

November 2023



ASSESSMENT OF MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE – PRELIMINARY DOCUMENTATION (2021/9137)

Mount Hopeful Wind Farm

FINAL - ATTACHMENT B2

Prepared by Umwelt (Australia) Pty Limited on behalf of Neoen Australia Pty Ltd

Report No. Date:

22753 / R03 November 2023







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7.0 Likelihood of Occurrence Assessment

The likelihood of occurrence was evaluated for TECs, threatened species and migratory species identified in the PMST (Section 5.0). Key results of the likelihood of occurrence assessment are presented below in Section 7.1 to Section 7.4. The full likelihood of occurrence assessment is available in Appendix C.

As described in **Section 4.4**, suitable habitat for these values has been mapped within the Study Area using modelling criteria detailed per value in **Appendix E**.

7.1 Threatened Ecological Communities

Regional ecosystems analogous with three TECs were recorded within the Study Area however, these did not satisfy the condition thresholds and/or diagnostic criteria of the relevant TEC. Therefore, no TECs are considered likely to occur within the Study Area.

7.2 Threatened Flora

Two threatened flora species are known to the Study Area, confirmed during the field survey program: *Cycas megacarpa* and *Samadera bidwillii*. *Cycas megacarpa* was recorded extensively across the Study Area and was the subject of targeted surveys in 2022 to ensure population estimates were robust. The number of *Cycas megacarpa* individuals within the Study Area based on data interpolation is 141,392 across an area of 16,975.8 ha.

In addition, two species were determined to have a moderate likelihood of occurring based on the presence of suitable habitat and recent and/or nearby records (**Table 7.1**).

Threatened flora habitat mapping is shown in **Figure 7.1** to **Figure 7.4**. In addition to **Figure 6.2** which shows the *Cycas megacarpa* and *Samadera bidwillii* field records, **Figure 7.1A** shows *Cycas megacarpa* modelled habitat within the Development Corridor and **Figure 7.1B** displays estimated densities of *Cycas megacarpa* across the Study Area based on the data interpolation.

Table 7.1 Likelihood of Occurrence Assessment Results: Threatened Flora

Common Name	Scientific Name	EPBC Act Status	NC Act Status	Likelihood of Occurrence Outcome
-	Cycas megacarpa	Endangered	Endangered	Known
quassia	Samadera bidwillii	Vulnerable	Vulnerable	
cossinia	Cossinia australiana	Endangered	Endangered	Moderate
-	Decaspermum struckoilicum	Endangered	Endangered	

7.3 Threatened Fauna

Six threatened fauna species are known from the Study Area, confirmed during the field survey program (**Table 7.2**).



The likelihood of occurrence assessment determined that one further threatened fauna species has a moderate likelihood of occurrence within the Study Area (**Table 7.2**). No species were identified as having a high likelihood of occurrence.

Threatened fauna habitat mapping is shown in Figure 7.5 to Figure 7.13.

Table 7.2 Likelihood of Occurrence Assessment Results: Threatened Fauna

Common Name	Scientific Name	EPBC Act Status	NC Act Status	Likelihood of Occurrence Outcome
greater glider (southern and central)	Petauroides volans	Vulnerable	Vulnerable	Known
yellow-bellied glider (south-eastern)	Petaurus australis australis	Vulnerable	Vulnerable	
northern quoll	Dasyurus hallucatus	Endangered	Least Concern	
squatter pigeon (southern)	Geophaps scripta scripta	Vulnerable	Vulnerable	
white-throated needletail	Hirundapus caudacutus	Vulnerable, Migratory	Vulnerable	
koala	Phascolarctos cinereus	Endangered	Endangered	
collared delma	Delma torquata	Vulnerable	Vulnerable	Moderate

7.4 Migratory Fauna

Excluding the white-throated needletail (*Hirundapus caudacutus*) which is also listed threatened, two migratory fauna species are known from the Study Area, confirmed during field surveys. The likelihood of occurrence assessment determined that one species has a high likelihood of occurrence, and three species have a moderate likelihood of occurrence (**Table 7.3**). Migratory fauna habitat mapping is shown in **Figure 7.20**.

Table 7.3 Likelihood of Occurrence Assessment Results: Migratory Fauna

Common Name	Scientific Name	EPBC Act Status	NC Act Status	Likelihood of Occurrence Outcome
rufous fantail	Rhipidura rufifrons	Migratory	Special Least Concern	Known
spectacled monarch	Symposiarchus trivirgatus			
fork-tailed swift	Apus pacificus			High
black-faced monarch	Monarcha melanopsis			Moderate
oriental cuckoo	Cuculus optatus			
satin flycatcher	Myiagra cyanoleuca			



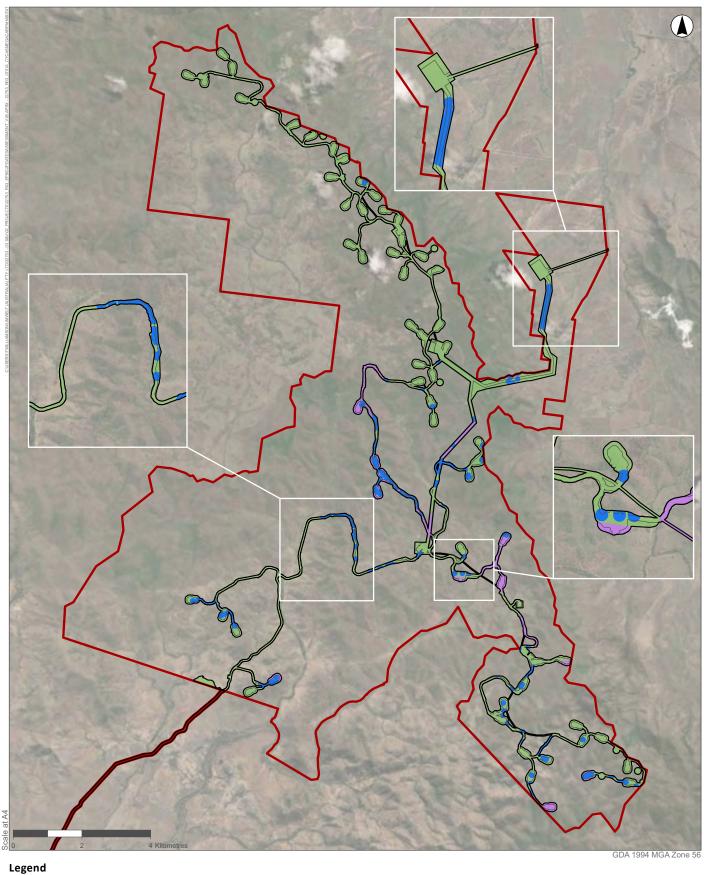
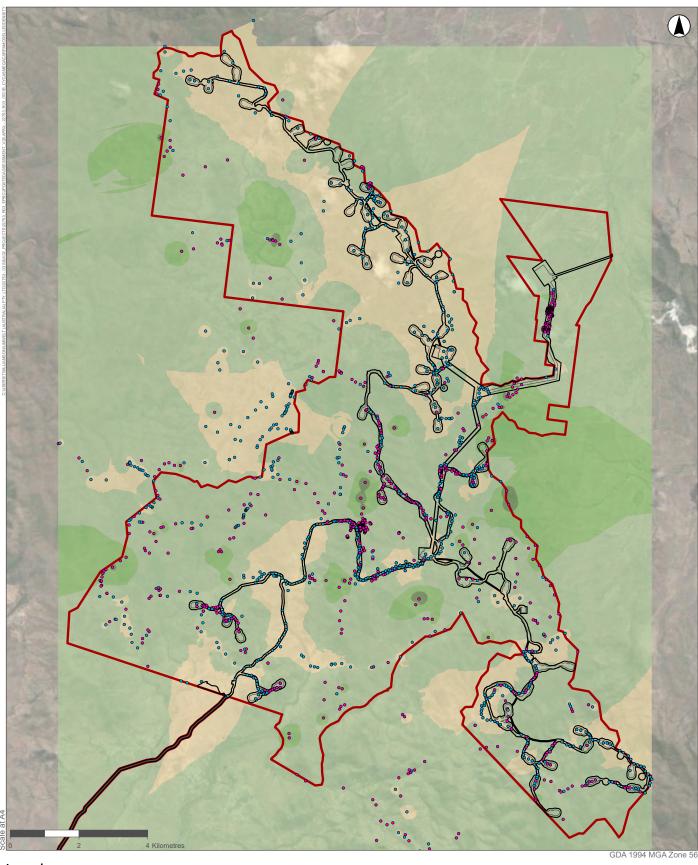




