/1995
20605	Equisetopsida	Fabaceae	<i>Dillwynia</i>	None	C	None	0	1	11/12/1997
13000	Equisetopsida	Fabaceae	<i>Flemingia parviflora</i>	flemingia	C	None	1	1	20/02/1995
15303	Equisetopsida	Fabaceae	<i>Gompholobium pinnatum</i>	poor mans gold	C	None	0	2	15/12/1997
15309	Equisetopsida	Fabaceae	<i>Hardenbergia violacea</i>	None	C	None	0	2	11/12/1997
15323	Equisetopsida	Fabaceae	<i>Hovea acutifolia</i>	None	C	None	0	2	11/12/1997

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25989	Equisetopsida	Fabaceae	<i>Hovea clavata</i>	None	C	None	1	1	10/05/1995
15260	Equisetopsida	Fabaceae	<i>Jacksonia scoparia</i>	None	C	None	0	5	15/12/1997
10859	Equisetopsida	Fabaceae	<i>Lotononis</i>	None	C	None	0	1	11/12/1997
15148	Equisetopsida	Fabaceae	<i>Phyllota phyllicoides</i>	yellow peabush	C	None	1	1	30/09/1989
15085	Equisetopsida	Fabaceae	<i>Pultenaea myrtoides</i>	None	C	None	1	1	21/07/1976
15092	Equisetopsida	Fabaceae	<i>Pultenaea villosa</i>	hairy bush pea	C	None	0	1	11/12/1997
17118	Equisetopsida	Flagellariaceae	<i>Flagellaria indica</i>	whip vine	C	None	0	5	01/12/1997
14008	Equisetopsida	Goodeniaceae	<i>Brunonia australis</i>	blue pincushion	C	None	0	1	26/11/1997
17065	Equisetopsida	Goodeniaceae	<i>Goodenia rotundifolia</i>	None	C	None	1	1	17/12/2015
16999	Equisetopsida	Haemodoraceae	<i>Haemodorum austroqueenslandicum</i>	None	C	None	1	1	17/12/2015
9218	Equisetopsida	Haloragaceae	<i>Myriophyllum gracile</i>	None	C	None	1	1	02/05/2001
10864	Equisetopsida	Haloragaceae	<i>Myriophyllum simulans</i>	None	C	None	1	1	03/04/1975
12249	Equisetopsida	Hemerocallidaceae	<i>Dianella</i>	None	C	None	0	2	15/12/1997
17464	Equisetopsida	Hemerocallidaceae	<i>Dianella caerulea</i>	None	C	None	0	3	27/11/1997
17463	Equisetopsida	Hemerocallidaceae	<i>Dianella caerulea</i> var. <i>vannata</i>	None	C	None	1	1	20/02/1995
15350	Equisetopsida	Hemerocallidaceae	<i>Geitonoplesium cymosum</i>	scrambling lily	C	None	0	3	26/11/1997
3021	Equisetopsida	Hydrocharitaceae	<i>Ottelia ovalifolia</i> subsp. <i>ovalifolia</i>	None	C	None	1	1	02/05/2001
9341	Equisetopsida	Johnsoniaceae	<i>Tricoryne anceps</i>	None	C	None	0	1	26/11/1997
15973	Equisetopsida	Johnsoniaceae	<i>Tricoryne anceps</i> subsp. <i>pteroaulon</i>	None	C	None	0	1	21/05/1994
15974	Equisetopsida	Johnsoniaceae	<i>Tricoryne elatior</i>	yellow autumn lily	C	None	1	1	07/11/2000
16844	Equisetopsida	Juncaceae	<i>Juncus continuus</i>	None	C	None	1	1	02/05/2001
16846	Equisetopsida	Juncaceae	<i>Juncus usitatus</i>	None	C	None	1	1	31/05/2001
34798	Equisetopsida	Juncaginaceae	<i>Cycnogeton multifructus</i>	None	C	None	1	1	02/05/2001
15549	Equisetopsida	Lamiaceae	<i>Chloanthes parviflora</i>	None	C	None	1	1	20/11/1991
17628	Equisetopsida	Lamiaceae	<i>Clerodendrum floribundum</i>	None	C	None	0	1	10/12/1997
14321	Equisetopsida	Lamiaceae	<i>Plectranthus graveolens</i>	flea bush	C	None	1	1	21/02/1995
18814	Equisetopsida	Lamiaceae	<i>Vitex lignum-vitae</i>	None	C	None	0	1	09/12/1997
14122	Equisetopsida	Lamiaceae	<i>Westringia tenuicaulis</i>	tufted westringia	C	None	3	3	26/11/1997
17859	Equisetopsida	Lauraceae	<i>Beilschmiedia obtusifolia</i>	hard bolly gum	C	None	1	1	27/11/1997
11855	Equisetopsida	Lauraceae	<i>Cassytha</i>	None	C	None	0	1	11/12/1997
17703	Equisetopsida	Lauraceae	<i>Cassytha filiformis</i>	dodder laurel	C	None	2	2	08/05/1995
17705	Equisetopsida	Lauraceae	<i>Cassytha pubescens</i>	downy devil's twine	C	None	0	1	26/11/1997
11857	Equisetopsida	Lauraceae	<i>Cinnamomum baileyianum</i>	candlewood	C	None	2	2	26/11/1997

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17543	Equisetopsida	Lauraceae	<i>Cryptocarya</i>	None	C	None	0	1	26/11/1997
17578	Equisetopsida	Lauraceae	<i>Cryptocarya glaucescens</i>	None	C	None	1	3	27/11/1997
11866	Equisetopsida	Lauraceae	<i>Cryptocarya macdonaldii</i>	McDonald's laurel	C	None	2	2	27/11/1997
17541	Equisetopsida	Lauraceae	<i>Cryptocarya triplinervis</i>	None	C	None	0	8	15/12/1997
17303	Equisetopsida	Lauraceae	<i>Endiandra discolor</i>	domatia tree	C	None	1	2	26/11/1997
16619	Equisetopsida	Lauraceae	<i>Neolitsea dealbata</i>	white bolly gum	C	None	0	2	02/12/1997
14725	Equisetopsida	Laxmanniaceae	<i>Cordyline rubra</i>	red-fruited palm lily	C	None	0	1	27/11/1997
15339	Equisetopsida	Laxmanniaceae	<i>Eustrephus latifolius</i>	wombat berry	C	None	0	2	11/12/1997
12409	Equisetopsida	Laxmanniaceae	<i>Lomandra</i>	None	C	None	0	1	26/11/1997
14415	Equisetopsida	Laxmanniaceae	<i>Lomandra confertifolia subsp. pallida</i>	None	C	None	1	2	26/11/1997
16772	Equisetopsida	Laxmanniaceae	<i>Lomandra hystrix</i>	None	C	None	1	4	03/05/2001
16773	Equisetopsida	Laxmanniaceae	<i>Lomandra laxa</i>	broad-leaved matrush	C	None	1	1	20/02/1995
16776	Equisetopsida	Laxmanniaceae	<i>Lomandra longifolia</i>	None	C	None	1	8	03/05/2001
16133	Equisetopsida	Laxmanniaceae	<i>Sowerbaea juncea</i>	vanilla plant	C	None	1	2	11/12/1997
14456	Equisetopsida	Lindsaeaceae	<i>Lindsaea ensifolia subsp. ensifolia</i>	None	C	None	1	1	10/04/1995
7462	Equisetopsida	Loganiaceae	<i>Strychnos psilosperma</i>	strychnine tree	C	None	0	2	11/12/1997
14850	Equisetopsida	Loranthaceae	<i>Amyema conspicua subsp. conspicua</i>	None	C	None	2	2	26/11/1997
22198	Equisetopsida	Malvaceae	<i>Sida hackettiana subsp. (Gayndah P.Grimshaw+ PG2388)</i>	None	C	None	1	1	21/02/1995
26849	Equisetopsida	Melastomataceae	<i>Melastoma malabathricum subsp. malabathricum</i>	None	C	None	1	3	02/05/2001
14191	Equisetopsida	Meliaceae	<i>Synoum glandulosum subsp. glandulosum</i>	None	C	None	1	1	31/12/1994
16897	Equisetopsida	Menispermaceae	<i>Hypserpa decumbens</i>	None	C	None	1	1	26/07/1995
9647	Equisetopsida	Menispermaceae	<i>Stephania japonica</i>	None	C	None	0	2	26/11/1997
15998	Equisetopsida	Menispermaceae	<i>Tinospora smilacina</i>	snakevine	C	None	0	2	26/11/1997
15714	Equisetopsida	Mimosaceae	<i>Acacia</i>	None	C	None	0	3	03/12/1997
14929	Equisetopsida	Mimosaceae	<i>Acacia attenuata</i>	None	V	V	3	10	04/10/2010
15827	Equisetopsida	Mimosaceae	<i>Acacia aulacocarpa</i>	None	C	None	0	23	15/12/1997
11888	Equisetopsida	Mimosaceae	<i>Acacia bakeri</i>	marblewood	C	None	1	1	31/12/1994
15789	Equisetopsida	Mimosaceae	<i>Acacia complanata</i>	flatstem wattle	C	None	2	11	15/12/1997
15799	Equisetopsida	Mimosaceae	<i>Acacia falcata</i>	sickle wattle	C	None	0	1	27/11/1997
15746	Equisetopsida	Mimosaceae	<i>Acacia flavescens</i>	toothed wattle	C	None	0	4	11/12/1997

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14912	Equisetopsida	Mimosaceae	<i>Acacia hubbardiana</i>	None	C	None	0	1	11/12/1997
15765	Equisetopsida	Mimosaceae	<i>Acacia leiocalyx</i>	None	C	None	0	12	15/12/1997
14066	Equisetopsida	Mimosaceae	<i>Acacia leiocalyx</i> subsp. <i>leiocalyx</i>	None	C	None	1	1	08/06/1976
15772	Equisetopsida	Mimosaceae	<i>Acacia maidenii</i>	Maiden's wattle	C	None	0	3	11/12/1997
14894	Equisetopsida	Mimosaceae	<i>Acacia suaveolens</i>	sweet wattle	C	None	1	1	15/07/1987
15709	Equisetopsida	Mimosaceae	<i>Acacia ulicifolia</i>	None	C	None	1	2	11/12/1997
14131	Equisetopsida	Monimiaceae	<i>Wilkiea macrophylla</i>	large-leaved wilkiea	C	None	0	3	09/12/1997
17132	Equisetopsida	Moraceae	<i>Ficus coronata</i>	creek sandpaper fig	C	None	0	2	27/11/1997
17135	Equisetopsida	Moraceae	<i>Ficus fraseri</i>	white sandpaper fig	C	None	0	1	26/11/1997
9118	Equisetopsida	Moraceae	<i>Streblus brunonianus</i>	whalebone tree	C	None	0	1	27/11/1997
6402	Equisetopsida	Moraceae	<i>Trophis scandens</i> subsp. <i>scandens</i>	None	C	None	0	2	27/11/1997
17344	Equisetopsida	Myrsinaceae	<i>Embelia australiana</i>	embelia	C	None	0	1	27/11/1997
30309	Equisetopsida	Myrsinaceae	<i>Myrsine variabilis</i>	None	C	None	0	2	26/11/1997
17999	Equisetopsida	Myrtaceae	<i>Angophora leiocarpa</i>	rusty gum	C	None	0	10	15/12/1997
20255	Equisetopsida	Myrtaceae	<i>Backhousia</i>	None	C	None	0	1	26/11/1997
17883	Equisetopsida	Myrtaceae	<i>Backhousia myrtifolia</i>	carrol	C	None	2	2	27/11/1997
17888	Equisetopsida	Myrtaceae	<i>Baeckea frutescens</i>	None	C	None	0	2	11/12/1997
6531	Equisetopsida	Myrtaceae	<i>Corymbia citriodora</i>	spotted gum	C	None	0	1	21/05/1994
6444	Equisetopsida	Myrtaceae	<i>Corymbia gummifera</i>	red bloodwood	C	None	1	1	21/09/1974
6445	Equisetopsida	Myrtaceae	<i>Corymbia intermedia</i>	pink bloodwood	C	None	0	12	15/12/1997
18729	Equisetopsida	Myrtaceae	<i>Corymbia trachyphloia</i>	None	C	None	0	4	15/12/1997
17207	Equisetopsida	Myrtaceae	<i>Eucalyptus</i>	None	C	None	0	7	03/12/1997
17290	Equisetopsida	Myrtaceae	<i>Eucalyptus acmenoides</i>	None	C	None	2	4	15/12/1997
9447	Equisetopsida	Myrtaceae	<i>Eucalyptus acmenoides</i> x <i>Eucalyptus cloeziana</i>	None	C	None	3	3	14/08/1989
17243	Equisetopsida	Myrtaceae	<i>Eucalyptus bancroftii</i>	Bancroft's red gum	C	None	1	1	23/06/1990
17250	Equisetopsida	Myrtaceae	<i>Eucalyptus cloeziana</i>	Gympie messmate	C	None	1	1	14/08/1989
17252	Equisetopsida	Myrtaceae	<i>Eucalyptus crebra</i>	narrow-leaved red ironbark	C	None	0	2	10/12/1997
17262	Equisetopsida	Myrtaceae	<i>Eucalyptus exserta</i>	Queensland peppermint	C	None	0	3	11/12/1997
19851	Equisetopsida	Myrtaceae	<i>Eucalyptus fibrosa</i>	None	C	None	1	5	15/12/1997
17265	Equisetopsida	Myrtaceae	<i>Eucalyptus grandis</i>	flooded gum	C	None	0	6	10/12/1997
18688	Equisetopsida	Myrtaceae	<i>Eucalyptus latisinensis</i>	None	C	None	3	10	15/03/2015
18687	Equisetopsida	Myrtaceae	<i>Eucalyptus portuensis</i>	None	C	None	1	1	09/05/1995
17189	Equisetopsida	Myrtaceae	<i>Eucalyptus propinqua</i>	small-fruited grey gum	C	None	0	2	03/12/1997
35824	Equisetopsida	Myrtaceae	<i>Eucalyptus racemosa</i>	None	C	None	1	1	26/03/1973

