

Appendix 6-B

Red Goshawk and Masked Owl Prey Species





Red Goshawk

The Red Goshawk is primarily a bird specialist predator favouring medium to large birds although some mammals, reptiles and large insects are also consumed (Ryan 2006). Detailed studies on Red Goshawk prey are limited. Czechura *et al.* (2009) currently provides the most comprehensive review of Red Goshawk prey in northern Queensland, documenting prey species found in Red Goshawk nests while Debus and Czechura (1988) provides a valuable compilation of reported prey species across northern Australia from various reference sources. A number of other authors make brief references to Red Goshawk prey (Aumann and Baker-Gabb 1991; NSW National Parks and Wildlife Service 2002; Debus 2012).

Table 1 is a compilation of Red Goshawk prey species summarised from these sources (references detailed in **Table 2**).

Table 1: Red Goshawk Prey Species Referenced in the Literature

Species		Reference # (see Table 2 below)					
Common Name (sort order)	Scientific Name	1	2	3	4	5	6
Australian brush-turkey	<i>Alectura lathamii</i>				x		x
Australian Magpie (nestling)	<i>Gymnorhina tibicen</i>						x
Australian Magpie-lark	<i>Grallina cyanoleuca</i>			x			x
Bar-shouldered Dove	<i>Geopelia humeralis</i>			x			x
Black-backed Butcherbird	<i>Cracticus mentalis</i>	x					
Blue-faced Honeyeater	<i>Entomyzon cyanotis</i>	x					
Blue-winged Kookaburra	<i>Dacelo leachii</i>	x		x			x
Butcherbird sp(p)	<i>Cracticus sp(p)</i>						x
Common Bronzewing	<i>Phaps chalcoptera</i>			x			x
Coots, Moorhens, Rails	<i>Gruiformes</i>			x			
Crested Pigeon	<i>Ocyphaps lophotes</i>						x
Cuckoos	<i>Cuculiformes</i>			x			
Domestic Fowl	<i>Gallus gallus</i>						x
Eastern Koel	<i>Eudynamys orientalis</i>	x					
Eastern Rosella	<i>Platycercus eximius</i>						x
Frilled lizard	<i>Chlamidosaurus kingii</i>						x
Frogmouths, Nightjars	<i>Caprimulgiformes</i>			x			
Galah	<i>Eolophus roseicapillus</i>	x					x
Grasshoppers	<i>Orthoptera spp</i>						x
Grey-crowned Babbler	<i>Pomatostomus temporalis</i>						x
Helmeted Guinea-fowl (chics)	<i>Numida meleagris</i>						x
Honeyeater sp(p)	<i>Meliphagidae sp(p)</i>						x
Kingfishers, Bee-eaters, Rollers	<i>Coraciiformes</i>			x			
Large honeyeater (friarbird?)	<i>Philemon sp.?</i>	x					
Laughing Kookaburra	<i>Dacelo novaeguineae</i>	x					x
Maned Duck	<i>Chernonetta jubata</i>						x
Muscovy Duck (ducklings)	<i>Cairina moschata</i>						x
Pacific Black Duck	<i>Anas superciliosa</i>						x
Pale-headed Rosella	<i>Platycercus adscitus</i>	x					

Species		Reference # (see Table 2 below)					
Common Name (sort order)	Scientific Name	1	2	3	4	5	6
Partridge Pigeon	<i>Geophaps smithii</i>						x
Quail	<i>Coturnix/Turnix sp</i>						x
Quail, Pheasants	<i>Galliformes</i>			x			
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	x					x
Red-bellied Black Snake	<i>Pseudechis porphyriacus</i>						x
Red-collared Lorikeet	<i>Trichoglossus rubritorguis</i>			x			x
Red-tailed Black-Cockatoo	<i>Calyptorhynchus magnificus</i>			x		x	
Red-winged Parrot	<i>Aprosmictus erythropterus</i>	x		x			
Rufous Night Heron	<i>Nycticorax caledonicus</i>						x
Silver-crowned Friarbird	<i>Philemon argenticeps</i>	x					
Storks, Herons, Egrets, Ibis, Spoonbills	<i>Ciconiiformes</i>			x			
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	x					x
Tawny Frogmouth	<i>Podargus strigoides</i>	x					
Thornbill	<i>Acanthiza sp</i>						x
Topknot Pigeon	<i>Lopholaimus antarcticus</i>						x
Torresian Crow	<i>Corvus orru</i>						x
Varied Lorikeet	<i>Psitteuteles versicolor</i>			x			
White-bellied Cuckoo-shrike	<i>Coracina papuensis</i>	x					

Note: Generic references also made to pigeons⁶, parrots^{1,2,3,6}, cockatoos^{1,2,3,6}, kookaburras^{1,2}, large honeyeaters¹, large passerines^{1,2,6} and some mammals, reptiles and insects⁶.