FIGURE 7.1A
CYCAS MEGACARPA HABITAT





Disturbance Footprint
Development Corridor
Study Area
Surveyed Locations

• Cycas megacarpa Absent

• Cycas megacarpa Present

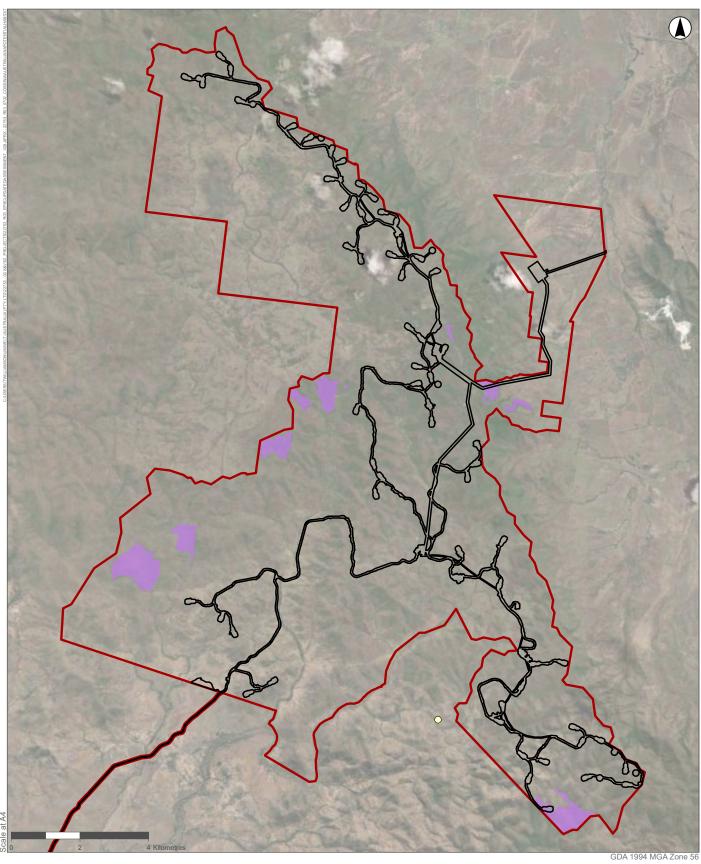
Predicted Distribution Density of Cycas megacarpa

Absent (0 - 1)
Low (1 - 10)
Moderate (10 - 25)
High (25-50)

FIGURE 7.1B

CYCAS MEGACARPA MODELLED DENSITY



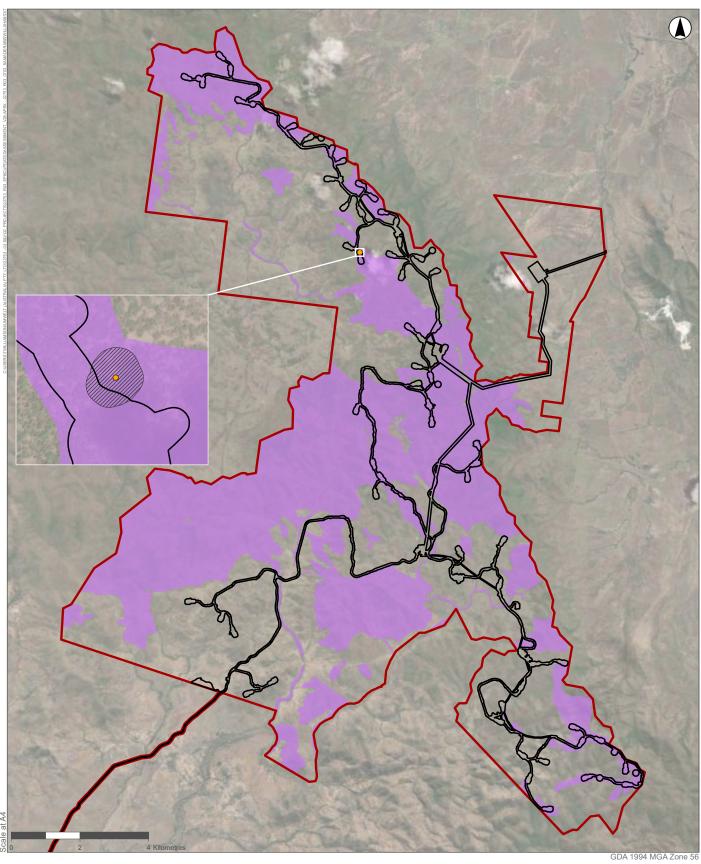


Cossinia australiana Record (ALA)
 Disturbance Footprint
 Study Area
 Cossinia australiana Potential Habitat

FIGURE 7.2

COSSINIA AUSTRALIANA POTENTIAL HABITAT



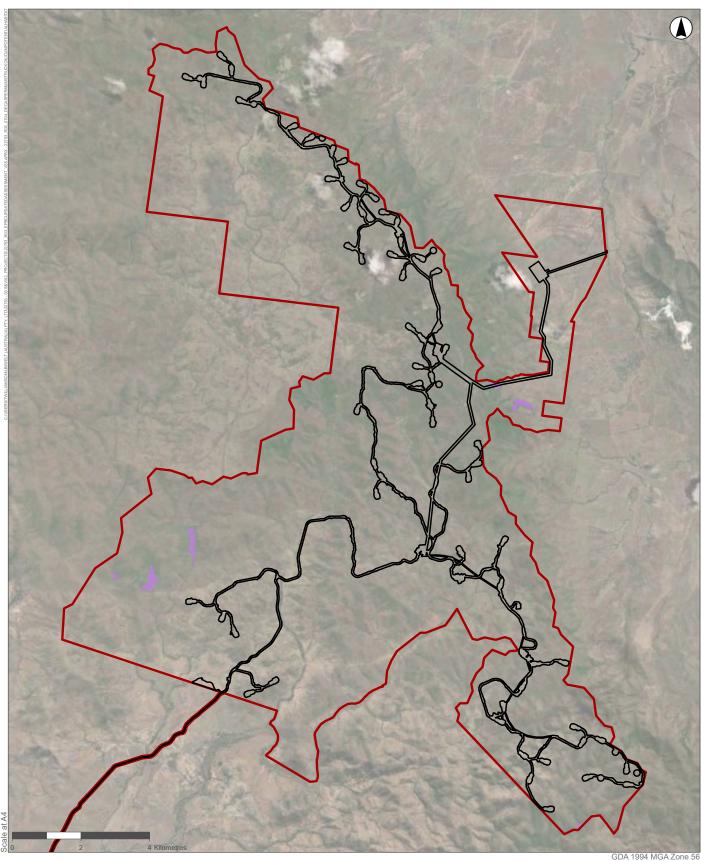


Disturbance Footprint
Study Area
Samadera bidwillii (Vulnerable EPBC Act and NC Act) Record
Habitat Critical to the Survival of Samadera bidwillii (no impact, complete avoidance)
Samadera bidwillii Habitat

FIGURE 7.3

SAMADERA BIDWILLII HABITAT





Disturbance Footprint
Study Area
Decaspermum struckoilicum Potential Habitat

FIGURE 7.4

DECASPERMUM STRUCKOILICUM POTENTIAL HABITAT





Koala Record (ALA)

Disturbance Footprint
Study Area

Koala Habitat

Breeding, Foraging and Dispersal
Climate Refugia



FIGURE 7.5A KOALA HABITAT





Koala Record (ALA)