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6513	Equisetopsida	Myrtaceae	<i>Eucalyptus racemosa</i> <i>subsp. racemosa</i>	scribbly gum	C	None	1	12	15/12/1997
12465	Equisetopsida	Myrtaceae	<i>Eucalyptus siderophloia</i>	None	C	None	0	6	15/12/1997
17204	Equisetopsida	Myrtaceae	<i>Eucalyptus tereticornis</i>	None	C	None	0	9	15/12/1997
27383	Equisetopsida	Myrtaceae	<i>Gossia bidwillii</i>	None	C	None	0	3	11/12/1997
16919	Equisetopsida	Myrtaceae	<i>Homoranthus virgatus</i>	twiggy homoranthus	C	None	1	1	22/09/1967
16817	Equisetopsida	Myrtaceae	<i>Leptospermum brachyandrum</i>	weeping tea-tree	C	None	3	8	31/05/2001
14441	Equisetopsida	Myrtaceae	<i>Leptospermum polygalifolium</i>	tantoon	C	None	3	6	15/03/2015
16827	Equisetopsida	Myrtaceae	<i>Leptospermum trinervium</i>	woolly tea-tree	C	None	0	6	15/03/2015
16780	Equisetopsida	Myrtaceae	<i>Lophostemon confertus</i>	brush box	C	None	0	7	15/12/1997
16730	Equisetopsida	Myrtaceae	<i>Lophostemon suaveolens</i>	swamp box	C	None	1	17	15/12/1997
16684	Equisetopsida	Myrtaceae	<i>Melaleuca bracteata</i>	None	C	None	0	2	26/11/1997
14387	Equisetopsida	Myrtaceae	<i>Melaleuca cheelii</i>	None	NT	None	1	1	11/12/1997
18771	Equisetopsida	Myrtaceae	<i>Melaleuca linariifolia</i>	snow-in summer	C	None	0	1	11/12/1997
16694	Equisetopsida	Myrtaceae	<i>Melaleuca nodosa</i>	None	C	None	0	2	11/12/1997
31337	Equisetopsida	Myrtaceae	<i>Melaleuca pachyphylla</i>	None	C	None	1	3	07/11/2000
16695	Equisetopsida	Myrtaceae	<i>Melaleuca quinquenervia</i>	swamp paperbark	C	None	0	11	15/03/2015
31377	Equisetopsida	Myrtaceae	<i>Melaleuca salicina</i>	None	C	None	1	5	27/11/1997
14389	Equisetopsida	Myrtaceae	<i>Melaleuca sieberi</i>	None	C	None	2	32	18/12/1997
13424	Equisetopsida	Myrtaceae	<i>Melaleuca staphelioides</i>	None	C	None	0	3	11/12/1997
14391	Equisetopsida	Myrtaceae	<i>Melaleuca thymifolia</i>	thyme honeymyrtle	C	None	0	2	15/03/2015
16700	Equisetopsida	Myrtaceae	<i>Melaleuca uncinata</i>	None	C	None	1	1	22/09/1967
16656	Equisetopsida	Myrtaceae	<i>Melaleuca viridiflora</i> var. <i>viridiflora</i>	None	C	None	2	2	11/08/1996
16481	Equisetopsida	Myrtaceae	<i>Ptilidostigma rhytispermum</i>	None	C	None	2	3	27/11/1997
13406	Equisetopsida	Myrtaceae	<i>Rhodamnia dumicola</i>	rib-fruited malletwood	C	None	1	2	02/12/1997
16290	Equisetopsida	Myrtaceae	<i>Rhodomyrtus psidioides</i>	native guava	C	None	1	3	27/11/1997
31853	Equisetopsida	Myrtaceae	<i>Sannantha bidwillii</i>	None	C	None	1	1	26/11/1997
16078	Equisetopsida	Myrtaceae	<i>Syzygium australe</i>	scrub cherry	C	None	3	4	27/11/1997
15980	Equisetopsida	Myrtaceae	<i>Tristaniopsis laurina</i>	None	C	None	1	6	09/12/1997
15857	Equisetopsida	Myrtaceae	<i>Waterhousea floribunda</i>	weeping lilly pilly	C	None	2	13	10/12/1997
13439	Equisetopsida	Oleaceae	<i>Notelaea longifolia</i>	None	C	None	1	3	10/12/1997
14087	Equisetopsida	Orchidaceae	<i>Acianthus fornicatus</i>	pixie caps	C	None	1	1	26/05/1995
15816	Equisetopsida	Orchidaceae	<i>Arthrochilus irritabilis</i>	leafy elbow orchid	C	None	0	1	24/08/1995
13444	Equisetopsida	Orchidaceae	<i>Caladenia carnea</i>	None	C	None	3	4	08/09/1996
14023	Equisetopsida	Orchidaceae	<i>Caleana major</i>	flying duck orchid	C	None	1	2	30/08/1995
27531	Equisetopsida	Orchidaceae	<i>Corunastylis acuminata</i>	None	C	None	1	3	23/07/1996

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27542	Equisetopsida	Orchidaceae	<i>Corunastylis pumila</i>	None	C	None	0	1	24/08/1995
27544	Equisetopsida	Orchidaceae	<i>Corunastylis sagittifera</i>	None	C	None	0	2	23/07/1996
12827	Equisetopsida	Orchidaceae	<i>Corybas</i>	None	C	None	0	1	24/08/1995
14727	Equisetopsida	Orchidaceae	<i>Corybas aconitiflorus</i>	None	C	None	1	1	08/06/1998
13327	Equisetopsida	Orchidaceae	<i>Corybas undulatus</i>	tailed helmet orchid	C	None	1	1	26/05/1995
13278	Equisetopsida	Orchidaceae	<i>Cryptostylis subulata</i>	large tounge orchid	C	None	1	1	15/10/1995
17505	Equisetopsida	Orchidaceae	<i>Cymbidium canaliculatum</i>	None	C	None	0	1	26/11/1997
9275	Equisetopsida	Orchidaceae	<i>Dipodium variegatum</i>	None	C	None	1	2	24/08/1995
9062	Equisetopsida	Orchidaceae	<i>Diuris alba</i>	None	C	None	1	2	11/08/1996
9276	Equisetopsida	Orchidaceae	<i>Diuris chrysantha</i>	double yellow tails	C	None	0	1	24/08/1995
12802	Equisetopsida	Orchidaceae	<i>Eriochilus</i>	None	C	None	1	1	25/05/1998
13952	Equisetopsida	Orchidaceae	<i>Eriochilus cucullatus</i>	None	C	None	1	2	23/07/1996
13203	Equisetopsida	Orchidaceae	<i>Glossodia minor</i>	small wax lip orchid	C	None	1	2	30/08/1995
12782	Equisetopsida	Orchidaceae	<i>Lyperanthus suaveolens</i>	brown beaks	C	None	1	1	30/08/1995
16629	Equisetopsida	Orchidaceae	<i>Microtis parviflora</i>	slender onion orchid	C	None	2	2	04/09/1995
12790	Equisetopsida	Orchidaceae	<i>Orthoceras strictum</i>	horned orchid	C	None	0	1	23/07/1996
12734	Equisetopsida	Orchidaceae	<i>Plectorrhiza brevibrabis</i>	None	C	None	1	1	02/01/2005
16367	Equisetopsida	Orchidaceae	<i>Prasophyllum elatum</i>	tall leek orchid	C	None	0	1	23/07/1996
36226	Equisetopsida	Orchidaceae	<i>Pterostylis antennifera</i>	None	C	None	1	1	05/05/1998
6221	Equisetopsida	Orchidaceae	<i>Pterostylis chaetophora</i>	None	E	None	1	1	30/08/1995
9834	Equisetopsida	Orchidaceae	<i>Pterostylis russellii</i>	None	C	None	1	1	13/04/1999
7915	Equisetopsida	Orchidaceae	<i>Thelymitra angustifolia</i>	None	C	None	1	1	02/09/1995
13081	Equisetopsida	Orchidaceae	<i>Thelymitra nuda</i>	scented sun orchid	C	None	0	1	24/08/1995
12675	Equisetopsida	Orchidaceae	<i>Thelymitra pauciflora</i>	slender sun orchid	C	None	0	1	23/07/1996
16000	Equisetopsida	Osmundaceae	<i>Todea barbara</i>	king fern	C	None	1	1	31/12/1994
15840	Equisetopsida	Pandanaceae	<i>Freycinetia scandens</i>	None	C	None	1	2	26/11/1997
16532	Equisetopsida	Passifloraceae	<i>Passiflora suberosa</i>	corky passion flower	None	None	0	1	26/11/1997
16463	Equisetopsida	Philydraceae	<i>Philydrum lanuginosum</i>	frogsmouth	C	None	0	3	11/12/1997
18113	Equisetopsida	Phyllanthaceae	<i>Actephila lindleyi</i>	actephila	C	None	1	1	02/01/2005
17808	Equisetopsida	Phyllanthaceae	<i>Breynia oblongifolia</i>	None	C	None	0	8	15/12/1997
17810	Equisetopsida	Phyllanthaceae	<i>Bridelia leichhardtii</i>	None	C	None	0	1	11/12/1997
14706	Equisetopsida	Phyllanthaceae	<i>Cleistanthus cunninghamii</i>	omega	C	None	1	1	02/01/2005
9378	Equisetopsida	Phyllanthaceae	<i>Glochidion ferdinandi</i>	None	C	None	0	12	15/12/1997
16474	Equisetopsida	Phyllanthaceae	<i>Phyllanthus</i>	None	C	None	0	2	27/11/1997

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
18266	Equisetopsida	Phyllanthaceae	<i>Phyllanthus microcladus</i>	None	C	None	4	5	28/11/2006
11292	Equisetopsida	Phyllanthaceae	<i>Sauropus hirtellus</i>	None	C	None	1	1	20/02/1995
16505	Equisetopsida	Picrodendraceae	<i>Petalostigma pubescens</i>	quinine tree	C	None	0	5	11/12/1997
14301	Equisetopsida	Picrodendraceae	<i>Petalostigma triloculare</i>	forest quinine	C	None	1	1	12/05/1990
15866	Equisetopsida	Pinaceae	<i>Pinus</i>	None	C	None	0	3	15/12/1997
12030	Equisetopsida	Pinaceae	<i>Pinus elliotii</i>	slash pine	None	None	0	2	13/08/2017
13256	Equisetopsida	Pittosporaceae	<i>Billardiera scandens</i>	None	C	None	1	1	23/06/1990
16459	Equisetopsida	Pittosporaceae	<i>Pittosporum revolutum</i>	yellow pittosporum	C	None	1	5	27/11/1997
22387	Equisetopsida	Pittosporaceae	<i>Pittosporum spinescens</i>	None	C	None	0	1	21/05/1994
15954	Equisetopsida	Plantaginaceae	<i>Veronica plebeia</i>	trailing speedwell	C	None	1	1	23/06/1990
15670	Equisetopsida	Poaceae	<i>Alloteropsis semialata</i>	cockatoo grass	C	None	0	1	27/11/1997
15676	Equisetopsida	Poaceae	<i>Andropogon virginicus</i>	whiskey grass	None	None	2	2	24/06/2008
14811	Equisetopsida	Poaceae	<i>Aristida</i>	None	C	None	0	2	27/11/1997
11121	Equisetopsida	Poaceae	<i>Aristida gracilipes</i>	None	C	None	1	1	21/02/1995
11123	Equisetopsida	Poaceae	<i>Aristida queenslandica</i> var. <i>queenslandica</i>	None	C	None	1	1	11/05/1995
15658	Equisetopsida	Poaceae	<i>Aristida vagans</i>	None	C	None	1	1	20/02/1995
11127	Equisetopsida	Poaceae	<i>Aristida warburgii</i>	None	C	None	1	1	31/03/1995
10316	Equisetopsida	Poaceae	<i>Bothriochloa decipiens</i> var. <i>decipiens</i>	None	C	None	1	1	20/02/1995
15485	Equisetopsida	Poaceae	<i>Cymbopogon refractus</i>	barbed-wire grass	C	None	0	2	15/12/1997
32006	Equisetopsida	Poaceae	<i>Dichelachne montana</i>	None	C	None	1	1	20/02/1995
18913	Equisetopsida	Poaceae	<i>Digitaria eriantha</i>	None	None	None	0	1	10/12/1997
15426	Equisetopsida	Poaceae	<i>Digitaria parviflora</i>	None	C	None	0	1	21/05/1994
15427	Equisetopsida	Poaceae	<i>Digitaria ramularis</i>	None	C	None	1	1	20/02/1995
15411	Equisetopsida	Poaceae	<i>Entolasia stricta</i>	wiry panic	C	None	2	2	03/05/2001
11081	Equisetopsida	Poaceae	<i>Eriachne rara</i>	None	C	None	0	1	15/03/2015
15290	Equisetopsida	Poaceae	<i>Imperata cylindrica</i>	blady grass	C	None	0	12	15/12/1997
9154	Equisetopsida	Poaceae	<i>Melinis repens</i>	red natal grass	None	None	0	1	21/05/1994
21182	Equisetopsida	Poaceae	<i>Oplismenus</i>	None	None	None	0	2	27/11/1997
15163	Equisetopsida	Poaceae	<i>Oplismenus aemulus</i>	creeping shade grass	C	None	0	1	21/05/1994
10638	Equisetopsida	Poaceae	<i>Ottochloa nodosa</i>	None	C	None	0	1	21/05/1994
13607	Equisetopsida	Poaceae	<i>Panicum effusum</i>	None	C	None	1	1	21/02/1995
18424	Equisetopsida	Poaceae	<i>Panicum simile</i>	None	C	None	1	1	21/02/1995
12587	Equisetopsida	Poaceae	<i>Paspalidium</i>	None	C	None	0	1	26/11/1997
15135	Equisetopsida	Poaceae	<i>Paspalum paniculatum</i>	Russell River grass	None	None	1	1	10/04/1995