Table 2: References to Red Goshawk Prey

Reference	Author (Year)	Title	Source
1	G.V. Czechura, R.G. Hobson and D.A. Stewart (2009)	Observations on the Biology of the Red Goshawk <i>Erythrotriorchis radiates</i> in Queensland.	Australian Field Ornithology 2009, Vol 26, pp 148-156.
2	Stephen Debus (2012)	Peer Review: Red Goshawk and Masked Owl.	Internal report, Rio Tinto Alcan EIS for South of Embley Project (Weipa, Qld)
3	Aumann, T. and Baker-Gabb, D.J. (1991)	The ecology and status of the red goshawk in northern Australia	Royal Australasian Ornithologists Union Report 75, Australia.
4	Ryan, S (2006)	Red Goshawk <i>Erythrotriorchis radiates</i>	Conservation Management Profile, Environment Protection Agency, Qld Parks and Wildlife Service
5	NSW National Parks and Wildlife Service (2002)	Approved Recovery Plan for the Red Goshawk (<i>Erythrotriorchis radiates</i>)	NSW National Parks and Wildlife Service, Hurstville.
6	Debus, S. J. S. and Czechura, C. V (1988)	The Red Goshawk <i>Erythrotriorchis radiates</i> : a review.	Aust. Bird Watcher Vol 12 (6), June 1988, pp. 175 – 199.

Masked Owl

The Masked Owl feeds mainly on small to medium sized mammals (Garnett *et al.* 2011). The most probable cause of the decline of the species is considered to be the shortage of food resulting from a general decline in the small to medium mammal populations in northern Australia (Garnett *et al.* 2011). **Table 3** lists potential Masked Owl prey species in the Project area and comprises all small to medium mammals recorded during the Project fauna surveys.

Table 3: Potential Masked Owl Prey Species in the Project Area

Common Name	Scientific Name	Comments
Northern Brown Bandicoot	<i>Isodon macrourus</i>	
Sugar Glider	<i>Petaurus breviceps</i>	
Common Brushtail Possum	<i>Trichosurus vulpecula</i>	Young animals
Red-cheeked Dunnart	<i>Sminthopsis v. virginiae</i>	
Grassland Melomys	<i>Melomys burtoni</i>	
Cape York Melomys	<i>Melomys capensis</i>	
Canefields Rat	<i>Rattus sordidus</i>	
Delicate Mouse	<i>Pseudomys delicatulus</i>	
Giant White-tailed Rat	<i>Uromys caudimaculatus</i>	

Potential Prey Species in the Project Area and North of Embley Mine Rehabilitation

The data in **Tables 1** and **3** were reviewed against SoE fauna records (RTA 2011) and used to assess potential prey species for the Red Goshawk and Masked Owl in Darwin Stringybark woodland, riparian areas and rehabilitation areas (using internal RTA data from north of Embley mine rehabilitation to estimate possible prey species in SoE rehabilitation). Results of the assessment are presented in **Table 4**.

Table 4: Habitat of Red Goshawk and Masked Owl Prey Recorded in the Project Area and North of Embley Rehabilitation (shaded cells indicate preferred prey species)