Disturbance Footprint
Study Area

Koala Habitat

Breeding, Foraging and Dispersal
Climate Refugia

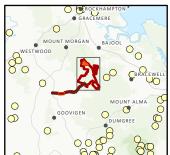
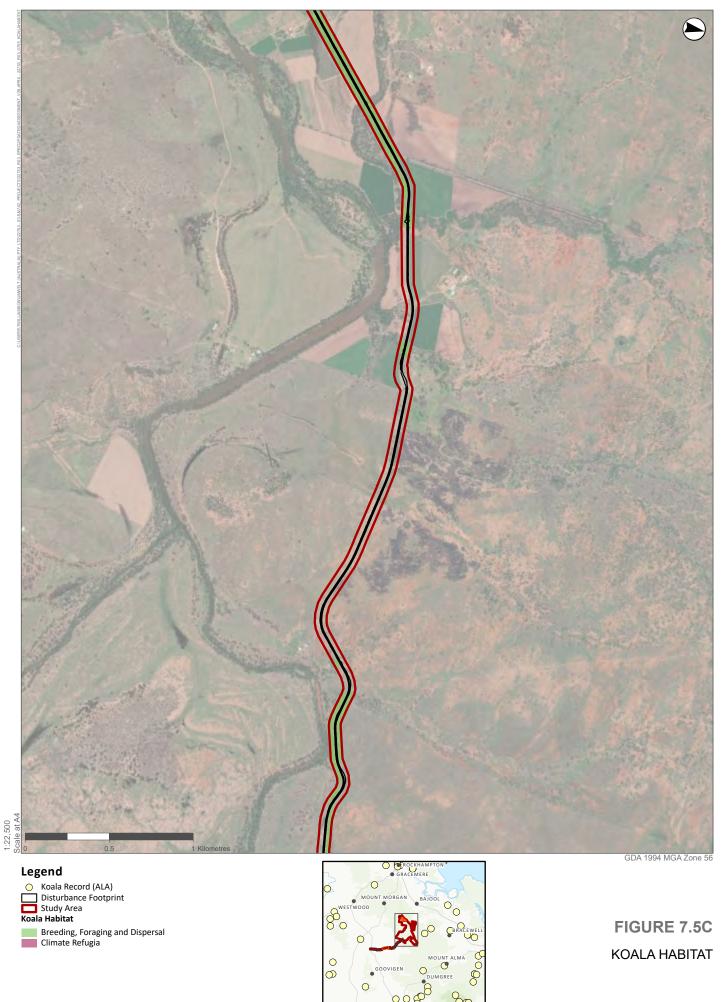
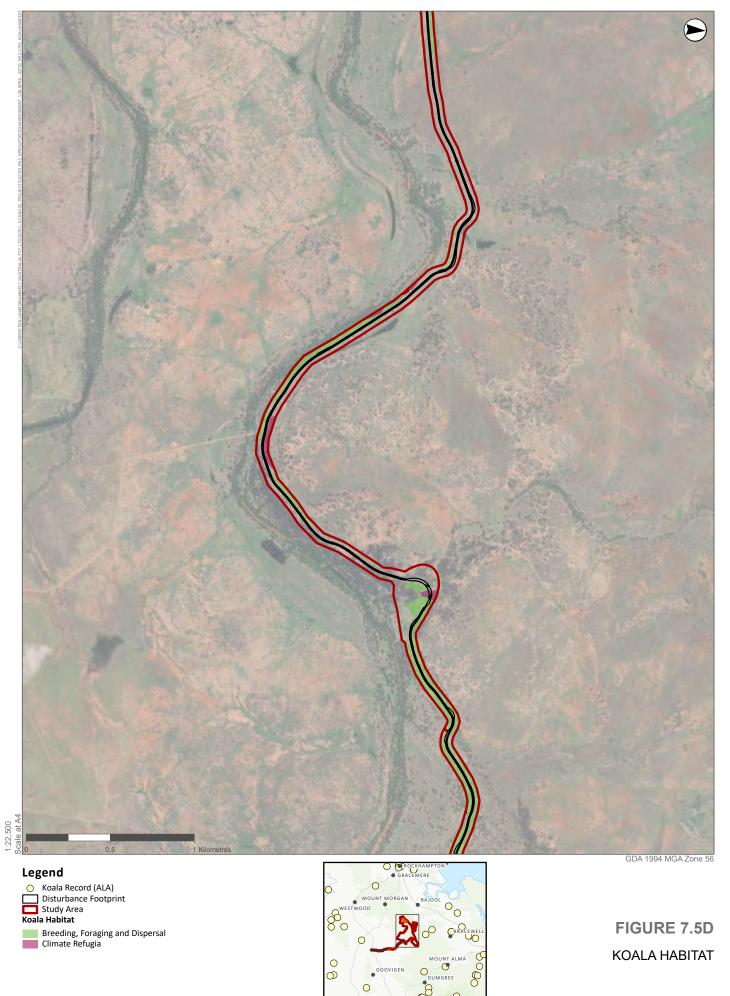