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
27800	Equisetopsida	Poaceae	<i>Sarga leiocladum</i>	None	C	None	2	2	21/02/1995
10158	Equisetopsida	Poaceae	<i>Sporobolus natalensis</i>	None	None	None	1	1	05/10/1993
14974	Equisetopsida	Poaceae	<i>Themeda triandra</i>	kangaroo grass	C	None	0	10	15/03/2015
33922	Equisetopsida	Polygalaceae	<i>Polygala triflora</i>	None	C	None	1	1	21/02/1995
16495	Equisetopsida	Polygonaceae	<i>Persicaria hydropiper</i>	water pepper	C	None	2	2	27/11/1997
14352	Equisetopsida	Polygonaceae	<i>Persicaria strigosa</i>	None	C	None	1	1	31/05/2001
13159	Equisetopsida	Polygonaceae	<i>Persicaria subsessilis</i>	hairy knotweed	C	None	1	1	31/05/2001
16627	Equisetopsida	Polypodiaceae	<i>Microsorium scandens</i>	fragrant climbing fern	C	None	1	1	31/12/1994
11696	Equisetopsida	Polypodiaceae	<i>Platyterium bifurcatum</i>	None	C	None	0	1	27/11/1997
14828	Equisetopsida	Proteaceae	<i>Banksia aemula</i>	wallum banksia	C	None	0	1	11/12/1997
9294	Equisetopsida	Proteaceae	<i>Banksia integrifolia</i>	None	C	None	0	11	15/12/1997
17897	Equisetopsida	Proteaceae	<i>Banksia oblongifolia</i>	dwarf banksia	C	None	0	2	11/12/1997
17898	Equisetopsida	Proteaceae	<i>Banksia robur</i>	broad-leaved banksia	C	None	1	5	11/12/1997
14721	Equisetopsida	Proteaceae	<i>Conospermum taxifolium</i>	devil's rice	C	None	3	3	19/10/2002
17025	Equisetopsida	Proteaceae	<i>Grevillea banksii</i>	None	C	None	0	1	11/12/1997
22404	Equisetopsida	Proteaceae	<i>Grevillea reptans</i>	None	C	None	3	3	29/05/2019
5873	Equisetopsida	Proteaceae	<i>Hakea actites</i>	None	C	None	2	4	15/03/2015
35803	Equisetopsida	Proteaceae	<i>Hakea benthamii</i>	None	C	None	2	2	26/11/1997
14537	Equisetopsida	Proteaceae	<i>Hakea florulenta</i>	three-nerved willow hakea	C	None	1	2	11/12/1997
13185	Equisetopsida	Proteaceae	<i>Lomatia</i>	None	C	None	0	1	11/12/1997
13183	Equisetopsida	Proteaceae	<i>Lomatia silaifolia</i>	crinkle bush	C	None	0	2	11/12/1997
16497	Equisetopsida	Proteaceae	<i>Persoonia cornifolia</i>	broad-leaved geebung	C	None	0	2	10/12/1997
13163	Equisetopsida	Proteaceae	<i>Persoonia tenuifolia</i>	None	C	None	0	1	26/11/1997
16501	Equisetopsida	Proteaceae	<i>Persoonia virgata</i>	small-leaved geebung	C	None	4	9	15/03/2015
16507	Equisetopsida	Proteaceae	<i>Petrophile shirleyae</i>	None	C	None	1	3	15/03/2015
14177	Equisetopsida	Proteaceae	<i>Strangea linearis</i>	strangea	C	None	0	1	26/11/1997
31417	Equisetopsida	Proteaceae	<i>Xylomelum benthamii</i>	None	C	None	0	2	02/12/1997
14887	Equisetopsida	Pteridaceae	<i>Adiantum silvaticum</i>	None	C	None	1	1	31/12/1994
11100	Equisetopsida	Pteridaceae	<i>Cheilanthes tenuifolia</i>	rock fern	C	None	1	1	10/04/1995
21911	Equisetopsida	Restionaceae	<i>Sporadanthus caudatus</i>	None	C	None	1	1	24/07/1995
9659	Equisetopsida	Rhamnaceae	<i>Alphitonia excelsa</i>	soap tree	C	None	0	18	15/12/1997
19409	Equisetopsida	Rosaceae	<i>Rubus</i>	None	C	None	0	1	26/11/1997
22152	Equisetopsida	Rubiaceae	<i>Atractocarpus chartaceus</i>	None	C	None	1	1	31/12/1994
12298	Equisetopsida	Rubiaceae	<i>Coelospermum paniculatum</i> var. <i>paniculatum</i>	None	C	None	1	1	27/11/1997
27436	Equisetopsida	Rubiaceae	<i>Cyclophyllum coprosmoides</i>	None	C	None	0	1	11/12/1997
34588	Equisetopsida	Rubiaceae	<i>Gynochthodes jasminoides</i>	None	C	None	0	3	26/11/1997
16543	Equisetopsida	Rubiaceae	<i>Opercularia diphylla</i>	None	C	None	1	1	07/01/1990

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
7598	Equisetopsida	Rubiaceae	<i>Pavetta australiensis</i>	None	C	None	0	1	26/11/1997
16334	Equisetopsida	Rubiaceae	<i>Psychotria daphnoides</i>	None	C	None	0	1	26/11/1997
16333	Equisetopsida	Rubiaceae	<i>Psychotria daphnoides</i> var. <i>daphnoides</i>	None	C	None	1	1	10/04/1995
14293	Equisetopsida	Rubiaceae	<i>Psychotria loniceroides</i>	hairy psychotria	C	None	1	3	26/11/1997
2399	Equisetopsida	Rubiaceae	<i>Psydrax odorata</i>	None	C	None	0	1	11/12/1997
15870	Equisetopsida	Rutaceae	<i>Acronychia imperforata</i>	beach acronychia	C	None	0	1	21/05/1994
13739	Equisetopsida	Rutaceae	<i>Acronychia oblongifolia</i>	common acronychia	C	None	1	2	03/12/1997
17833	Equisetopsida	Rutaceae	<i>Boronia falcifolia</i>	wallum boronia	C	None	1	1	22/09/1967
17842	Equisetopsida	Rutaceae	<i>Boronia rivularis</i>	Wide Bay boronia	NT	None	2	2	04/10/2010
17843	Equisetopsida	Rutaceae	<i>Boronia rosmarinifolia</i>	forest boronia	C	None	1	1	30/09/1989
17015	Equisetopsida	Rutaceae	<i>Halfordia kendack</i>	saffron heart	C	None	1	1	26/07/1995
30527	Equisetopsida	Rutaceae	<i>Philotheca queenslandica</i>	None	C	None	1	1	22/09/1967
14128	Equisetopsida	Rutaceae	<i>Zieria minutiflora</i>	None	C	None	0	1	21/05/1994
17930	Equisetopsida	Sapindaceae	<i>Arytera divaricata</i>	coogera	C	None	0	2	03/12/1997
17548	Equisetopsida	Sapindaceae	<i>Cupaniopsis anacardioides</i>	tuckeroo	C	None	1	1	27/11/1997
13686	Equisetopsida	Sapindaceae	<i>Cupaniopsis parvifolia</i>	small-leaved tuckeroo	C	None	0	2	10/12/1997
17384	Equisetopsida	Sapindaceae	<i>Dodonaea triquetra</i>	large-leaved hop bush	C	None	1	3	23/02/1999
16998	Equisetopsida	Sapindaceae	<i>Guioa semiglauca</i>	guioa	C	None	1	3	10/12/1997
16885	Equisetopsida	Sapindaceae	<i>Jagera pseudorhus</i>	None	C	None	0	4	11/12/1997
14355	Equisetopsida	Sapindaceae	<i>Mischocarpus pyriformis</i>	None	C	None	0	1	27/11/1997
16205	Equisetopsida	Schizaeaceae	<i>Schizaea bifida</i>	forked comb fern	C	None	0	1	26/11/1997
33391	Equisetopsida	Simaroubaceae	<i>Samadera bidwillii</i>	None	V	V	4	27	15/12/1997
15881	Equisetopsida	Smilacaceae	<i>Smilax australis</i>	barbed-wire vine	C	None	0	3	27/11/1997
15882	Equisetopsida	Smilacaceae	<i>Smilax glyciophylla</i>	sweet sarsaparilla	C	None	0	1	21/05/1994
16129	Equisetopsida	Solanaceae	<i>Solanum</i>	None	C	None	0	1	27/11/1997
16157	Equisetopsida	Solanaceae	<i>Solanum americanum</i>	None	C	None	0	1	21/05/1994
16124	Equisetopsida	Solanaceae	<i>Solanum stelligerum</i>	devil's needles	C	None	1	1	02/01/2005
21882	Equisetopsida	Stylidiaceae	<i>Stylidium diffusum</i>	None	C	None	1	1	14/04/2018
16113	Equisetopsida	Stylidiaceae	<i>Stylidium graminifolium</i>	grassy-leaved trigger-flower	C	None	1	1	05/01/1992
13753	Equisetopsida	Symplocaceae	<i>Symplocos thwaitesii</i>	buff hazelwood	C	None	1	1	31/12/1994
16439	Equisetopsida	Thymelaeaceae	<i>Pimelea linifolia</i>	None	C	None	0	3	11/12/1997
15926	Equisetopsida	Thymelaeaceae	<i>Wikstroemia indica</i>	tie bush	C	None	0	1	27/11/1997

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
17955	Equisetopsida	Ulmaceae	<i>Aphananthe philippinensis</i>	None	C	None	0	1	09/12/1997
16011	Equisetopsida	Ulmaceae	<i>Trema tomentosa</i>	None	C	None	0	3	11/12/1997
19905	Equisetopsida	Verbenaceae	<i>Lantana camara</i>	lantana	None	None	0	6	15/12/1997
36152	Equisetopsida	Violaceae	<i>Afrohybanthus stellarioides</i>	None	C	None	0	1	11/12/1997
18917	Equisetopsida	Violaceae	<i>Viola hederacea</i>	None	C	None	1	2	31/05/2001
14704	Equisetopsida	Vitaceae	<i>Cissus antarctica</i>	None	C	None	0	1	15/12/1997
17647	Equisetopsida	Vitaceae	<i>Cissus hypoglauca</i>	None	C	None	0	1	21/05/1994
31727	Equisetopsida	Vitaceae	<i>Clematicissus opaca</i>	None	C	None	0	1	26/11/1997
31266	Equisetopsida	Vitaceae	<i>Parthenocissus tricuspidata</i>	None	None	None	1	1	25/07/1996
14142	Equisetopsida	Winteraceae	<i>Tasmannia insipida</i>	brush pepperbush	C	None	1	1	31/12/1994
15935	Equisetopsida	Xanthorrhoeaceae	<i>Xanthorrhoea</i>	None	C	None	0	2	26/11/1997
15934	Equisetopsida	Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>	None	C	None	0	10	15/12/1997
9156	Equisetopsida	Xanthorrhoeaceae	<i>Xanthorrhoea latifolia</i> subsp. <i>latifolia</i>	None	C	None	0	2	26/11/1997
15896	Equisetopsida	Xyridaceae	<i>Xyris complanata</i>	yellow-eye	C	None	1	2	27/11/1997
15897	Equisetopsida	Xyridaceae	<i>Xyris juncea</i>	dwarf yellow-eye	C	None	1	1	12/06/1992
16708	Equisetopsida	Zamiaceae	<i>Macrozamia pauli-guilielmi</i>	None	E	E	17	63	04/10/2010
18019	Equisetopsida	Zingiberaceae	<i>Alpinia arundelliana</i>	None	C	None	1	1	31/12/1994
14844	Equisetopsida	Zingiberaceae	<i>Alpinia caerulea</i>	wild ginger	C	None	1	1	31/12/1994

Table 4. Fungi recorded within the area of interest and its one kilometre buffer

Taxon Id	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
25637	Agaricomycetes	Agaricaceae	<i>Chlorophyllum molybdites</i>	green-spored parasol	C	None	1	1	09/05/1997
25876	Agaricomycetes	Agaricaceae	<i>Lycoperdon</i>	None	C	None	1	1	09/05/1997

Table 5. Protists recorded within the area of interest and its one kilometre buffer

No species found within the area of interest and its one kilometre buffer.

Species table headings and codes

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Endangered (E), Extinct in the Wild (PE), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern(C)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:
Department of Environment and Science

- [Species profile search](#) - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- [Species lists](#) - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- [Biomaps](#) - view biodiversity information, including species information approved for publication, and generate reports
- [Qld wildlife data API](#) - access species information approved for publication such as notes, images and records etc.
- [WetlandMaps](#) - view species records, survey locations etc. approved for publication
- [WetlandSummary](#) - view wildlife statistics, species lists for a range of area types, and access species profiles
- [Generalised distribution and densities of Queensland wildlife](#) - Queensland species distributions and densities generalised to a 10 km grid resolution
- [Conservation status of Queensland wildlife](#) - access current lists of priority species for Queensland including nomenclature and status information
- [Queensland Confidential Species](#) - the list of species flagged as confidential in the WildNet database.

Other useful sites for accessing biodiversity data include:

- [Queensland Government Data](#)
- [Atlas of Living Australia](#)
- [OZCAM - Online Zoological Collections of Australian Museums](#)
- [AVH - Australia's Virtual Herbarium](#)
- [Protected Matters Search Tool](#)

Please direct queries about this report to the [WildNet Team](#).

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APPENDIX F

Ecological Assessment Report (*Premise, 2017*)

APPENDIX G

Bird and Bat Utilisation Report (*Fox & Co Environmental , 2019*)

APPENDIX H

Bird and Bat Management Plan (*Fox & Co Environmental , 2020*)

Forest Wind Bird and Bat Management Plan

*Report: FWH-02
Client: Forest Wind Holdings
February 2020*



FOX & CO
ENVIRONMENTAL

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DOCUMENT AUTHORISATION					
Revision		Rev. Date		Report Details	
A		10 September 2019		Draft report	
B		8 February 2020		Draft report	
Prepared By		Reviewed By		Authorised By	
P.F		A.F. M.P. J.P.		P. Fox	

1 INTRODUCTION

Forest Wind Holdings (FWH) Pty Limited proposes to develop and construct a wind farm called Forest Wind (the Project) located within operational and actively managed exotic pine plantations in Queensland Government owned Toolara, Tuan and Neerdie State Forests, situated between Gympie and Maryborough in the Wide Bay Region of Queensland.