Class	Common Name	Scientific name	Goshawk Prey / Habitat					Masked Owl Prey / Habitat			
			Darwin Stringybark Woodland ¹	Riparian/Swamp Habitats ¹	North of Embley Rehabilitation ²	Predicted Red Goshawk Prey for SOE	Documented Red Goshawk Prey ^a	Darwin Stringybark Woodland ¹	Riparian/Swamp Habitats ¹	North of Embley Rehabilitation ²	Predicted Masked Owl Prey for SOE
Birds	Australian Brush-turkey	<i>Alectura lathamii purpureicollis</i>	x	x	x	x	s				
Birds	Orange-footed Scrubfowl	<i>Megapodius reinwardt</i>			x	x					
Birds	Spotted Whistling Duck	<i>Dendrocygna guttata</i>				x	f				
Birds	Green Pygmy-goose	<i>Nettapus pulchellus</i>		x		x	g				
Birds	Grey Teal	<i>Anas gracilis</i>		x	x	x	g				
Birds	Pacific Black Duck	<i>Anas superciliosa</i>		x	x	x	s				
Birds	Radjah Shelduck	<i>Tadorna radjah</i>		x	x	x	f				
Birds	Australasian Grebe	<i>Tachybaptus novaehollandiae</i>		x	x	x	f				
Birds	Little Pied Cormorant	<i>Phalacrocorax melanoleucas</i>		x	x	x	g				
Birds	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>		x	x	x	g				
Birds	Pied Cormorant	<i>Phalacrocorax varius</i>		x		x	g				
Birds	Little Egret	<i>Egretta garzetta</i>		x	x	x	f				
Birds	White-faced Heron	<i>Egretta novaehollandiae</i>		x	x	x	f				
Birds	Eastern Reef Egret	<i>Egretta sacra</i>				x	f				
Birds	Pied Heron	<i>Ardea picata</i>		x	x	x	f				
Birds	Nankeen Night Heron	<i>Nycticorax caledonicus</i>		x		x	r				
Birds	Striated Heron	<i>Butorides striatus</i>				x	f				
Birds	Black Bittern	<i>Ixobrychus flavicollis</i>				x	f				
Birds	Glossy Ibis	<i>Plegadis falcinellus</i>		x		x	f				
Birds	Australian White Ibis	<i>Threskiornis molucca</i>		x	x	x	f				
Birds	Straw-necked Ibis	<i>Threskiornis spinicollis</i>		x	x	x	f				
Birds	Royal Spoonbill	<i>Platalea regia</i>		x		x	f				
Birds	Eastern Curlew	<i>Numenius madagascariensis</i>				x	f				
Birds	Whimbrel	<i>Numenius phaeopus</i>				x	f				
Birds	Bush Stone-curlew	<i>Burhinus grallarius</i>	x	x	x	x	f				
Birds	Beach Stone-curlew	<i>Esacus neglectus</i>			x	x	f				
Birds	Pied Oystercatcher	<i>Haematopus longirostris</i>			x	x	f				
Birds	Black-winged Stilt	<i>Himantopus himantopus</i>		x	x	x	f				
Birds	Torresian Imperial Pigeon	<i>Ducula bicolor</i>	x	x	x	x	f				
Birds	Peaceful Dove	<i>Geopelia striata</i>	x	x	x	x	f				
Birds	Bar-shouldered Dove	<i>Geopelia humeralis</i>	x	x	x	x	s				
Birds	Wompoo Fruit-dove	<i>Ptilinopus magnificus</i>		x	x	x	f				
Birds	Rose-crowned Fruit-dove	<i>Ptilinopus regina</i>			x	x	f				
Birds	Red-tailed Black Cockatoo	<i>Calyptorhynchus banksii</i>	x		x	x	s				
Birds	Palm Cockatoo	<i>Probosciger aterrimus</i>	x	x	x	x	f				