FIGURE 7.5B KOALA HABITAT

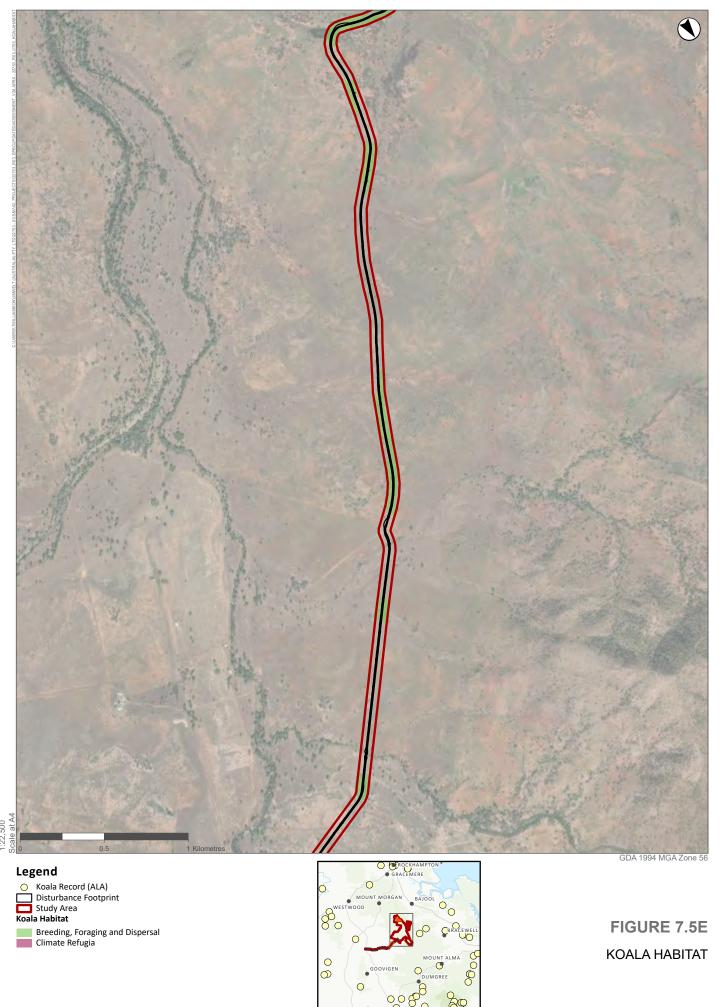




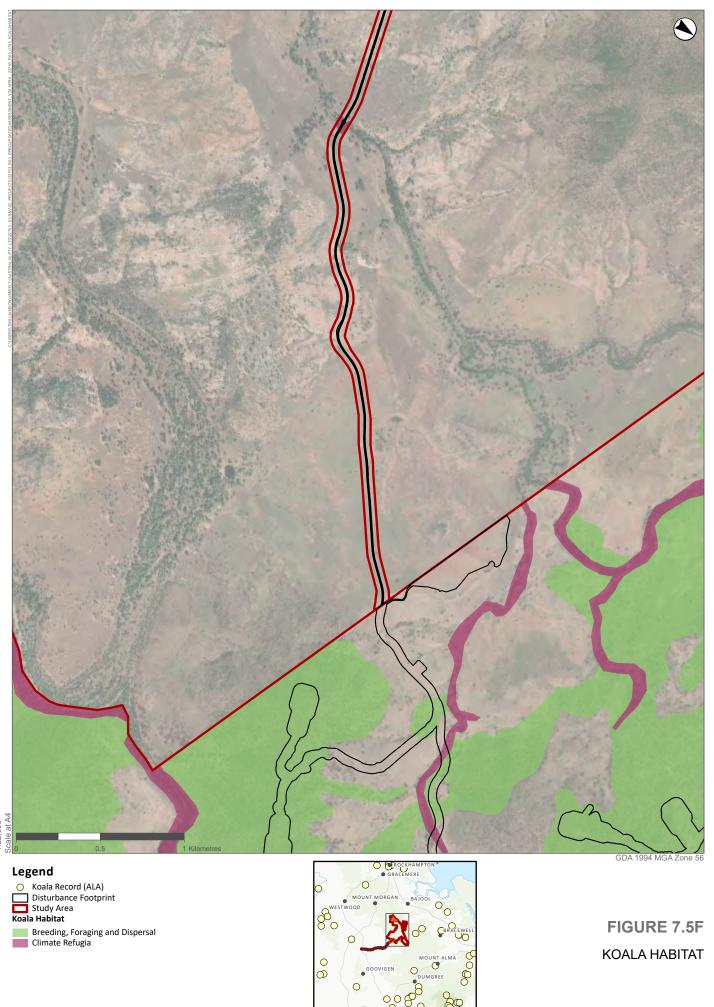




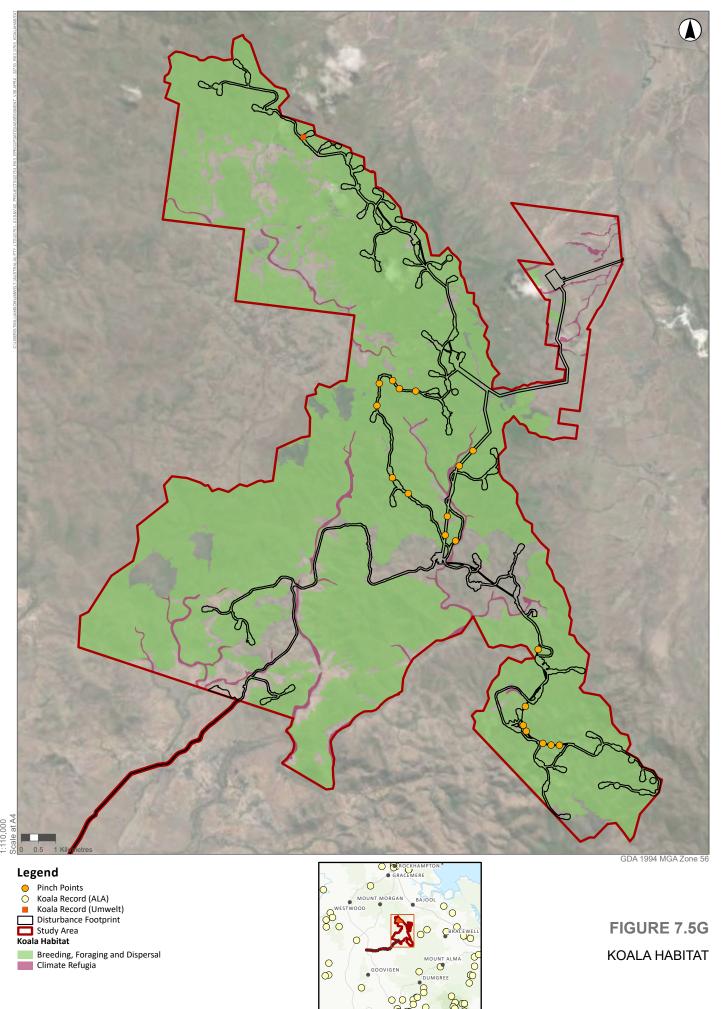




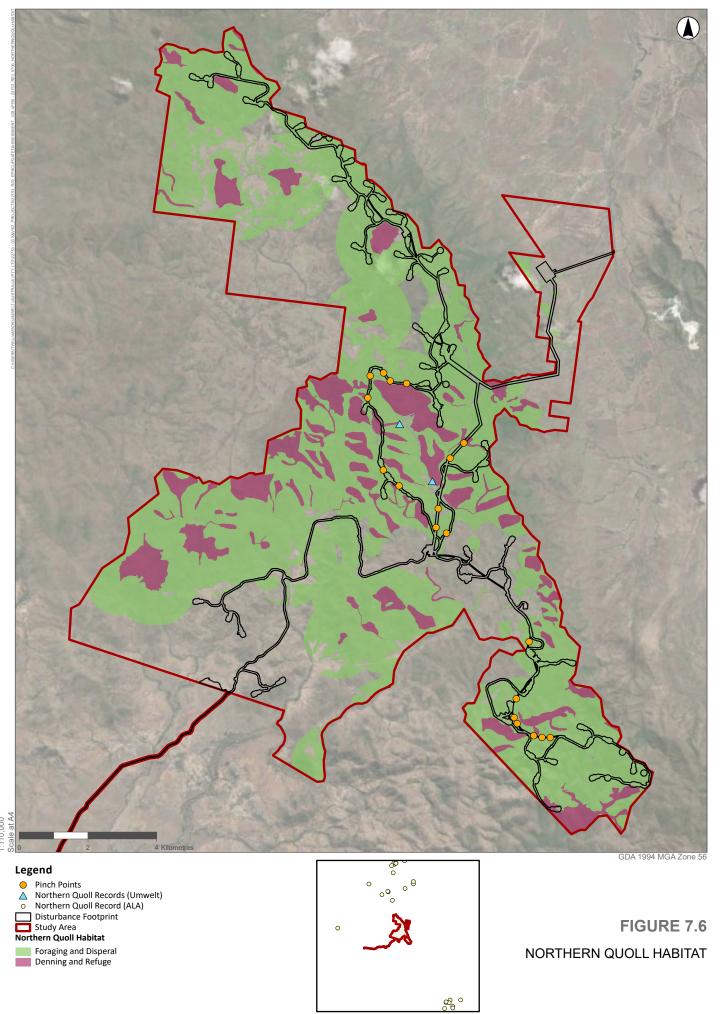




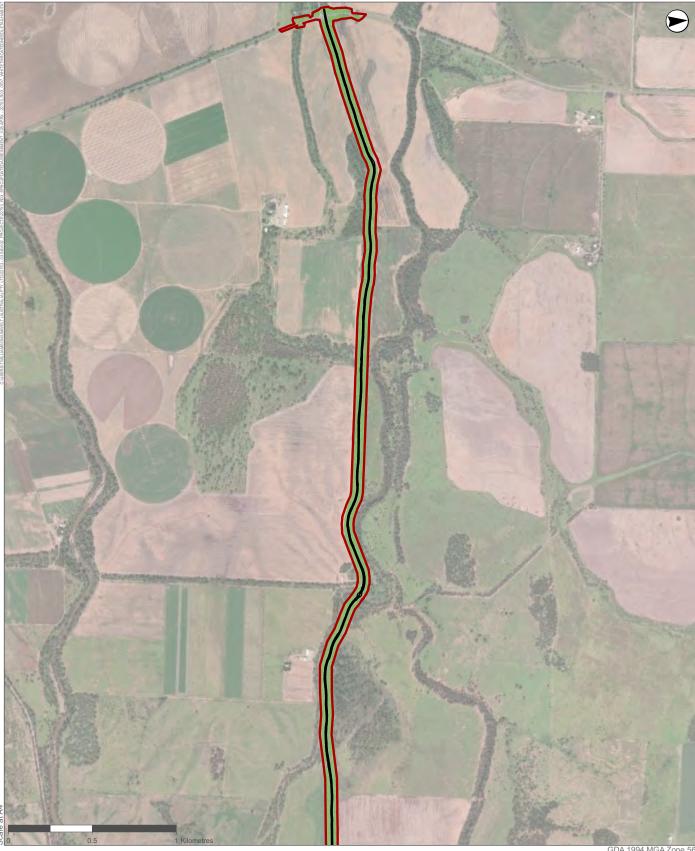












- Mountains, Peaks and Capes (DoR)
- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging

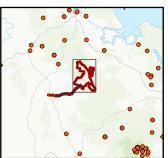


FIGURE 7.7A





- Mountains, Peaks and Capes (DoR)
- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging

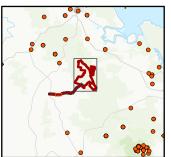


FIGURE 7.7B





- Mountains, Peaks and Capes (DoR)
- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging

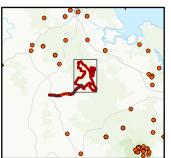
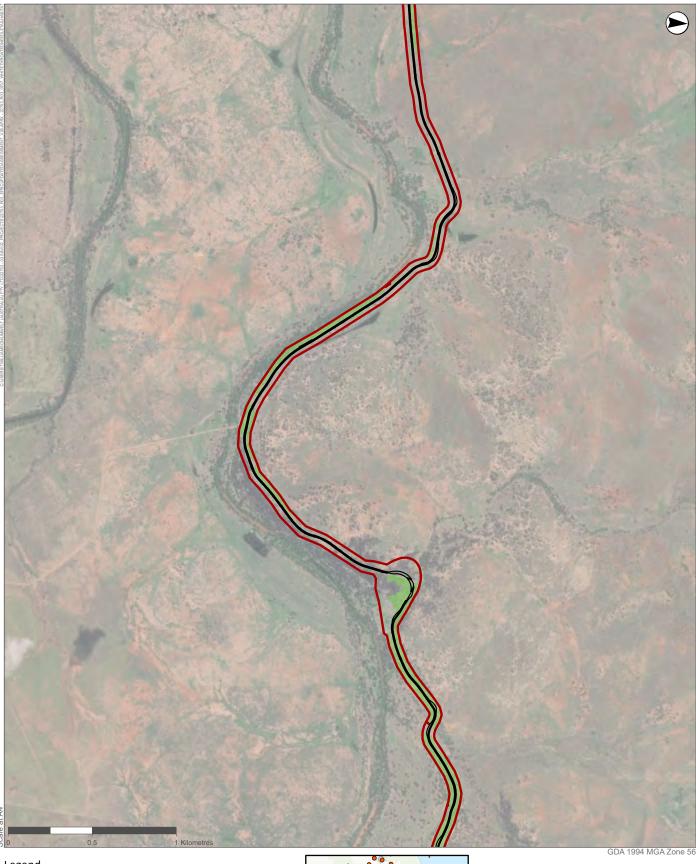