Specifically, the Project comprises a wind farm with up to 226 wind turbines and ancillary infrastructure (herein referred to as the Wind Turbine Area (WTA)) and a 60m wide Overhead Transmission Corridor (OTC) in which a high voltage transmission line (the Transmission Line) will be located to transfer the generated electricity to an existing Powerlink Queensland (Powerlink) substation located at Woolooga to the west of Gympie. The Project will be located within the Gympie Regional Council (GRC) and Fraser Coast Regional Council (FCRC) Local Government Areas (LGAs).

Bird and bat surveys have been undertaken at the WTA (in addition to other ecological assessments).

Fox & Co Environmental was commissioned by FWH to prepare this Bird and Bat Management Plan (BBMP) for the WTA of the Project. This BBMP has been developed in consideration of:

- State Code 23: Wind Farm Development, Planning Guidelines (Queensland Government, June 2018)
- Wind farms and birds: Interim Standards for Risk Assessment. Report No. 2003.35 (2.2) (AusWEA, 2005)

1.1 Objectives

The objective of this BBMP is to provide a plan for monitoring the impacts on birds and bats and from the Project and an overall strategy for managing and mitigating any significant impacts on birds and bats from the operation of the wind farm. To achieve this objective, this BBMP identifies:

- Baseline bird and bat data for the Project
- Proposed mitigation measures and implementation strategies to reduce impacts on birds and bats
- Proposed management and monitoring actions
- Proposed impact triggers for adaptive management
- Proposed reporting requirements

The BBMP uses an adaptive management approach. Monitoring indicates compliance and any non-compliance with approval conditions and management plans. This in turn informs where management measures are effective and where management measures need to be reviewed and altered to achieve their goals.

1.2 Background

The WTA is located within exotic pine plantation within the Toolara, Tuan and Neerdie State Forests located in the Wide Bay Area (**Figure 1**). The WTA has a single landowner, being the State (represented by Department of National Parks, Sports and Racing), with land titles on which turbines are proposed, as follows:

- Lot 915 of Crown Plan FTY1775
- Lot 1004 of Crown Plan FTY1659
- Lot 1419 of Crown Plan FTY1697

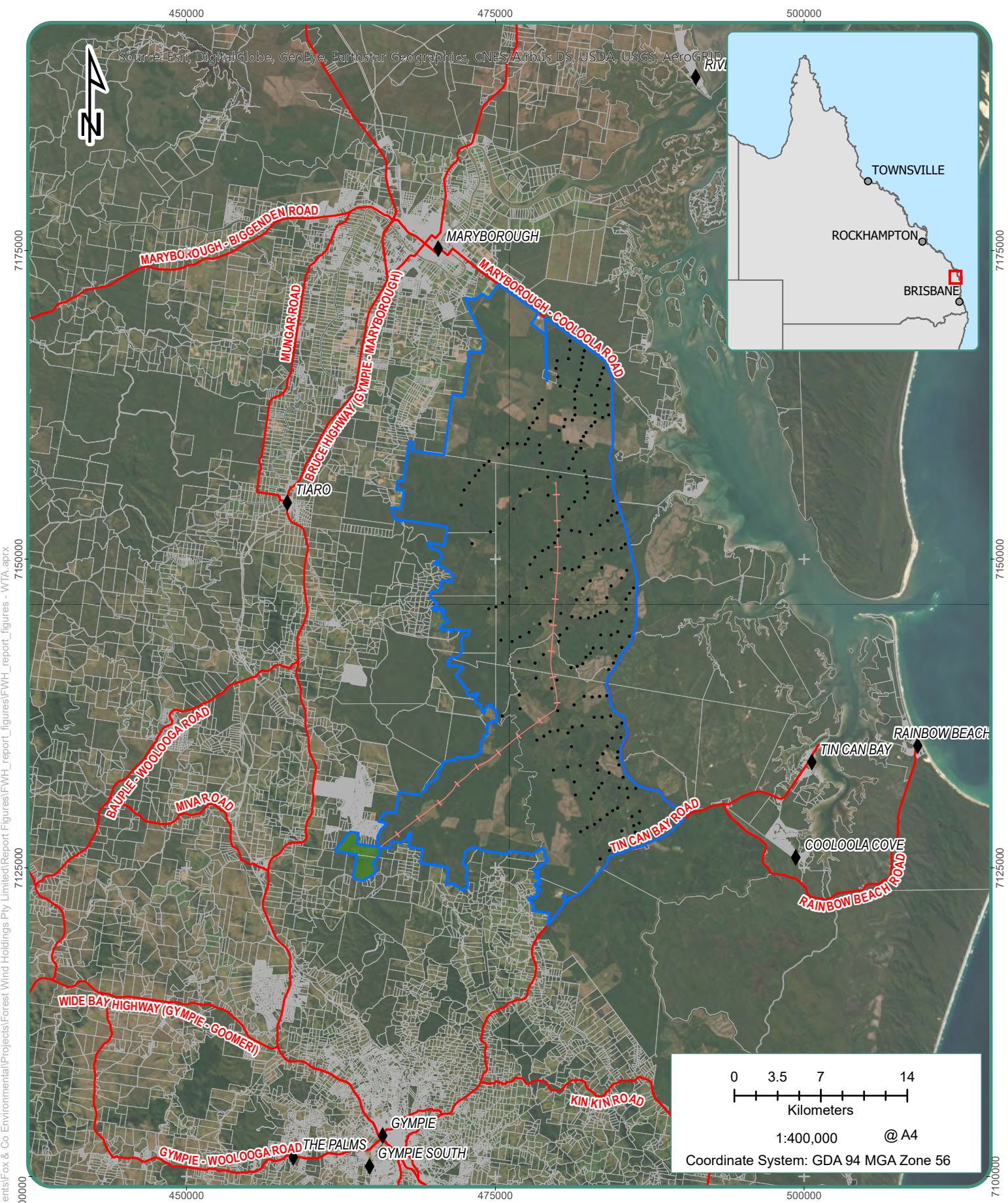
The indicative wind turbine configuration is illustrated in **Figure 2**.

1.2.1 Previous Reports

During the design phases of the Project, investigations were undertaken by Premise Environment Pty Ltd and Fox & Co Environmental Pty Ltd between 2016 and 2019. The methods and results of these investigations are included in the following reports:

- Premise Environment (October 2017). *Forest Wind, Ecological Assessment, Report No. 1701513b.*
- Fox & Co Environmental (August 2019). *Forest Wind Bird and Bat Utilisation Survey, Report FWH-01*
- Fox & Co Environmental (August 2019). *Ecological Assessment Report, Forest Wind Project, FWH-03*

The results are summarized in **Section 2** of this report.



TITLE:
Study Area and Regional Context

MAP NO: Figure 1

PROJECT: Forest Wind Holdings Pty Ltd

LEGEND

◆	Populated places	▭ (blue)	Study area
•	FWH Turbine locations (170m Ø)	▭ (white)	Property boundaries
— (red)	State controlled roads	▭ (green)	Native state forest
— (red with cross-ticks)	High voltage transmission line		

Date: 7/09/2019

Data Source:
 © State of Queensland (Department of Natural Resources, Mines and Energy) 2019.

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1.3 Wind Turbine Specifications

The Project proposes up to 226 turbines with a blade tip of up to 295m above ground level. Electrical reticulation between wind turbines will mainly be underground within existing forestry tracks.

The turbine to be installed is not yet confirmed, as such a range of impact has been considered based on highest to lowest potential tip height. To be conservative, at the upper limit, a maximum tip height of 295m and a lower tip height of 70m has been considered. The physical area swept by the blades during operation is referred to as the Rotor Swept Area (RSA). In reality, the RSA will not extend across this entire height range but will be somewhere within it depending on final hub height and blade length of the installed turbines.

Figure 2 shows this range and indicative potential RSAs.

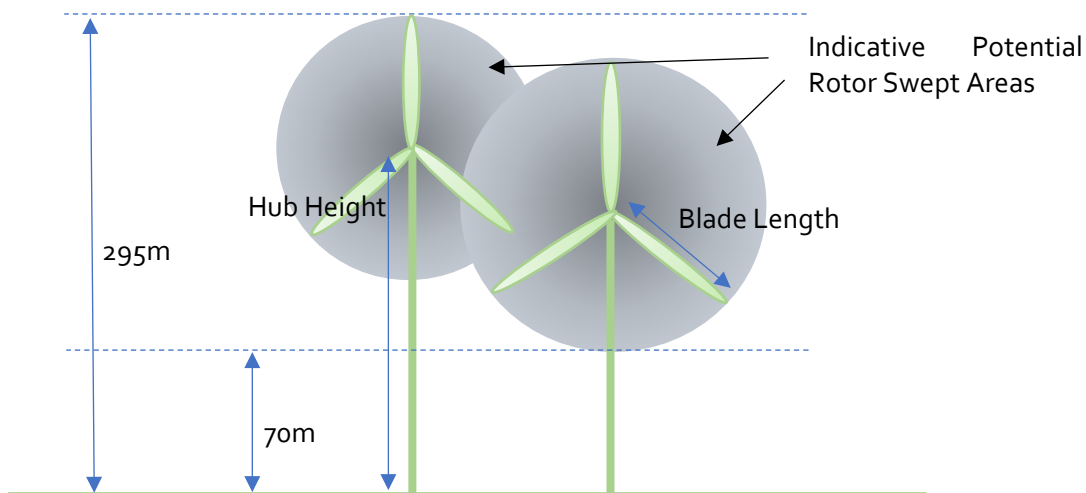


Figure 2 – Indicative Wind Turbine Configuration

2 PRE-CONSTRUCTION BIRD AND BAT INFORMATION

The results of previous investigations (refer Section 1.2.1) are summarised below.

2.1 Bird Surveys

2.1.1 Bird Survey Methodology

Following desktop assessments, bird surveys were undertaken by Premise Environment and included the following:

- 15 bird surveys (over 16 days) undertaken between December 2016 and April 2019
- A total of 139 diurnal bird utilization surveys (BUS)
- Incidental observations made while traversing the site
- Spotlighting for 16 person hours

2.1.2 Bird Survey Results

Bird surveys recorded 64 bird species across the wind turbine study area. The following four (4) species of conservation significance were recorded:

1. White-throated needletail (*Hirundapus caudacutus*) – Vulnerable (V), Migratory Terrestrial (MT), Listed Marine (LM) – Environment Protection and Conservation Act 1999 (EPBC Act)
2. Fork-tailed swift (*Apus pacificus*) – MT (EPBC Act)
3. Rainbow bee-eater (*Merops ornatus*) – LM (EPBC Act)
4. Cicadabird (*Coracina tenuirostris*) – LM (EPBC Act)

No migratory shorebirds were observed within the wind turbine study area or flying over the WTA on any of the bird surveys, despite being undertaken during known periods of arrival and dispersal to/from Australia.

Six Least Concern (NC Act) (6) raptor species were recorded on the wind turbine area. None of the raptors are listed species under the EPBC Act or the *Nature Conservation Act 1992* (NC Act).

One (1) large water bird (white-necked heron (*Ardea pacifica*)) was observed flying over the wind turbine area. White-necked herons are not listed under the EPBC Act or NC Act.

2.2 Bat Surveys

2.2.1 Bat Survey Methodology

The methods and results of the microbat surveys and flying-fox surveys are outlined in Fox & Co Report FWH-03 (2019). In summary, the following surveys were undertaken:

- December 2016 – review of DoE National Flying-fox Monitoring Viewer (informed by the DoE, National Flying-fox Monitoring Program (NFFMP) – flying-fox census)
- 7 – 8 December 2016 – diurnal flying-fox camp assessment for activity
- 7 December 2016 – nocturnal flying-fox survey on WTA (8 person hours)
- 14 February 2019 - 26 March 2019 - two (2) ultrasonic detectors (SM2BAT, SM4BAT) were deployed across the WTA for micro-bats. Surveys totaled 80 nights of recording.
- 14 February 2019 - 26 March 2019 – one (1) acoustic songmeter (SM4) deployed across the WTA for acoustic flying-fox calls. Surveys totaled 34 nights of recording.
- 17 – 18 June 2019 - nocturnal flying-fox survey on WTA (16 person hours)
- 5 August 2019 - review of DoE National Flying-fox Monitoring Viewer

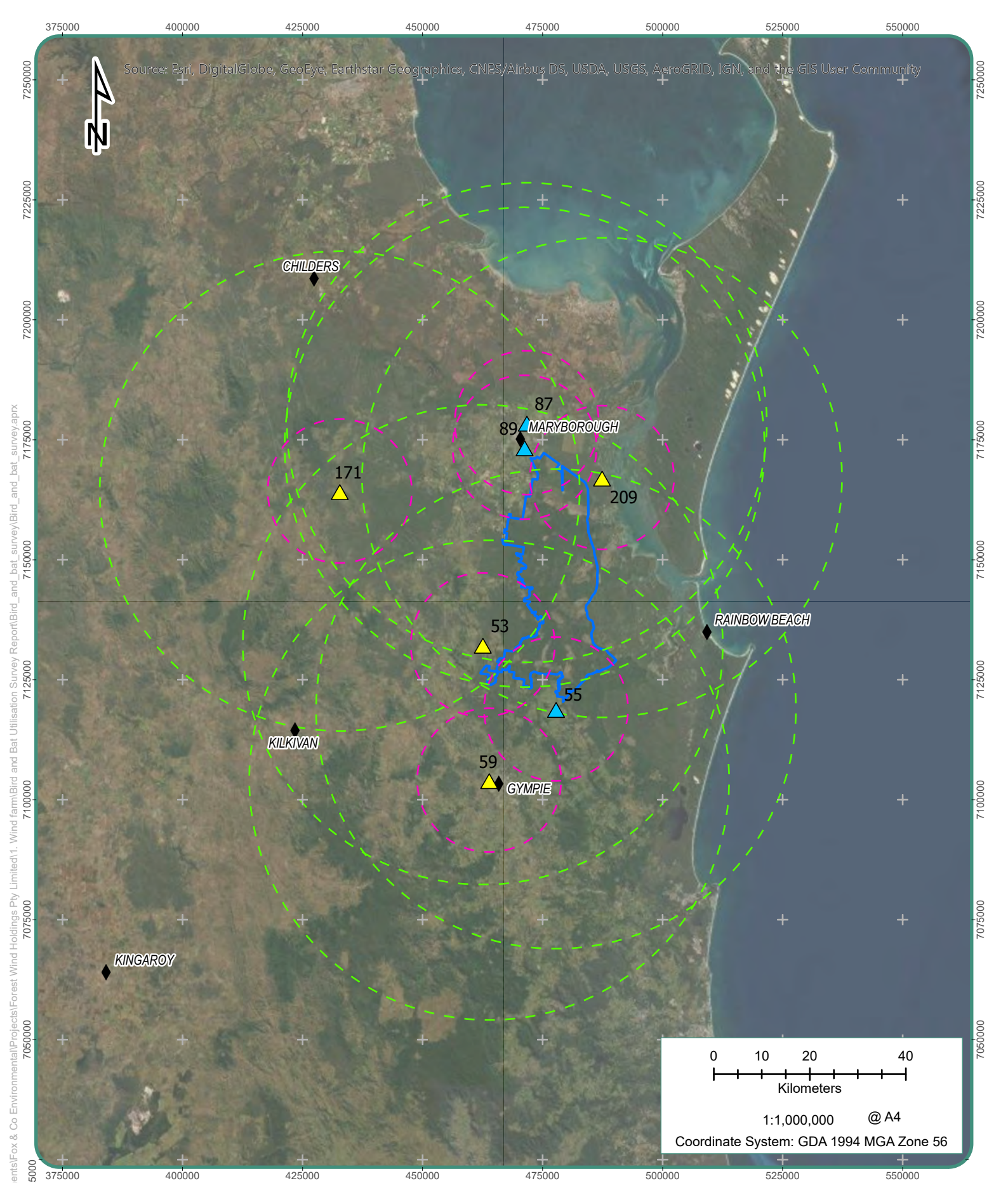
2.2.2 Bat Survey Results

Up to 14 microbat species were recorded during the bat surveys. No threatened microbats were detected. The most common microbat species were *Chalinolobus nigrogriseus* (Hoary wattled bat); *Ozimops ridei* (Ride's free-tailed bat), and *Saccolaimus flaviventris* (yellow-bellied sheath-tail-bat). These 3 species are least concern under the NC Act and not listed under the EPBC Act.

There are seven (7) grey-headed flying-fox (GHFF) camps within 50km of the wind turbine site that have been occupied by GHFF within the past 2 years. Flying-fox camps are sometimes mixed with GHFF and little-red flying-fox (LRFF), and more often with GHFF and black flying-fox (BFF) with numbers and presence varying over time due to the nomadic nature of flying-foxes and food availability

1. Glenwood Varley Road (53)
2. Maaroom, Esplanade (209)
3. Goomboorian, Anderleigh Rd Ginger Creek (55)
4. Maryborough, Kent Street (88)
5. Maryborough, Albion Rd Wetlands (Island Plantation) (87)
6. Gympie (53)
7. Woocoo (171)

The closest Nationally Important GHFF camps are Marrom, Glenwood Varley Road, Gympie and Woocoo, which are 4km, 14km, 30km and 40km away, respectively, from the nearest turbine location, respectively.



TITLE:
Grey headed flying-fox potential foraging distances

MAP NO: Figure 3

PROJECT: Forest Wind Holdings Pty Ltd - Bird & Bat Utilisation Survey

- LEGEND**
- ▲ Grey headed flying-fox camp
 - ▲ Nationally important flying-fox camp
 - ◆ Populated places
 - Study area
 - Flying-fox camp 15km buffer
 - Flying fox camp 50km buffer



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3 RISK ASSESSMENT

3.1 *Birds*

The risk assessment for collision-based impacts has considered the likelihood of occurrence, typical flight behaviour, distribution and biology. Risk categories are:

- Low Risk: low flight behaviour with the species typically foraging just above the tree canopy and below it.
- Medium Risk: has the potential to fly at RSA height and suitable habitat is present in the wind turbine area or immediately adjacent to it
- High Risk: known to regularly fly at or above RSA height, aerial insectivore foragers and suitable habitat present on or adjacent to the site

Previous assessments for the Project have identified bird and bat species most 'at risk' of impact by the operation of the wind farm, this includes Least Concern species. As a result, some Least Concern (common) bird species are included in the below risk assessment due to their presence and flight behaviour.

During the 2016 – 2019 bird surveys, the following five (5) species were observed exhibiting high risk flight behaviour flying within the RSA height.

- White-throated needletail (*Hirundapus caudacutus*) – V, MT, LM (EPBC Act)
- Fork-tailed swift (*Apus pacificus*) – MT (EPBC Act)
- Whistling kite (*Haliastur sphenurus*) – Least Concern (LC)
- Channel-billed cuckoo (*Scythrops novaehollandiae*) – (LC)
- Tree martin (*Petrochelidon nigricans*) – (LC)

An additional thirteen (13) bird species were identified during surveys which possess moderate to high risk flight behaviour, although all of these were recorded well below RSA height. The cockatoos, raptors, large waterbirds and aerial insectivores observed are included in the risk assessment.

- Spotted harrier (*Circus assimilis*) – LC (NC Act)
- Black-shouldered kite (*Elanus axillaris*) – LC (NC Act)
- Welcome swallow (*Hirundo neoxena*) – LC (NC Act)
- White-necked heron (*Ardea pacifica*) – LC (NC Act)
- Brown falcon (*Falco berigora*) – LC (NC Act)
- Australian hobby (*Falco longipennis*) – LC (NC Act)
- Peregrine falcon (*Falco peregrinus macropus*) – LC (NC Act)
- Rainbow bee-eater (*Merops ornatus*) – MT (EPBC Act)
- Cicadabird (*Coracina tenuirostris*) – LM (EPBC Act)
- Torresian crow (*Corvus orru*) – LC (NC Act)
- Australian magpie (*Gymnorhina tibicen*) – LC (NC Act)
- Sulphur-crested cockatoo (*Cacatua galerita*) – LC (NC Act)
- Yellow-tailed black-cockatoo (*Calyptorhynchus funereus*) – LC (NC Act)

Additional least concern, threatened or EPBC listed migratory bird species were identified as having a moderate – high potential to occur based on desktop searches (*Bird and Bat Utilisation Report, 2019*). Migratory shorebirds were also considered in the utilisation assessment and all migratory shorebirds were considered at low risk of collision (*Bird and Bat Utilisation Report, 2019*).

Subsequent surveys and assessments identified that the susceptibility for collision-based impacts is low or unlikely due to their population size, distribution, foraging behaviour, flight behaviour and

movement patterns. The following tables summarise the RSA utilisation behaviour and collision susceptibility for the following categories:

- Table 1 – Threatened and/or migratory bird species known to occur in the WTA
- Table 2 - Threatened and/or migratory bird species considered to have a moderate to high likelihood of occurrence in the WTA
- Table 3 – Common bird species known to occur in the WTA with a moderate to high risk flight behaviour

Table 1 Threatened or Migratory Bird Species Known to Occur in WTA

Scientific Name	Common Name	¹ Status EPBC / NC Act ¹	Likelihood	RSA Utilisation	Collision Risk Susceptibility
<i>Hirundapus caudacutus</i>	White-throated Needletail	V, MT, LM / SLC	Known	Foraging	High
<i>Apus pacificus</i>	Fork-tailed Swift	MM, LM / SLC	Known	Foraging	High
<i>Merops ornatus</i>	Rainbow bee-eater	LM / LC	Known	Foraging	Moderate
<i>Coracina tenuirostris</i>	Cicadabird	LM/ LC	Known	Unlikely	Low

¹ EPBC Act: V = Vulnerable, MM = Migratory Marine, MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine MI=Listed Migratory
 NC Act: SLC = Special Least Concern, LC = Least Concern

The threatened and/or migratory bird species listed in Table 2 were considered as having a moderate or high likelihood of occurrence. Likelihood of occurrence and susceptibility of collision on the WTA is provided in the *Ecological Assessment Report* (2019) and summarised below.

Table 2 Threatened or Migratory Bird Species Potentially Occurring in WTA

Scientific Name	Common Name	¹ Status EPBC / NC Act ¹	Likelihood	RSA Utilisation	Collision Risk Susceptibility
<i>Ardea alba</i> (Syn. <i>A. modesta</i>)	Great Egret, White Egret	LM / LC	Moderate	Dispersing	Low
<i>Haliaeetus leucogaster</i>	White-bellied sea-eagle	LM / LC	Moderate	Dispersing	Low
<i>Ninox strenua</i>	Powerful owl	- / V	Moderate	Unlikely	Low
<i>Monarcha melanopsis</i>	Black-faced monarch	MT, LM / SLC	Moderate	Unlikely	Low
<i>Monarcha trivirgatus</i> (syn. <i>Symposiachrus trivirgatus</i>)	Spectacled Monarch	MT, LM / SLC	Moderate	Unlikely	Low
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	MT, LM / SLC	Moderate	Unlikely	Low
<i>Ardea ibis</i>	Cattle egret (Syn. <i>Bubulcus ibis</i>)	LM, MW / LC	Moderate	Dispersing	Low
<i>Rhipidura rufifrons</i>	Rufous Fantail	LM, MT / SLC	Moderate	Unlikely	Low
<i>Cuculus optatus</i>	Oriental cuckoo	MT / SLC	Moderate	Unlikely	Low

Scientific Name	Common Name	¹ Status EPBC / NC Act ¹	Likelihood	RSA Utilisation	Collision Risk Susceptibility
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¹ EPBC Act: MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine
 NC Act: V = Vulnerable, SLC = Special Least Concern, LC = Least Concern

Table 3 Common Bird Species Known or Likely to Occur in WTA with Moderate to High Flight Risk Behaviour

Scientific Name	Common Name	¹ Status EPBC / NC Act ¹	Likelihood	RSA Utilisation	Collision Risk Susceptibility
<i>Ardea pacifica</i>	White-necked heron	NL / LC	Known to Occur	Dispersing	Moderate
<i>Circus assimilis</i>	Spotted harrier	NL / LC	Known to Occur	Dispersing	Low
<i>Elanus axillaris</i>	Black-shouldered kite	NL / LC	Known to Occur	Foraging	Moderate
<i>Falco berigora</i>	Brown falcon	NL / LC	Known to Occur	Foraging	High
<i>Falco longipennis</i>	Australian hobby	NL / LC	Known to Occur	Foraging	High
<i>Falco peregrinus macropus</i>	Peregrine falcon	NL / LC	Known to Occur	Foraging	High
<i>Haliastur sphenurus</i>	Whistling kite	NL / LC	Known to Occur	Foraging	High
<i>Aquila audax</i>	Wedge-tailed eagle	NL / LC	Likely to Occur	Foraging	High
<i>Hirundo neoxena</i>	Welcome swallow	NL / LC	Known to Occur	Foraging	High
<i>Scythrops novaehollandiae</i>	Channel-billed cuckoo	NL / LC	Known to Occur	Dispersing	High
<i>Corvus orru</i>	Torresian crow	NL / LC	Likely to Occur	Territorial and aggressive flight behaviour	High
<i>Gymnorhina tibicen</i>	Australian magpie	NL / LC	Likely to Occur	Territorial and aggressive flight behaviour	High
<i>Petrochelidon nigricans</i>	Tree martin	NL / LC	Likely to Occur	Foraging	High
<i>Pelecanus conspicillatus</i>	Australian pelican	NL / LC	Likely to Occur	Dispersing	High
<i>Threskiornis Molucca</i>	Australian white ibis	NL / LC	Likely to Occur	Dispersing	High
<i>Ardea pacifica</i>	White-necked heron	NL / LC	Likely to Occur	Dispersing	Moderate
<i>Cacatua galerita</i>	Sulphur-crested cockatoo	NL / LC	Known to Occur	Dispersing	Moderate
<i>Calyptorhynchus funereus</i>	Yellow-tailed black-cockatoo	NL / LC	Known to Occur	Dispersing	High

¹ EPBC Act: MT = Migratory Terrestrial, MW = Migratory Wetlands, LM = Listed Marine, NL – Not Listed
 NC Act: V = Vulnerable, SLC = Special Least Concern, LC = Least Concern

3.2 Bats

Seven (7) GHFF camps are located within 50km of the WTA. GHFF are capable of nightly flights of up to 50 km from their roost to different feeding areas as food resources change; however, foraging areas are usually within 15 km of the day roost site. Likelihood of occurrence and susceptibility of collision on the Project site is provided in the *Ecological Assessment Report (2019)* and summarised in Table 4.

Table 4 Threatened and Least Concern (Common) Bat Species Known or Likely to Occur

Scientific Name	Common Name	Status EPBC / NC Act ¹	Likelihood	RSA Utilisation	Collision Risk Susceptibility
Megabats (Flying-fox)					
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V / LC	High	Dispersing	Moderate
<i>Pteropus scapulatus</i>	Little red flying-fox	NL / LC	High	Dispersing	Moderate
<i>Pteropus alecto</i>	Black flying-fox	NL / LC	High	Dispersing	Moderate
Microbats					
<i>Rhinolophus megaphyllus</i>	Eastern horseshoe bat	NL / LC	Occurs	Foraging	Low
<i>Chalinolobus gouldii</i>	Gould's wattled bat	NL / LC	Occurs	Foraging	High
<i>Chalinolobus nigrogriseus</i>	Hoary wattled bat	NL / LC	Occurs	Foraging	High
<i>Nyctophilus sp.</i>	-	NL / LC	Occurs	Foraging	Low
<i>Scotorepens greyii</i>	Little broad-nosed bat	NL / LC	Occurs	Foraging	Low
<i>Miniopterus australis</i>	Little bent-wing bat	NL / LC	Occurs	Foraging	Low
<i>Miniopterus orianae</i>	Australian bent-wing bat	NL / LC	Occurs	Foraging	High
<i>Austronomus australis</i>	White-striped freetail bat	NL / LC	Occurs	Foraging	High
<i>Ozimops ridei</i>	Ride's free-tailed bat	NL / LC	Occurs	Foraging	Moderate
<i>Ozimops lumsdenae</i>	Northern free-tailed bat	NL / LC	Occurs	Foraging	Moderate
<i>Saccolaimus flaviventris</i>	Yellow-bellied sheathtail bat	NL / LC	Occurs	Foraging	High

4 MITIGATION MEASURES

Mitigation measures proposed are in accordance with industry standards and the mitigation recommendations provided in *Wind Farm Industry EPBC Act Policy Statement 2.3 (DoE, 2009)*.