FIGURE 7.7C





- Mountains, Peaks and Capes (DoR)
- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging



FIGURE 7.7D





Mountains, Peaks and Capes (DoR)

- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

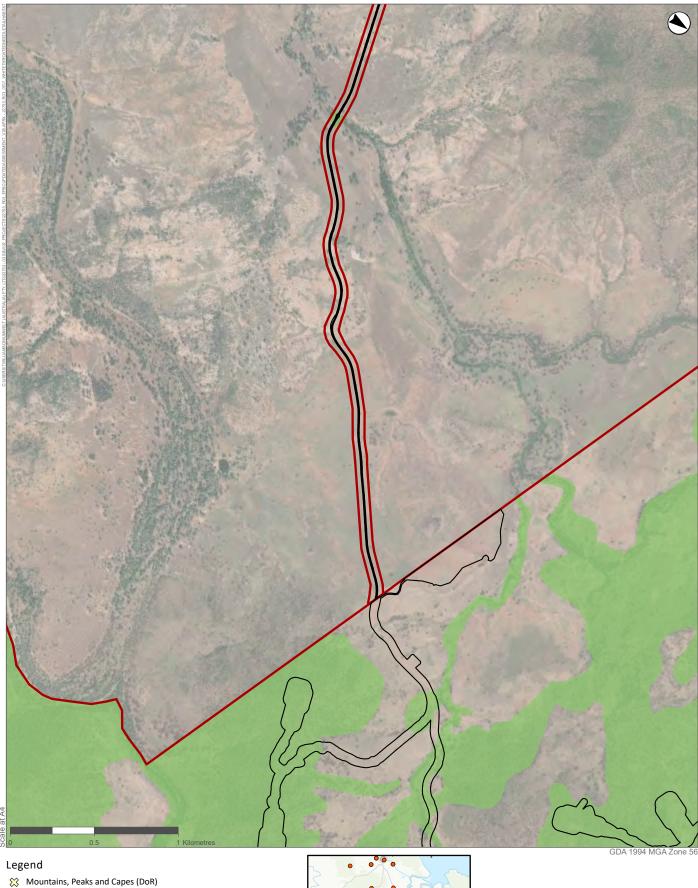
 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging



FIGURE 7.7E





- Mountains, Peaks and Capes (DoR)

 White-throated Needletail Record (Umwelt)

 White-throated Needletail Record (ALA)

 Vantage Point Sites

 Mountain Range (DoR)