Avoidance is the guiding principle to avoiding impacts on MNES (and MSES). Avoidance measures utilised in the Project include:

- The Project is set back a minimum of 4km from the Great Sandy Strait which is a known significant non-breeding area for EPBC listed migratory shorebirds.

- The WTA is located within an existing exotic pine plantation and avoids remnant vegetation and waterways.
- Electrical cabling will mostly be underground along existing access tracks which will further reduce the likelihood of collision and/ or electrocution of birds and bats.
- Other infrastructure such as construction compounds avoid remnant vegetation and waterways and therefore avoid damage to remnant areas of natural habitat.
- Existing forestry tracks will be used to provide access within the WTA and therefore avoids disturbance to remnant vegetation and habitat within remnant vegetation.

Additional management measures to reduce collision-based impacts during operation are associated with adaptive management and reducing the risk of attracting birds and bats into the RSA of the wind farm. The success of the management objectives are measured through the criteria outlined in Table 5.

5 MANAGEMENT AND MONITORING

Potential impacts to bats and birds will be managed through the implementation of the management objectives, activities and controls in Table 5. Management activities and controls will be implemented in accordance with the proposed schedule and success measured through the performance criteria also detailed in Table 5. Monitoring methods are in accordance with recommended operation phase impact monitoring provided in *Interim Standards for Assessing the Risks to Birds from Wind Farms in Australia (AusWEA 2005)*. The protocols are also considered applicable for flying-foxes and include:

- Dead bird/bat searches
- Indirect disturbance impact assessments
- Avoidance studies

Surveys undertaken between 2016 and 2019 are considered to provide adequate pre-construction baseline data which can be used to compare future changes. As such, post-construction / operational monitoring of identified ‘at risk’ species, coupled with adaptive management impact triggers is proposed to manage impacts on birds and bats from the Project. It is expected that further refinement of the below management activities and criteria will be undertaken in consultation with the assessment agencies during the approval process. Although no threatened microbat species were assessed as likely to occur, operational phase microbat surveys on the least concern microbat species identified to occur will be included in further pre-construction (2-months prior to construction), post-construction surveys and mortality surveys.

Table 5 Management Objectives, Activities, Timing and Performance Criteria

Management Objectives	Management Activities and Controls	Timing	Performance Criteria for Measuring Success of Methods
Background bird and bat monitoring of all species	Establish baseline bird and bat utilisation and flight height data. (completed by Premise Environment 2016-2019)	Pre-approval and during Project design	All bird and bat species most at risk identified.
Pre-construction bird/bat monitoring	Pre-construction baseline bird and bat utilisation surveys	Pre-construction. Additional pre-construction monitoring of all bird and bat species (regardless of conservation status) undertaken 2-months prior to construction.	Update birds/bats most at risk of collision.
Post-construction bird/bat Monitoring	Post-construction bird/bat utilisation surveys.	Operational. Monthly from August – November (4 events) and monthly from February – April (3 events) for the first 2 years Same survey points and BUS methods as pre-construction monitoring.	Post-construction surveys completed, and data compared to pre-construction monitoring. Statistical analysis of differences between pre and post data as per AusWEA 2005.

Management Objectives	Management Activities and Controls	Timing	Performance Criteria for Measuring Success of Methods
Mortality	<p>Monthly surveys to be undertaken at a stratified random representative selection of turbines (10%)</p> <p>Carcass monitoring will be undertaken during each survey by an ecologist or trained detection dog or other approved method.</p> <p>Surveys will also be timed to occur at times of flowering of eucalypt and melaleuca where possible.</p> <p>Weather data will be recorded.</p> <p>If carcasses are identified the location and conditions will be recorded, including but not limited to visibility conditions such as fog, wind, rain, current and previous 24hr weather conditions</p> <p>If carcass's are identified repeatedly for a period of 3 months a strategy will be developed to manage the risk of collision.</p>	<p>A monthly sample of 10% of the wind turbines, so that annually each turbine is inspected at least once, for a period of two years. Or, a greater frequency, subject to observations.</p> <p>Or, monthly stratified random locations with each strata having a minimum of 3 turbines. Strata may be north, south, east and west within the Project Area.</p>	If monitoring design requires amendments
Injured Wildlife	Injured wildlife taken to approved wildlife carer	Construction and Operation	Rehabilitated injured wildlife Register of injured wildlife

6 IMPACT TRIGGERS AND ADAPTIVE MANAGEMENT

An impact trigger is generally where there is evidence of death or injury to birds and/or bats as a result of collision with a wind turbine, or other interaction such as barotrauma.

For the purposes of this management plan, an impact trigger for Threatened Species occurs where a carcass (or recognizable part) of a threatened bird or bat species (listed as under the Commonwealth EPBC Act or Queensland NC Act) is found under or close to a turbine during any carcass search or incidentally during commissioning or operation. This would be reported to DES within 24 hours of the observation, unless possession is authorised by a DES rehabilitation permit.

Impact triggers are important in determining the success of the proposed mitigation measures and monitoring requirements. Where impact triggers are identified, adaptive management may be required to assess current mitigation measures and identify additional measures that may need to be implemented.

For non-threatened birds and bats, an impact trigger is where two or more of the same species, in two successive searches (2-successive monthly searches from the selected stratified random sample locations) at the same or adjacent turbine(s) is recorded (i.e. a total of four or more carcasses of the same species in two successive searches at the same turbine). Where population numbers are known the definition of an unacceptable impact on non-threatened species is any impact that is likely to reduce the viability of the population of the affected species in the bioregion.

If the event is considered a potentially regular occurrence (based on assessment of survey data), or likely lead to an unacceptable impact to the population (at the appropriate scale ie. Local, Regional, State, National); species-specific monitoring may be required. Should further monitoring confirm unacceptable impacts, further mitigation measures will be required.

If impacts are identified a targeted monitoring program will be undertaken to determine likely cause and potential mitigation measures. Measures may include:

- temporary shutdown of individual turbines. Utilisation bird and bat surveys to assist in determining isolation period.
- slow rotor speeds.

Hypothetical causes and potential mitigation measures are provided in more detail in Table 6.

Table 6 Impact Triggers and Management Measures

Hypothetic cause of impact	Mitigation Measure	Likelihood of Impact continuing following mitigation	Implementation Timing
Foraging source identified that attracts threatened species and 'at risk' species to impact areas (eg. Flowering eucalypts and melaleuca)	Trial acoustic and/or sonar to deter bats/birds	Low	Implement as according to agreed plan
	Slow rotor speeds or temporary shutdown of turbines. Utilisation bird and bat surveys determine isolation period.	Low	Immediately if identified as the cause of unacceptable impacts on threatened species
Bushfire, low pressure systems and storm fronts creating favourable conditions for aerial foragers	Slow rotor speeds or temporary shutdown of subject turbines during Summer period of known migratory aerial insectivores when birds may be on site. Repeat carcass surveys following extreme weather events to determine if events are linked to unacceptable impacts. Utilisation bird and bat surveys determine isolation period.	Low	Immediately following extreme Summer weather events such as large regional bushfires and severe weather fronts.
Low visibility due to wind/rain/fog	Repeat carcass surveys to determine if correlation is related to low visibility. Temporary shutdown on subject turbines identified as causing the impact.	Low	Immediately upon confirming cause

7 REPORTING REQUIREMENTS

The outcomes of monitoring and management actions will be documented to demonstrate continual compliance with performance criteria and to assist with rapid adaptive management measures.

Table 7 provides the proposed reporting schedule.

Table 7 Reporting Schedule

Activity	Reporting Requirement	Timing	Responsibility
Baseline monitoring (completed by Premise Environment 2016-2019)	Bird and bat utilisation report	Pre-approvals and during Project design.	Suitably Qualified Independent Ecologist
Pre-construction baseline bird and bat utilisation surveys	Update bird and bat utilisation report.	Fortnightly, 2-months before construction	Suitably Qualified Independent Ecologist
Post-construction bird/bat utilisation surveys	Post-construction bird and bat utilisation report	1 interim annual summary report and 1 final monitoring report incorporating pre-construction and post-construction bird/bat data	Suitably Qualified Independent Ecologist
<p>Carcass monitoring will be undertaken during each survey by an ecologist, trained detection dogs or other approved method.</p> <p>Surveys will also be timed to occur at times of flowering of eucalypt and melaleuca where possible.</p> <p>Weather data will be recorded.</p> <p>If carcasses are identified the location and conditions will be recorded, including but not limited to visibility conditions such as fog, wind, rain, current and previous 24hr weather conditions</p> <p>If carcass's are identified repeatedly for a period of 3 months a strategy will be developed to manage the risk of collision.</p>	Monthly assessment report and final mortality assessment report	<p>Monthly.</p> <p>Brief monthly inspection report within 48 hours of carcass surveys.</p> <p>Annual report following first 12 months of monitoring</p>	Suitably Qualified Independent Ecologist, trained detector dog or other approved method for relevant 'at risk' species
Injured wildlife taken to approved wildlife carer	Update register and include results in annual mortality report	Update fauna incident register within 48 hours	Environmental Officer

8 WORKS CITED AND RELEVANT REFERENCE DOCUMENTS

Fox & Co Environmental (2019). *Forest Wind Ecological Assessment of the Proposed Forest Wind Farm Project, FWH-02*

Fox & Co Environmental (2019). *Forest Wind Bird and Bat Utilisation Report, FWH-01*

State Code 23: Wind Farm Development, Planning Guidelines (Queensland Government, June 2018)

Wind farms and birds: Interim Standards for Risk Assessment. Report No. 2003.35 (2.2) (AusWEA, 2005)

Premise Environment (2017). *Forest Wind Ecological Assessment, Report No. 1701513b*



FOX & CO
ENVIRONMENTAL

APPENDIX I

Forest Wind Project, Koala Assessment Report (University of the Sunshine Coast, 2019)

Forest Winds- Phase 1 Koala Survey Report



Prepared for Forest Wind Pty Ltd.

**By University of the Sunshine Coast, Detection Dogs for
Conservation**

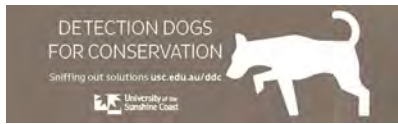
September 2019

Disclaimer

This report was prepared in accordance with the scope of work agreed with Forest Wind Pty Ltd and is subject to the specific time, cost and other constraints as defined by the scope of work.

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Introduction

Scope of works

The University of Sunshine Coast, Detection Dogs for Conservation team was contracted to conduct koala surveys in areas proposed for a high voltage transmission line associated with a windfarm, to meet environmental approval requirements. The surveys were conducted to determine and map whether there are signs of koala presence within the proposed area of overhead transmission corridor and proposed access track and the transmission line corridor.

Methodology

Detection dogs are a powerful method to study koala presence / absence. Upon arrival at the survey sites ecological characteristics that might influence the detectability and decay of scats are recorded (e.g. wet areas will increase decay rates; therefore, scats will be detectable for a shorter amount of time). The detection dog was then fitted with a GPS collar, motivated with a tennis ball and given the command to search.

Systematic koala scat survey

The survey protocol followed the Koala Rapid Assessment Method (KRAM), which was adapted for use with a detection dog as per Cristescu et al. (2015). At each survey site, a random survey point was chosen and 30 trees in the vicinity of this point, with a diameter at breast height of more than 10 cm was searched for the presence of koala scats using trained detection dog Baxter. When scats were found, the number of scats within a one square meter quadrat, their age category (Table 1) and their size (based on scat width, Figure 2) were recorded as well as their GPS coordinates (GDA94). When only one size of scat and age class (see classification below) is present, the tree is considered less used than when scats of different age classes (indicative of repetitive visits) and sizes (indicative of different individuals) are present. The age of scats allowed us to classify sites as recently used or not.

At sites where systematic surveys were conducted, the habitat utilisation was described in terms of activity level (Phillips and Callaghan 2011), which was calculated by dividing the number of trees with scats by the total number of trees searched at the site.

Casual koala scat survey

The casual surveys are an excellent and fast way to determine whether koalas are present at a specific site. In the casual surveys, the dog is not constrained by the handler, and can follow its nose roaming over an area of up to two hectares within an approximate 30-minute timeframe, or until the handler deems the search to have covered the site thoroughly. The search duration is usually less than 30 minutes, and can be as short as a couple of minutes if koala scats are detected. The start point of the survey can be determined by the handler, or ecology team depending on terrain, vegetation cover and or targeted area of interest. The same scat details (age and size of scats) recorded for systematic surveys were recorded for casual surveys.

Scat Identification

Typical koala scats (Figure 1) have the following characteristics (Triggs 1996):

- symmetrical and bullet-shaped (not jelly-bean shaped);
- generally about 1.5 cm long by 0.5 cm wide (adult koala scat size);
- even-sized and especially fine particles;
- absence of insect parts (koalas do not eat insects); and
- very compact.



Figure 1 Typical koala scat shape found in the field

If the scat survey is positive (i.e. koala scats were detected at the site), the handler will proceed to the next survey site scheduled.