 Disturbance Footprint

 Study Area

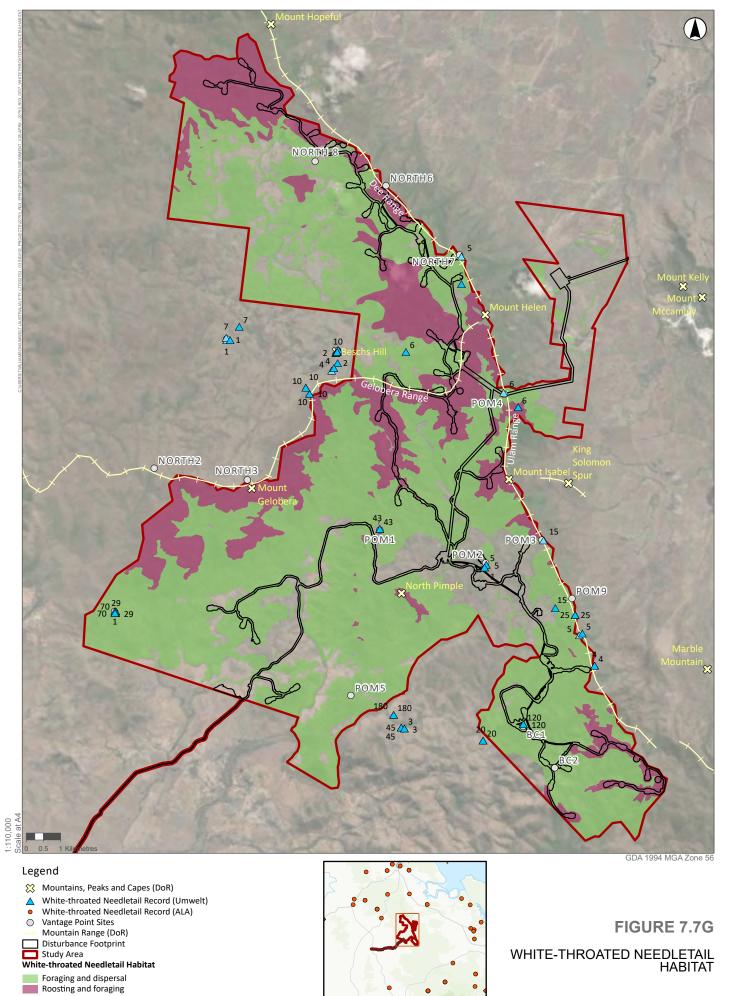
 White-throated Needletail Habitat

Foraging and dispersal
Roosting and foraging



FIGURE 7.7F









Classification

Classificat

Seasonal Foraging and Dispersal



FIGURE 7.8A **GHOST BAT POTENTIAL HABITAT**





Ghost Bat Record (ALA)
 Disturbance Footprint
 Study Area

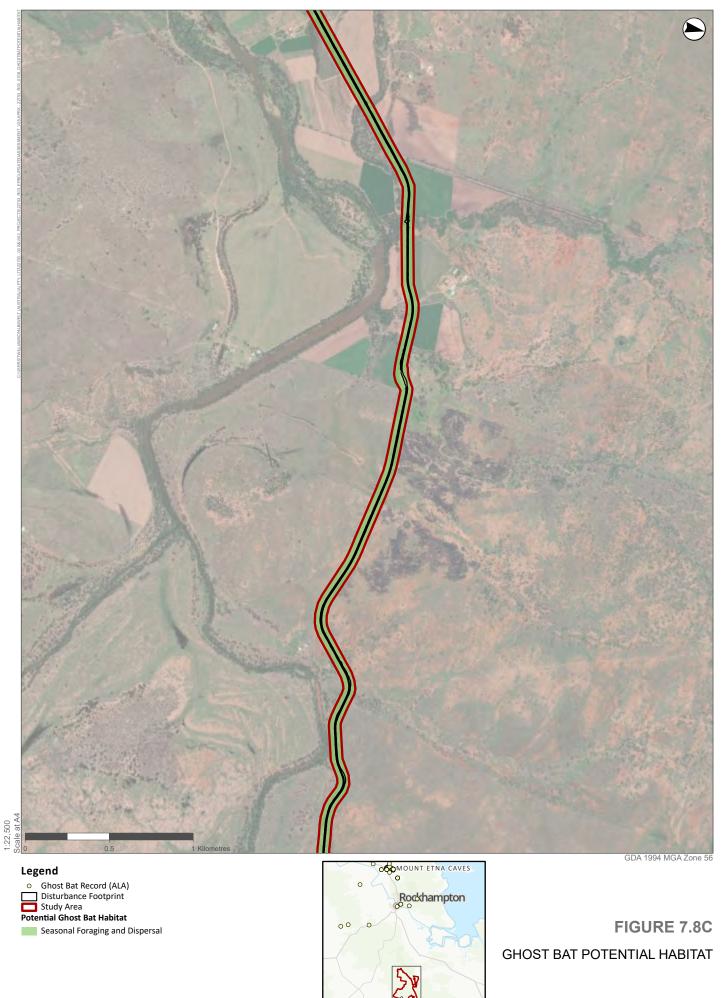
Potential Ghost Bat Habitat

Seasonal Foraging and Dispersal



FIGURE 7.8B **GHOST BAT POTENTIAL HABITAT**









Seasonal Foraging and Dispersal

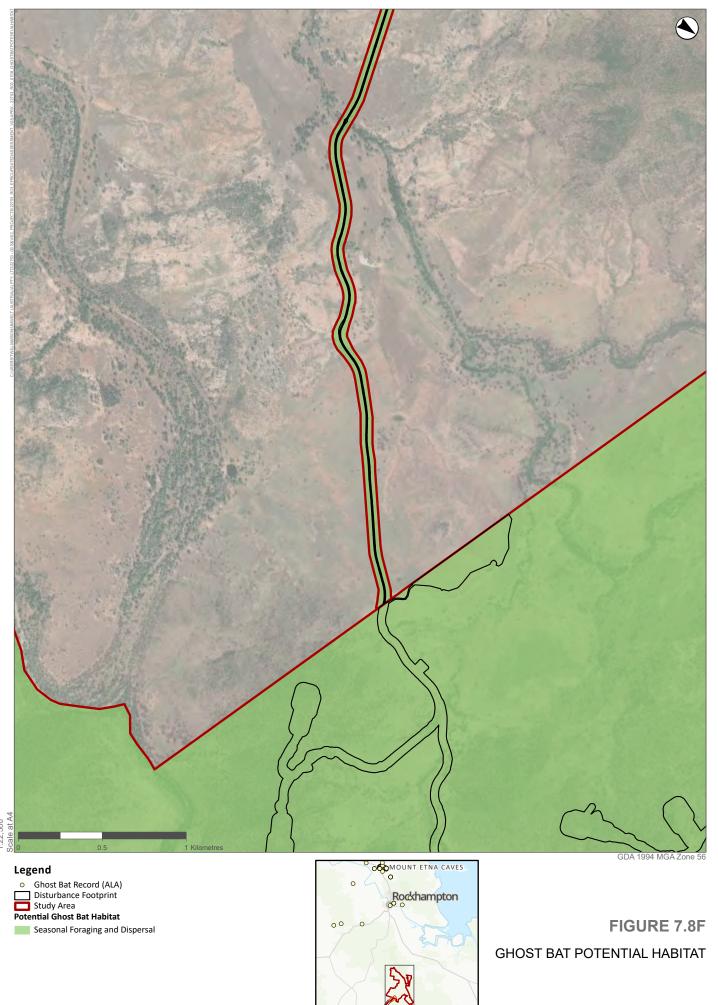


FIGURE 7.8D **GHOST BAT POTENTIAL HABITAT**

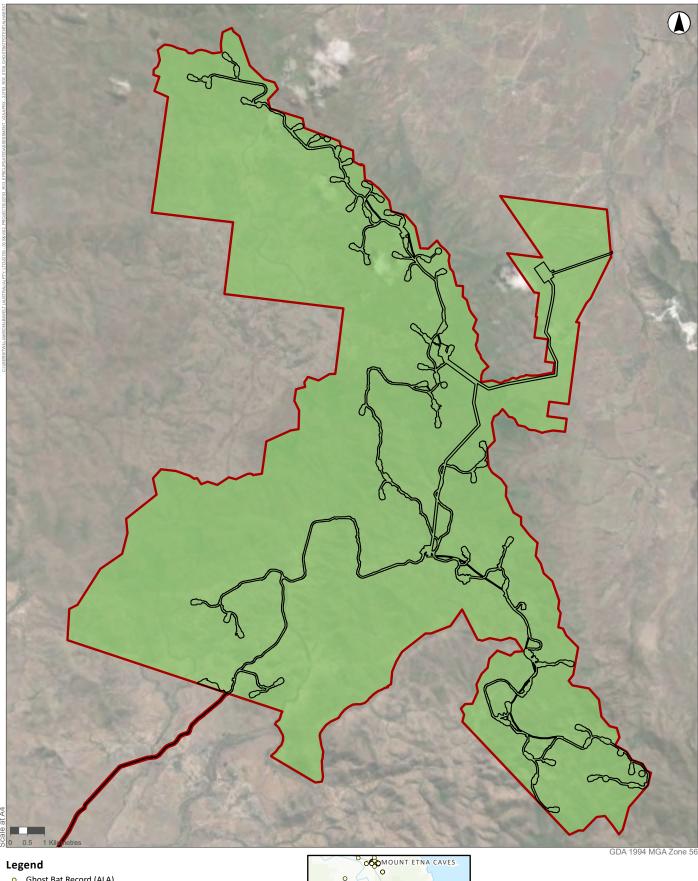












Ghost Bat Record (ALA)
 Disturbance Footprint
 Study Area

Potential Ghost Bat Habitat

Seasonal Foraging and Dispersal



FIGURE 7.8G **GHOST BAT POTENTIAL HABITAT**





Foraging and dispersal
Likely / current denning



FIGURE 7.9A

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





Foraging and dispersal
Likely / current denning



FIGURE 7.9B

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





Foraging and dispersal
Likely / current denning



FIGURE 7.9C

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





Foraging and dispersal
Likely / current denning



FIGURE 7.9D

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





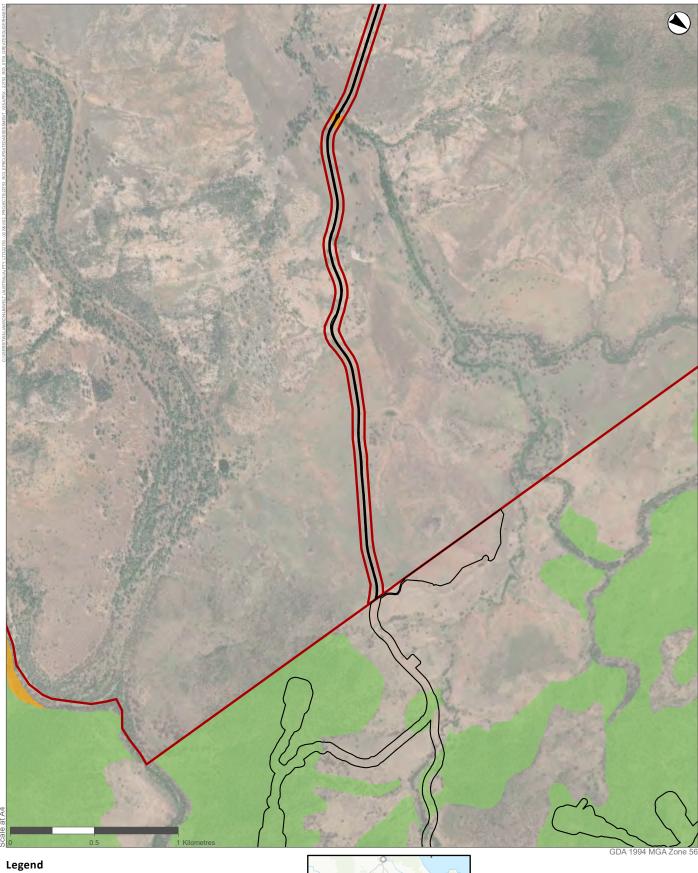
Foraging and dispersal



FIGURE 7.9E

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





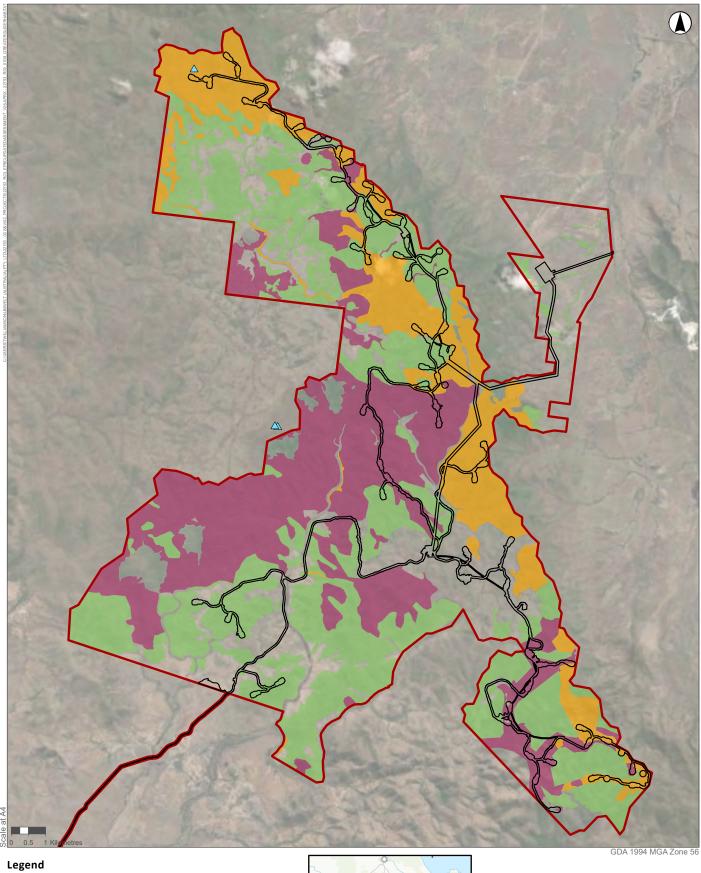
Foraging and dispersal
Likely / current denning



FIGURE 7.9F

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





△ Greater Glider (Southern and Central) Record (Umwelt)
o Greater Glider (Southern and Central) Record (ALA)

Disturbance Footprint
Study Area
Greater Glider (Southern and Central) Habitat

Foraging and dispersal
Likely / current denning
Potential future / denning



FIGURE 7.9G

GREATER GLIDER (SOUTHERN AND CENTRAL) HABITAT





Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10A





Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10B





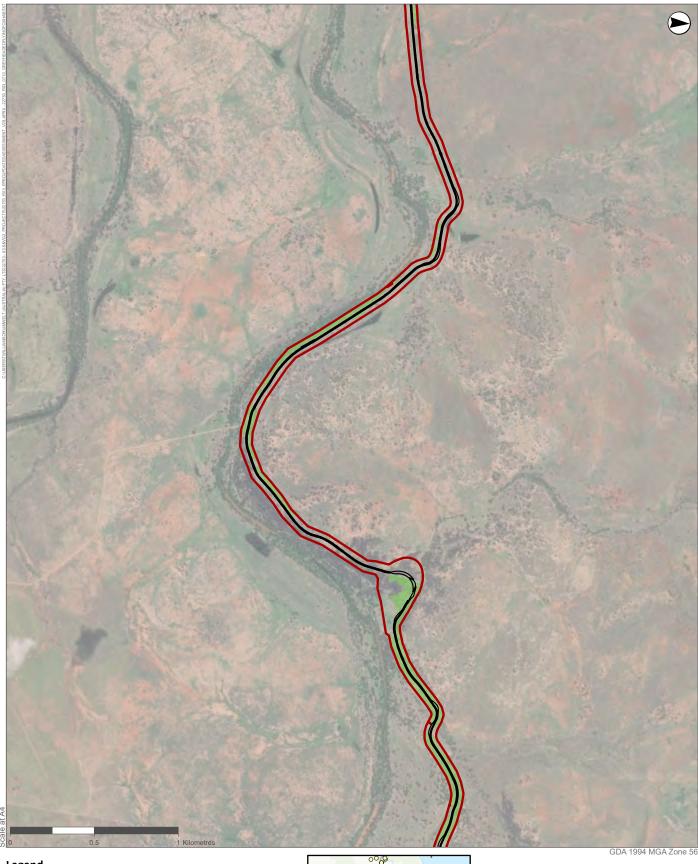
Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10C





Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10D





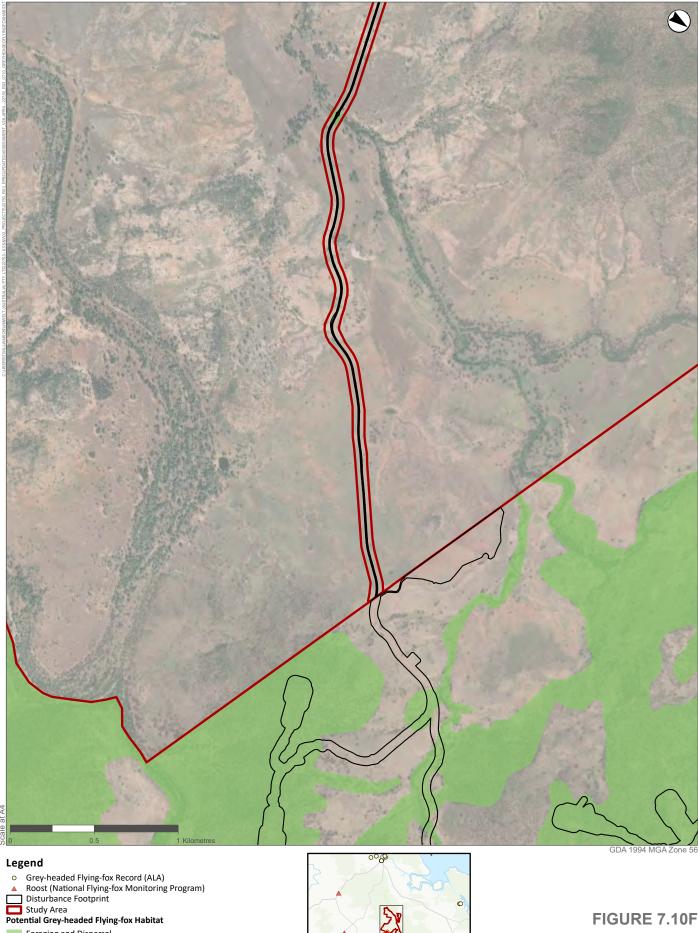
Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10E



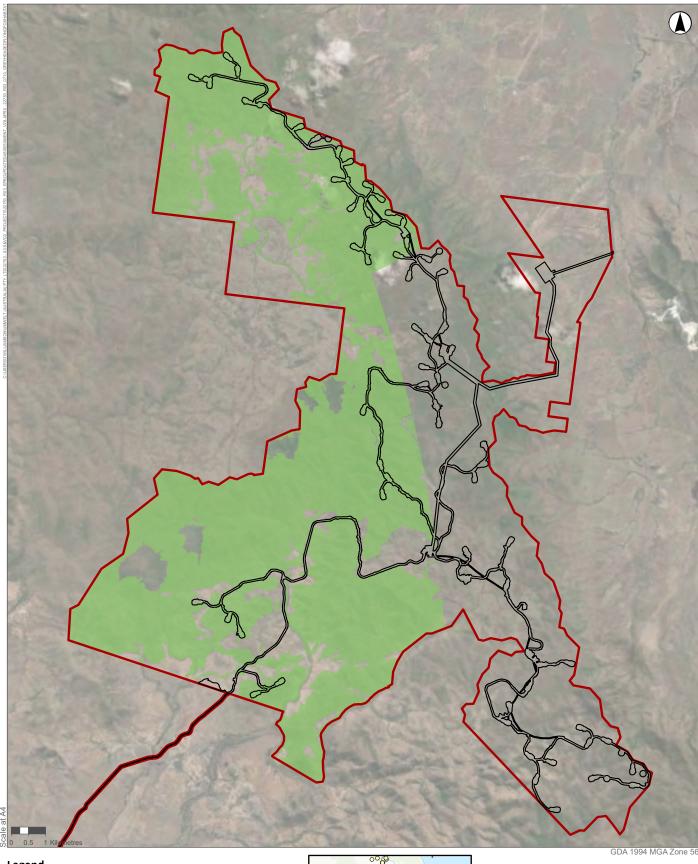


Foraging and Dispersal



FIGURE 7.10F





Grey-headed Flying-fox Record (ALA)
 Roost (National Flying-fox Monitoring Program)
 Disturbance Footprint
 Study Area
Potential Grey-headed Flying-fox Habitat