Table 1 Guide used to age koala scats in the field

Scat age categories	Days	Characteristics
1	1 day old or less	Very fresh (covered in mucus, wet)
2	Couple of days old	Fresh (shine and smell)
3	Couple of weeks	Medium fresh (shine or smelly when broken)
4	Months old	Old (no shine, no smell)
5	More than a few months	Very old and discoloured



Figure 2 Example of different koala scat sizes (width)

Incidental records

Researchers conducting the surveys were on the lookout for opportunistic / incidental spotting of koala scats and koalas.

When koalas / koala scats are located during opportunistic surveys, photographs of the animals / scats are taken. External signs of chlamydia infection, often referred to as *pink eyes* (for ocular infection / conjunctivitis) and *wet bottom* (for urinary tract infection) are recorded if seen.

Health and safety

The detection dogs work under strict Animal Ethics approvals (USC: ANA16113, ANA1494 and ANS1752) and QLD Government wildlife permits allowing the DDC to perform koala surveys using detection dogs and collect scats for genetic analysis (SPP WIF418590017, WISP18590117 and WITK18570117).

Limitations

The rate at which scats decay may vary significantly between sites due to varying ground layer structure, composition, moisture, sunlight, local weather events and invertebrate activity (Rhodes et al. 2011a, Cristescu et al. 2012). Decomposed scats may lose their unique scent mark and the dog may no longer detect it – however this has not been proven yet (Cristescu et al. 2015).

Failure to detect koala scats in an area does not necessarily indicate koalas are not using the area. Failure to detect koala scats may suggest either of the following:

- Koalas are not present in the area (i.e. true absence);
- Koalas occur in the area, however, scats were not detected (false negative) because:
 - scats were present at some stage but decayed and disappeared from the environment before the survey was conducted,
 - the dog did not detect the scat; and/or, the dog indicated the presence of a scat, but it was too decayed (fragments only, no scat)



Survey site and conditions

Surveys were carried out on the 25th-26th June 2019 in Neerdie State Forest 2. Access was obtained via Anderleigh Rd and Neerdie Rd by 4WD or on foot from tracks.

The team tried to cover the area as much was accessible. The terrain was relatively even, however some areas were too densely vegetated by Lantana to be surveyed by the detection dog and handler. In such cases, the team searched the closest area that was accessible.

On both days the weather conditions were variable. The team experienced intermittent showers to heavy down pour forcing teams to delay and or pause surveys. This resulted in substantial time delays, moreover the rains could also have contributed to the rapid decay of scats.

Survey Results

Handler and detection dog conducted searches at 28 sites over two days, covering as much of the survey area as possible (Figure 3). This consisted of 14 systematic surveys and 14 casual surveys (Table 2; Figure 4). Across surveys, the team found scats at a total of 6 survey site (Table 3). Across systematic surveys three scats were found at two locations, and during casual surveys 10 scats were found at four locations (Table 3). This suggests an estimated occupancy level of 22% of the area surveyed. Where systematic surveys were conducted, we estimated habitat utilisation to be low: between 0-6%. The age of scats found ranged from age category 2-5, suggesting variability in the time frames that koalas were present (Table 3; Figure 5).

Table 2 Location and type of survey conducted and whether koala scat was present

Survey Code	Survey Date	Easting	Northing	Scat Presence?	Survey type
190625BA1	25/06/2019	465253	7125497	Yes	Systematic
190625BA2	25/06/2019	465284	7125469	No	Casual
190625BA3	25/06/2019	465487	7125870	No	Systematic
190625BA4	25/06/2019	465510	7125915	No	Casual
190625BA5	25/06/2019	465625	7126278	No	Systematic
190625BA6	25/06/2019	465635	7126245	No	Casual
190625BA7	25/06/2019	465788	7126626	No	Systematic
190625BA8	25/06/2019	465768	7126609	Yes	Casual
190625BA9	25/06/2019	466162	7126945	Yes	Systematic
190625BA10	25/06/2019	466146	7127020	Yes	Casual
190625BA11	25/06/2019	466517	7127174	No	Systematic
190625BA12	25/06/2019	465214	7125538	No	Casual
190625BA13	25/06/2019	465139	7125038	No	Systematic
190625BA14	25/06/2019	465100	7125129	No	Casual
190626BA1	26/06/2019	461257	7126530	Yes	Casual
190626BA2	26/06/2019	465043	7125070	No	Systematic
190626BA3	26/06/2019	465009	7125058	No	Casual
190626BA4	26/06/2019	465058	7124679	No	Systematic
190626BA5	26/06/2019	464857	7124680	Yes	Casual
190626BA6	26/06/2019	464597	7124331	No	Systematic
190626BA7	26/06/2019	464553	7124359	No	Casual
190626BA8	26/06/2019	464276	7124035	No	Systematic
190626BA9	26/06/2019	464025	7123788	No	Systematic
190626BA10	26/06/2019	463760	7123340	No	Casual
190626BA11	26/06/2019	463884	7123317	No	Systematic
190626BA12	26/06/2019	463812	7123333	No	Casual
190626BA13	26/06/2019	463746	7122893	No	Systematic
190626BA14	26/06/2019	463775	7122907	No	Casual



Table 3 Location of koala scats found during surveys

Survey Code	Survey type	Scat age	Easting	Northing
190625BA1	Systematic	4	465273	7125488
190625BA1	Systematic	4	465272	7125493
190625BA8	Casual	5	466154	7126887
190625BA9	Systematic	4	466172	7126931
190625BA10	Casual	4	466173	7127017
190626BA5	Casual	2	464503	7124440
190626BA1	Casual	3	461681	7126406
190626BA1	Casual	2	461743	7126361
190626BA1	Casual	3	461754	7126363
190626BA1	Casual	3	461765	7126360
190626BA1	Casual	3	461973	7126360
190626BA1	Casual	3	462109	7126383
190626BA1	Casual	3	463116	7126457

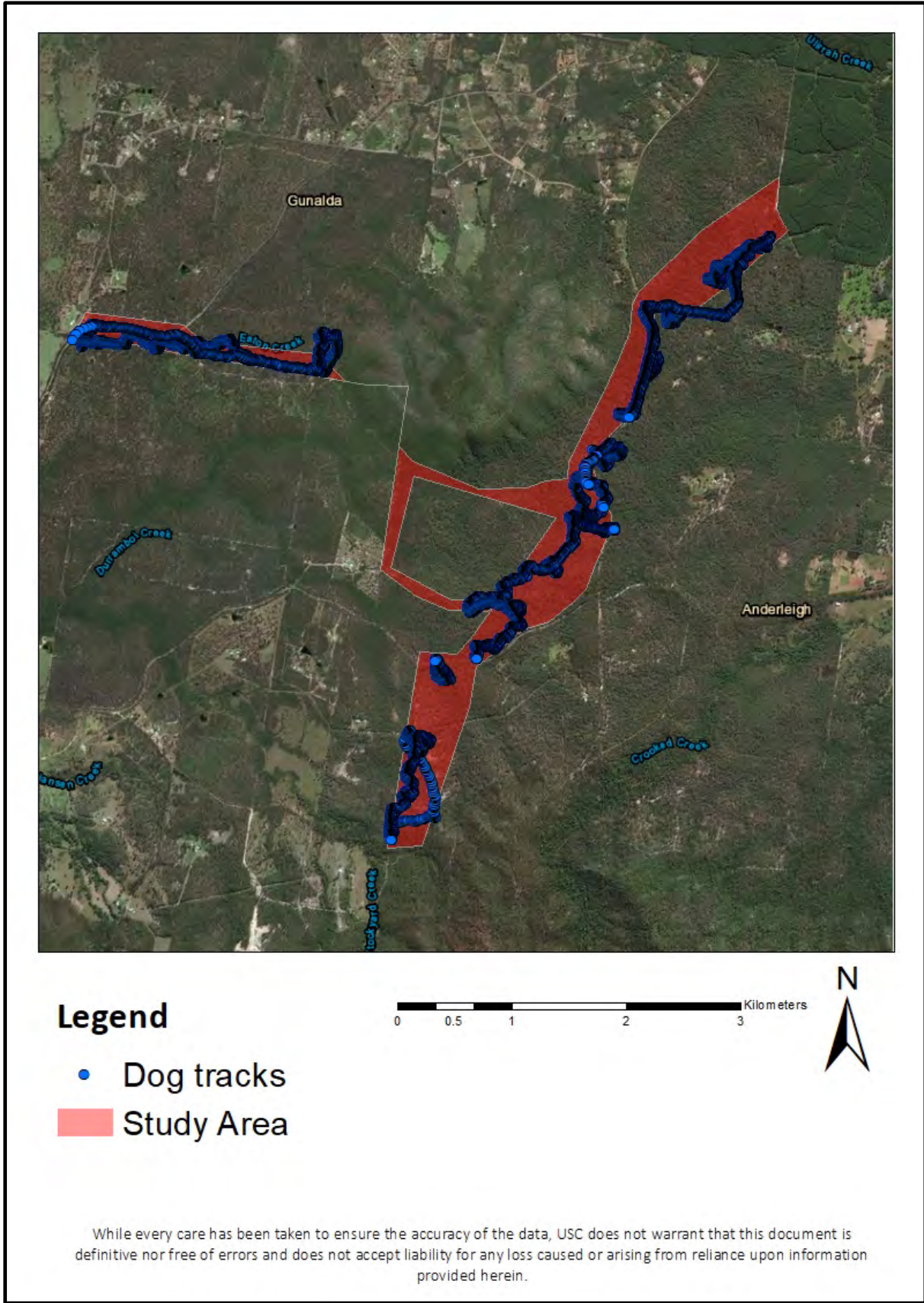


Figure 3 Area searched by DDC handler and detection dog over two days

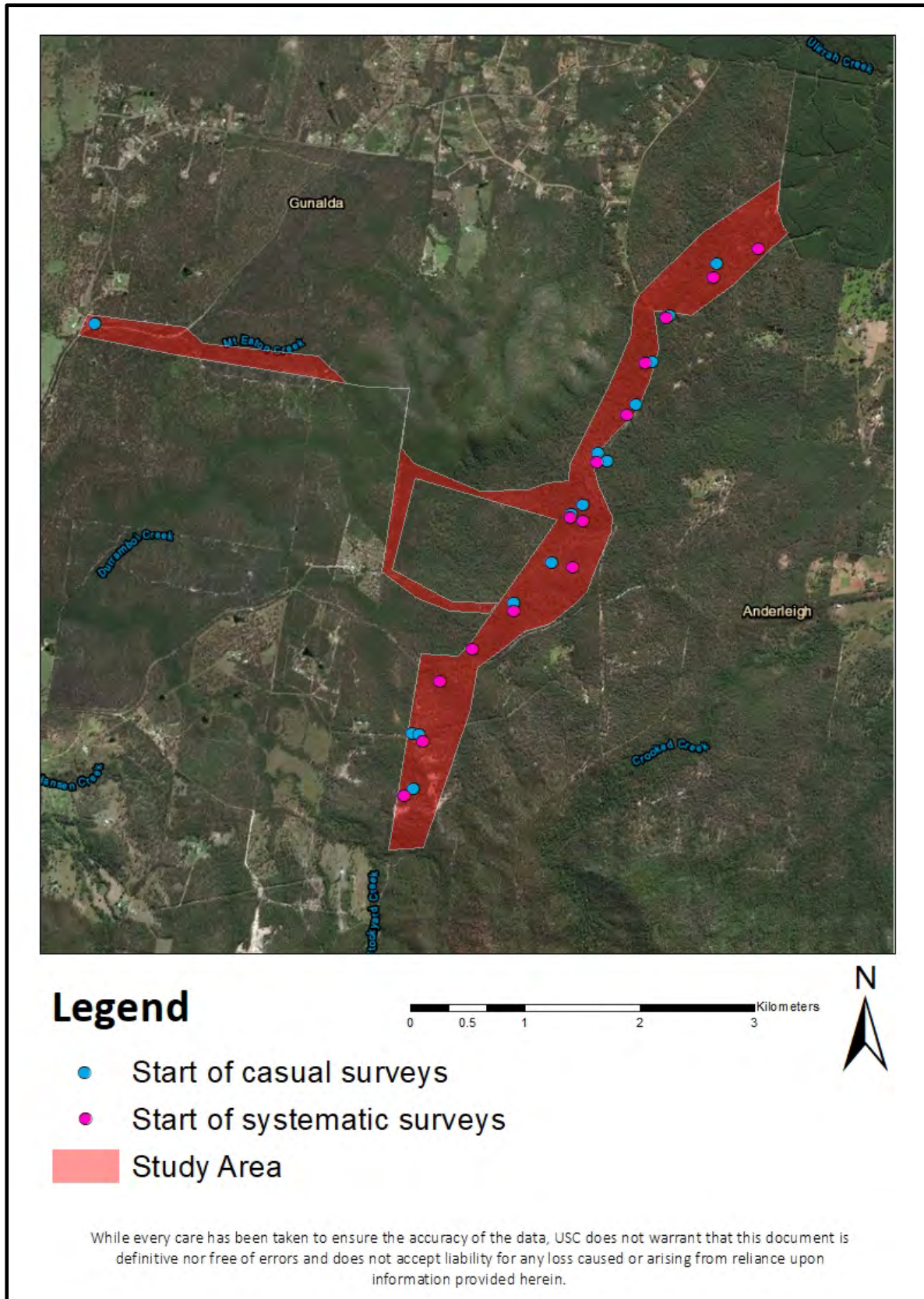


Figure 4 Start points of surveys conducted over the two days. Blue points indicate casual surveys, pink points indicate systematic surveys. Dog tracks in Figure 3 show extent of surveys.