Foraging and Dispersal



FIGURE 7.10G





Red Goshawk Record (ALA)
 Disturbance Footprint
 Study Area

Potential Red Goshawk Habitat

Marginal Foraging and Dispersal



FIGURE 7.11





Marginal Foraging and Dispersal



FIGURE 7.11



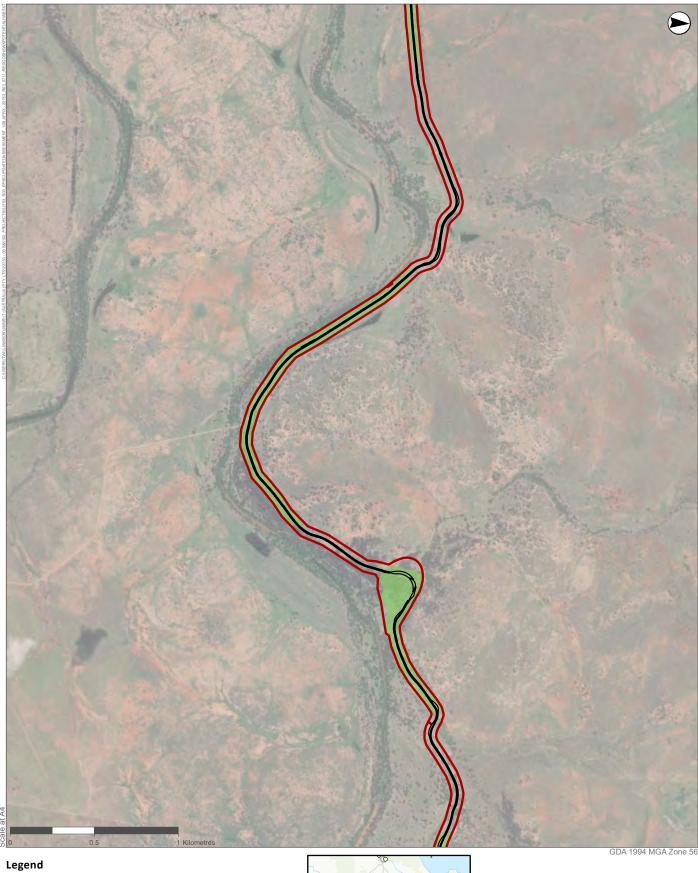


Marginal Foraging and Dispersal



FIGURE 7.11





Marginal Foraging and Dispersal



FIGURE 7.11



RED GOSHAWK POTENTIAL HABITAT

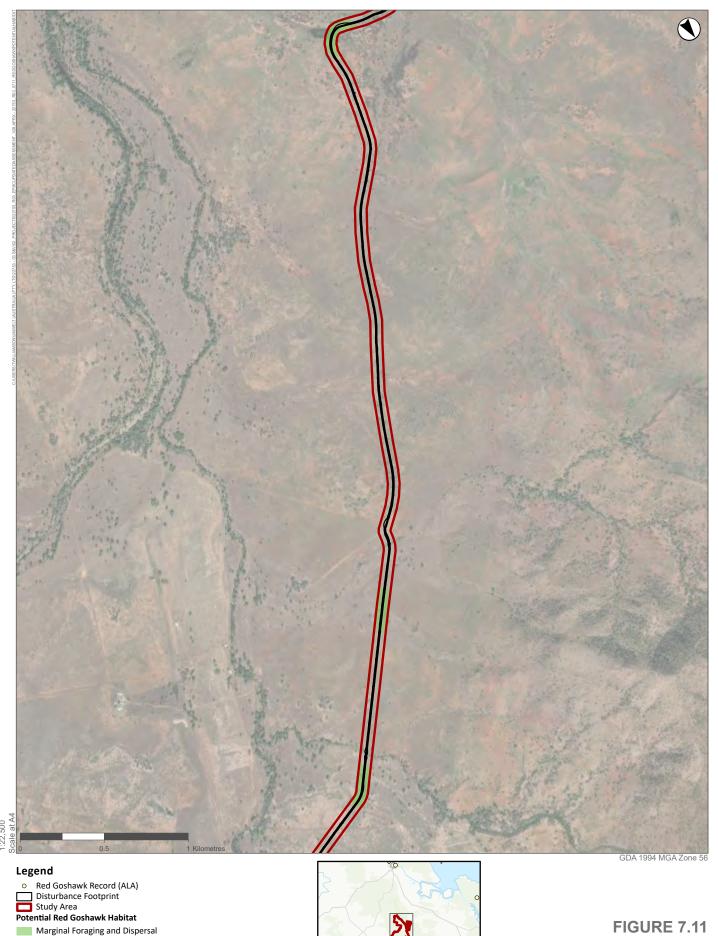
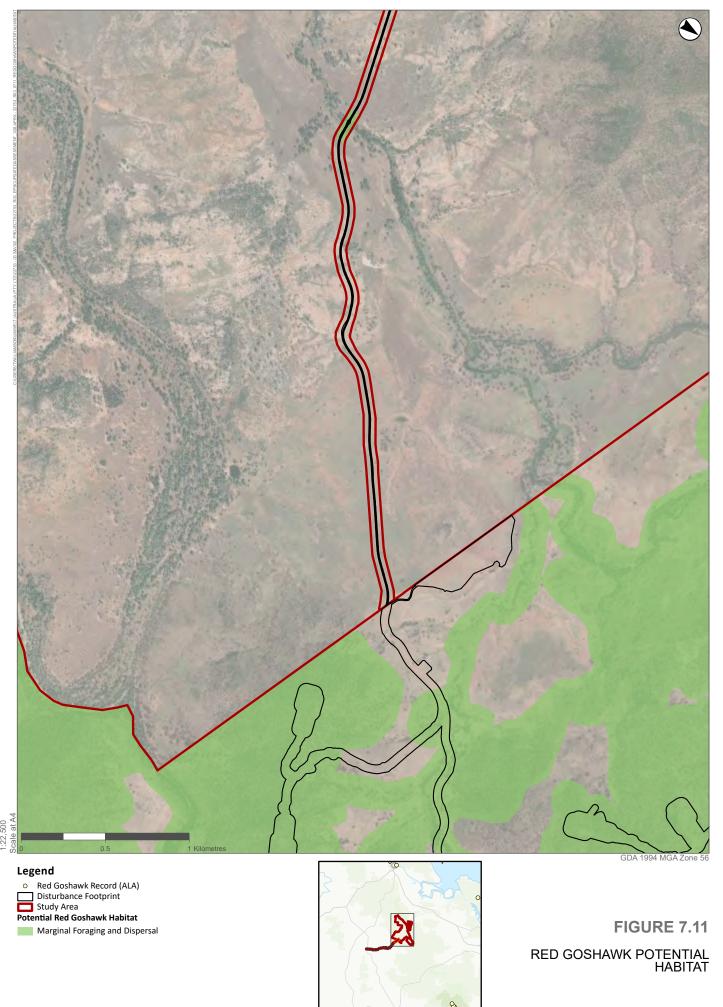
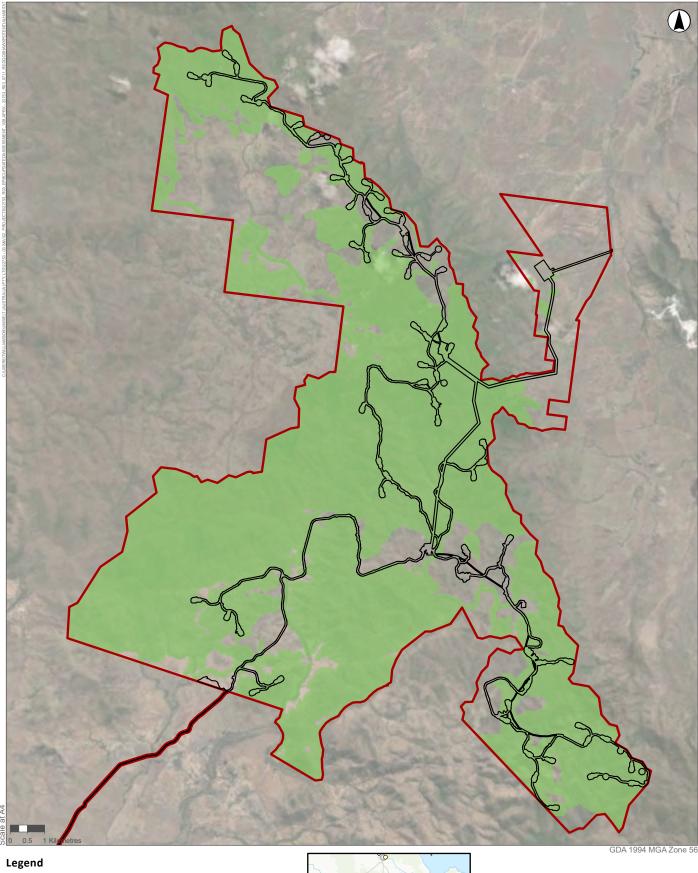


Image Source: ESRI Basemap (2022) Data source: Department of Resources (2022)







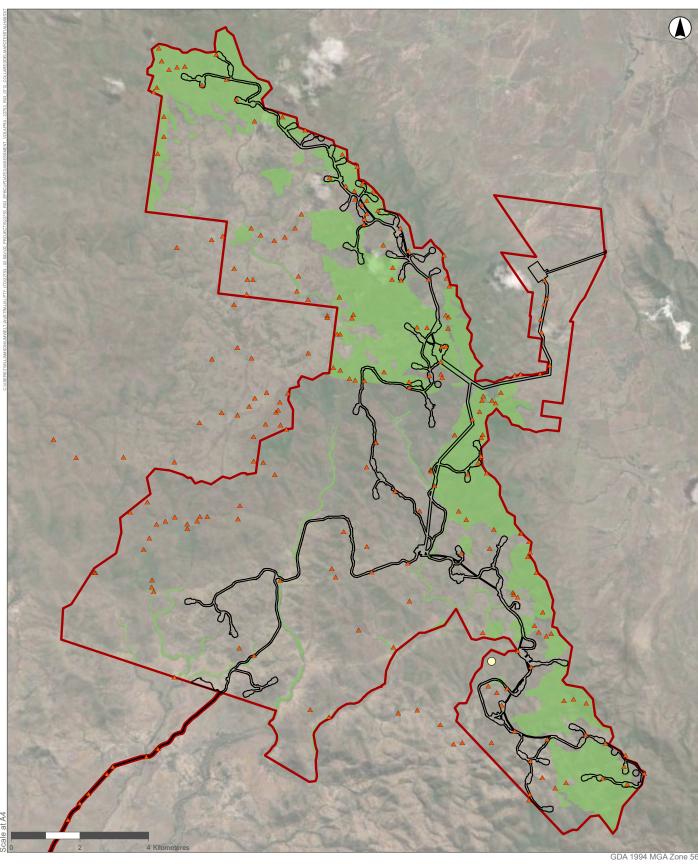


Marginal Foraging and Dispersal



FIGURE 7.11





Collared Delma Record (ALA)
Active Diurnal Search Sites
Disturbance Footprint
Study Area
Potential Collared Delma Habitat
Breeding and foraging

FIGURE 7.12

COLLARED DELMA POTENTIAL HABITAT