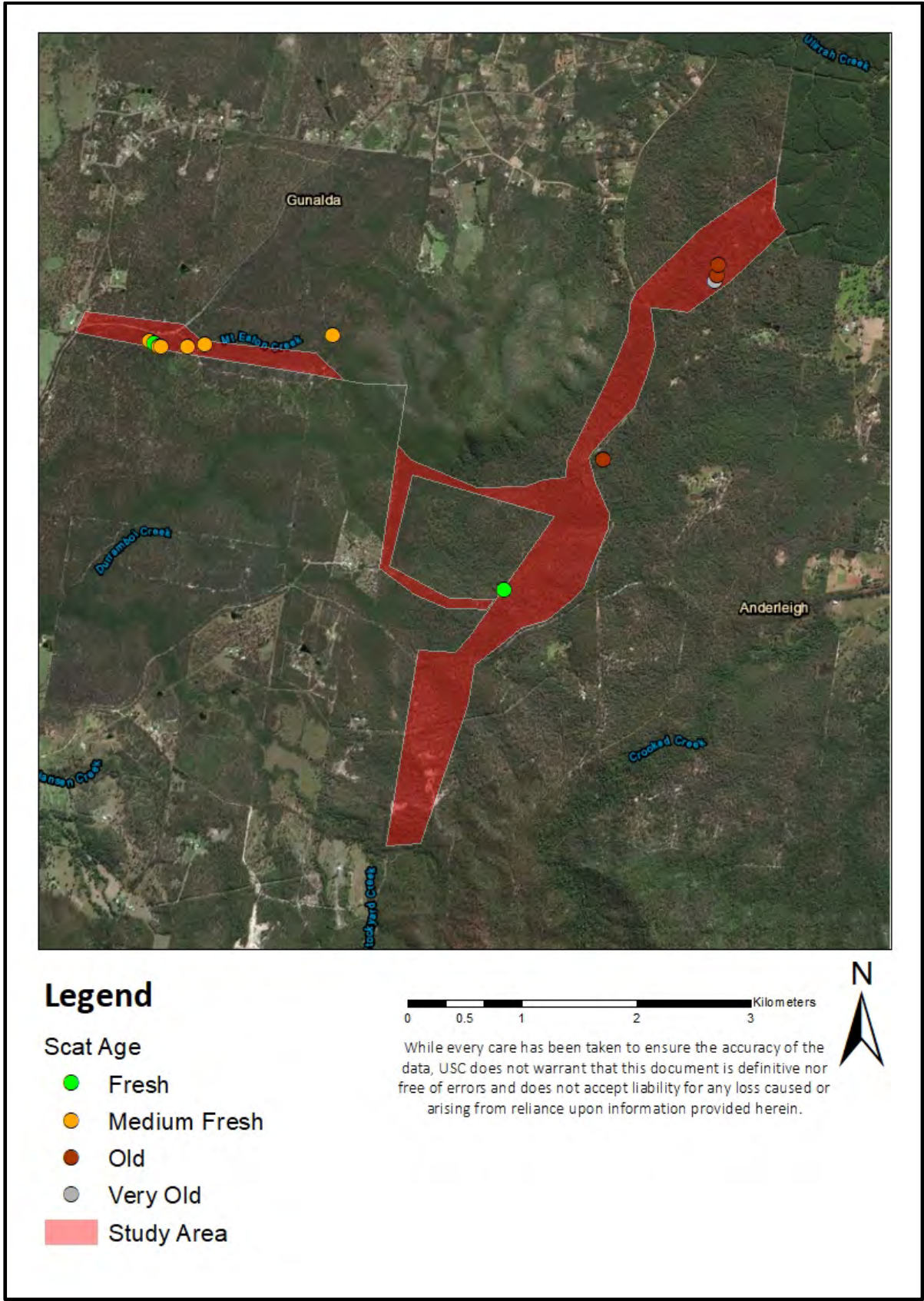
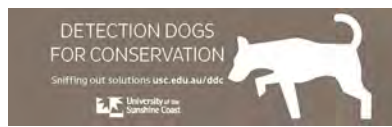


Figure 5 Location and age of scats found during surveys.



Discussion/ Comments

From our findings it is certain koalas are present within the area of interest. The age range of scats found suggests that the area is used by koalas throughout the year, however the quantity of koala scats found, suggests koala activity level is low. The freshest scats were found in Neerdie State Forest 2, medium fresh scats were found close to and surrounding tracks off Neerdie Rd, while scats found north of Anderleigh Rd were categorised as old to very old (Figure 5).

As previously mentioned, various factors may influence the persistence of scats within the environment. During our surveys rain and dense vegetation made it difficult for the detection dog to search certain sites. For example, areas with high density of Lantana could only be searched around its perimeter. Heavy rain caused substantial delays resulting in a portion of the study area not being surveyed within the time frame (Figure 6). The rains could also have contributed to the degradation of scats and their scent, which could have impacted the search for the detection dog.

The current findings may not reflect variability according to seasons (i.e. weather and breeding) and with the data collected it is almost impossible to estimate koala population density without collecting genetic information. Extending searches and collecting genetic samples could provide a better understanding of population numbers and health.

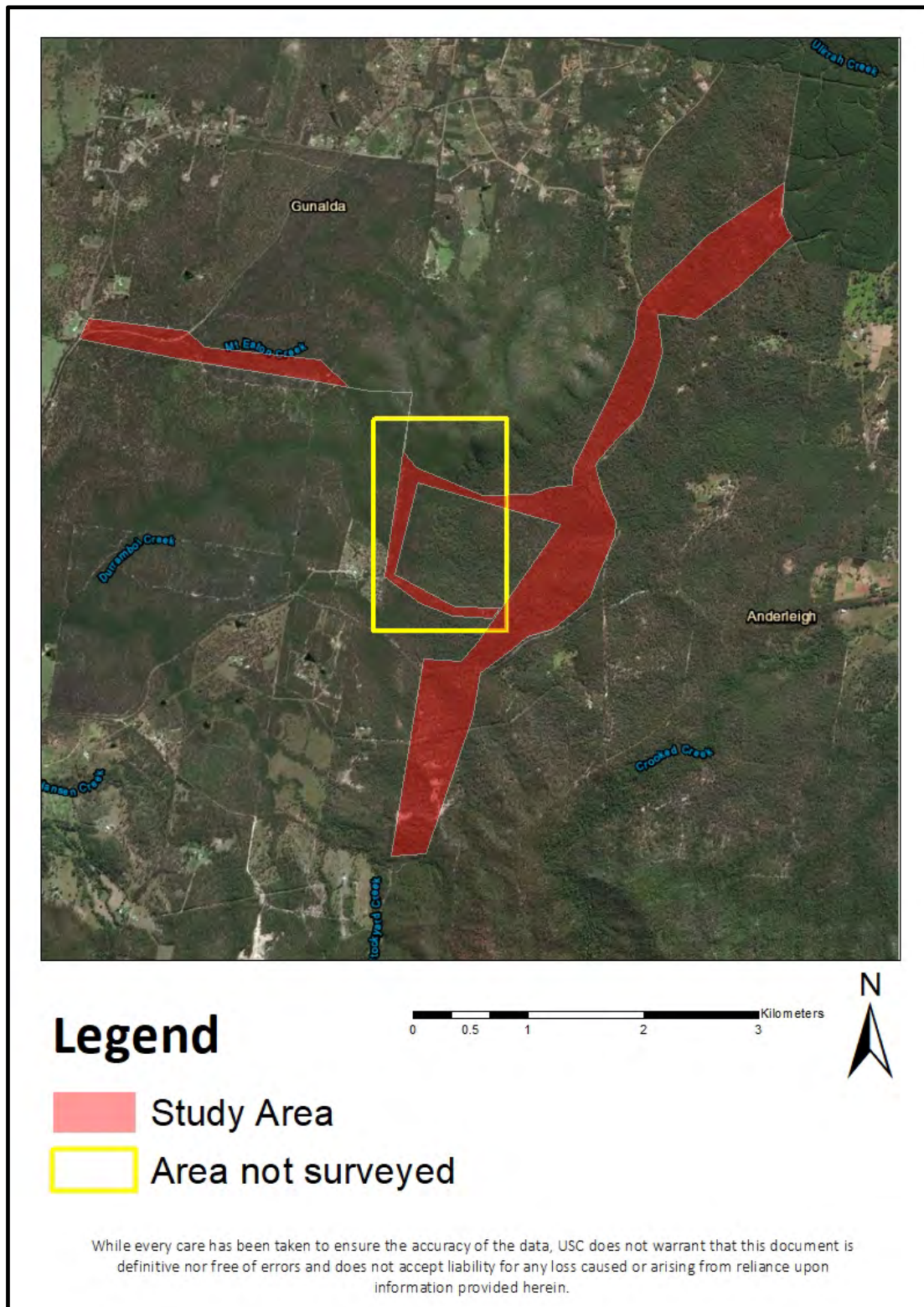


Figure 6 Highlighting areas that were not surveyed due to survey conditions resulting in time constraints



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APPENDIX J

**Preliminary Vegetation Management Plan
Preliminary Fauna Management Plan**

Preliminary Vegetation Management Plan

Purpose	To minimise the disturbance to vegetation (and its habitat values) to the greatest extent possible and prevent the spread of weeds.
Significant Issues	<ul style="list-style-type: none"> • Protected flora species and habitats • Sensitive riparian vegetation and habitat communities • Weed management
Performance Objective	<ul style="list-style-type: none"> • Clearing kept to that absolutely required for the project and within the conditions of project environmental approvals, GRC and FCRC weed management strategy and HQ Plantation Weed Management Plan. • Protect conservation significant communities and species • No vegetation to be cleared outside the marked boundary of construction disturbance area. • Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities within the mosaic of remnant vegetation within the WTA • Maintain the integrity, functions and environmental values of wetlands and waterways through protecting riparian vegetation • Prevent the introduction of weeds that could impact native flora, fauna and habitats
Method	<p><i>Interference with Vegetation</i></p> <ul style="list-style-type: none"> • No clearing of remnant vegetation (unless approved) will be undertaken in the WTA to ensure protected vegetation and Essential Habitat (EH) are protected • Prior to any clearing or disturbance works being undertaken, all necessary permits for clearing of any native vegetation will be received from relevant regulatory authorities. • Ensure all necessary permits and approvals are communicated to site personnel prior to commencing vegetation clearing activities • The vegetation clearing area will be clearly identified and marked on all construction plans. • Trees and stags containing hollows to be retained wherever possible • All vegetation to be removed will be clearly identified as such. • All vegetation to be retained will be clearly identified as such. • Highly visible barriers (i.e. hi-viz tape or temporary fencing) will be used to establish 'no-go zones' in which EH and/or areas containing conservation significant species to be retained is located. • If minor clearing/ trimming is required to upgrade existing waterway crossings, trees / vegetation shall be cut near or at ground level and the root mass shall be retained in the ground, where possible, to ensure bank stability. • Ensure vehicles stay on designated tracks and roads where possible • Ensure vehicles are washed down at appropriate wash down areas prior to moving into an area and after travelling through know weed infestations before entering any new area

	<ul style="list-style-type: none"> • Ensure all personnel are trained in weed management procedures • Ensure Project specific fire management plans are implemented in accordance with the systems developed by the operating forestry • Disturbed areas shall be stabilised progressively <p>Weed Management</p> <ul style="list-style-type: none"> • All declared weed species will be removed from the construction areas at initial clearing stages and also at the end of construction works. • Weed removal shall occur prior to clearing to ensure that retained topsoil and mulch is not contaminated with weed material. • Any herbicides shall be used in accordance with manufacturers and DES guidelines. Only herbicides designed for use near waterways shall be used on site. • Remove any weeds or exotic vegetation matter that can propagate from the Project area. This material shall be disposed of at Council landfill sites.
Monitoring	<p>Weekly inspections will be carried out to check:</p> <ul style="list-style-type: none"> • Works are only occurring within designated area and no-go fencing is in place. • No disturbance is occurring outside designated construction zone. • Weed removal has been effective.
Reporting	<ul style="list-style-type: none"> • Contractor to maintain a log of inspections, maintenance actions. • Records are to be logged and kept for verification of compliance on a as need basis. • Keep records of MSDS's for pesticides and herbicides
Incidents	<ul style="list-style-type: none"> • Vegetation outside construction zone is cleared.
Corrective Actions	<ul style="list-style-type: none"> • Reinstate no-go fencing. • Survey of disturbed area to be undertaken and liaison with relevant authorities regarding permits. • Investigation into unauthorised clearing. • Re-educate personnel on importance of protecting existing vegetation and habitat. • Rehabilitate disturbed areas.

Preliminary Fauna Management Plan

Purpose	To protect fauna and fauna habitat on the Project area and minimise off-site impacts
Performance Objective	<ul style="list-style-type: none"> • Protect existing terrestrial and aquatic fauna and habitat on the site. • Minimise impacts on adjacent fauna and habitat.
Method	<ul style="list-style-type: none"> • An adaptive management bird and bat monitoring program (BBMP) (<i>Bird and Bat Management Plan, Fox & Co Environmental, 2019</i>) has been developed and should be implemented. Should the monitoring program's results demonstrate that further mitigation is required, further assessment will be undertaken to determine appropriate mitigation or management measures • Prior to the commencement of works, the construction zone must be clearly delineated with flagging tape to identify areas to be cleared and "no-go" zones. • Trees and stags containing hollows to be retained wherever possible • Any herbicides shall be used in accordance with manufacturers and DES's guidelines. Only herbicides designed for use near waterways shall be used on site. • Disturbed areas shall be stabilised progressively. • Any permanent fencing required on site shall be fauna friendly design.
Monitoring	<p>Weekly inspections will be carried out to check:</p> <ul style="list-style-type: none"> • Pre and post operational monitoring in accordance with adaptive BBMP. • Works are only occurring within designated area and no-go fencing is in place. • No disturbance is occurring outside designated construction zone. • Temporary barriers are not causing problems with fauna or fish movements • Fauna movement through the site. • GHFF camp activity • As per BBMP
Reporting	<p>Contractor to maintain a log of inspections, maintenance actions.</p> <ul style="list-style-type: none"> • Records are to be logged and kept for verification of compliance on an as need basis. • As per BBMP
Incidents	<ul style="list-style-type: none"> • Vegetation outside construction zone is cleared. • Fauna injuries / deaths occur. • As per BBMP
Corrective Actions	<ul style="list-style-type: none"> • Survey of disturbed area to be undertaken and liaison with relevant authorities regarding permits. • Investigation into unauthorised clearing of impacts on fauna. • Re-educate personnel on importance of protecting existing vegetation and habitat. • Rehabilitate disturbed area and review compensatory habitat requirements. • As per BBMP



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