Class	Common Name	Scientific name	Goshawk Prey / Habitat					Masked Owl Prey / Habitat			
			Darwin Stringybark Woodland ¹	Riparian/Swamp Habitats ¹	North of Embley Rehabilitation ²	Predicted Red Goshawk Prey for SOE	Documented Red Goshawk Prey ^a	Darwin Stringybark Woodland ¹	Riparian/Swamp Habitats ¹	North of Embley Rehabilitation ²	Predicted Masked Owl Prey for SOE
Birds	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>	x	x	x	x	f				
Birds	Little Corella	<i>Cacatua sanguinea</i>		x		x	f				
Birds	Rainbow Lorikeet	<i>Trichoglossus haematodus</i>	x	x	x	x	s				
Birds	Red-winged Parrot	<i>Aprosmictus erythropterus</i>	x	x	x	x	s				
Birds	Pale-headed Rosella	<i>Platycercus adscitus adscitus</i>	x	x		x	f				
Birds	Brush Cuckoo	<i>Cacomantis variolus</i>		x		x	f				
Birds	Pallid Cuckoo	<i>Cuculus pallidus</i>		x		x	f				
Birds	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	x	x	x	x	f				
Birds	Channel-billed Cuckoo	<i>Scythrops novaehollandiae</i>	x	x	x	x	f				
Birds	Common Koel	<i>Eudynamys scolopacea</i>	x	x	x	x	f				
Birds	Pheasant Coucal	<i>Centropus phasianinus</i>	x	x	x	x	f				
Birds	Tawny Frogmouth	<i>Podargus strigoides</i>	x	x	x	x	f				
Birds	Papuan Frogmouth	<i>Podargus papuensis</i>	x	x	x	x	f				
Birds	Australian Owlet-Nightjar	<i>Aegotheles cristatus</i>	x	x	x	x	f				
Birds	White-throated Nightjar	<i>Eurostopodus mystacalis</i>		x	x	x	f				
Birds	Large-tailed Nightjar	<i>Caprimulgus macrurus</i>		x	x	x	f				
Birds	Laughing Kookaburra	<i>Dacelo novaeguinea</i>	x	x	x	x	s				
Birds	Blue-winged Kookaburra	<i>Dacelo leachii kempii</i>	x	x	x	x	r				
Birds	Forest Kingfisher	<i>Todiramphus macleayii</i>	x	x	x	x					
Birds	Sacred Kingfisher	<i>Todiramphus sanctus</i>		x		x					
Birds	Mangrove Kingfisher	<i>Todiramphus chloris</i>				x					
Birds	Rainbow Bee-eater	<i>Merops ornatus</i>		x	x	x	f				
Birds	Dollarbird	<i>Eurystomus orientalis</i>		x	x	x	f				
Birds	Silver-crowned Friarbird	<i>Philemon argenticeps</i>		x	x	x	r				
Birds	Noisy Friarbird	<i>Philemon corniculatus</i>	x	x	x	x	r				
Birds	Little Friarbird	<i>Philemon citreogularis</i>	x	x	x	x	r				
Birds	Blue-faced Honeyeater	<i>Entomyzon cyanotis</i>	x	x	x	x	f				
Birds	Tawny-breasted Honeyeater	<i>Xanthotis flaviventer</i>		x		x	f				
Birds	Yellow-spotted Honeyeater	<i>Meliphaga notata</i>		x	x	x	f				
Birds	White-gaped Honeyeater	<i>Meliphaga unicolor</i>				x	f				
Birds	Yellow Honeyeater	<i>Lichenostomus flavus</i>	x	x	x	x	f				
Birds	Grey-crowned Babbler	<i>Pomatostomas temporalis</i>	x		x	x	s				
Birds	Australian Magpie-lark	<i>Grallina cyanoleuca</i>	x	x	x	x	s				
Birds	Spangled Drongo	<i>Dicrurus bracteatus</i>	x	x	x	x					
Birds	Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	x	x	x	x	r				
Birds	White-bellied Cuckoo-shrike	<i>Coracina tenuirostris</i>	x	x	x	x	s				
Birds	White-winged Triller	<i>Lalage sueurii</i>		x	x	x					
Birds	Varied Triller	<i>Lalage leucomela</i>	x	x	x	x					

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Birds	Figbird	<i>Sphecotheres viridis</i>		x	x	x					
Birds	Yellow Oriole	<i>Oriolus flavocinctus</i>		x	x	x					
Birds	Olive-backed Oriole	<i>Oriolus sagittatus</i>		x	x	x					
Birds	Black Butcherbird	<i>Cracticus quoyi</i>		x	x	x	r				
Birds	Black-backed Butcherbird	<i>Cracticus mentalis</i>	x	x	x	x	r				
Birds	Pied Butcherbird	<i>Cracticus nigrogularis</i>	x	x	x	x	r				
Birds	Torresian Crow	<i>Corvus orru</i>	x	x	x	x	s				
Birds	Great Bowerbird	<i>Chlamydera nuchalis</i>	x	x	x	x					
Mammals	Northern Brown Bandicoot	<i>Isodon macrourus</i>									x
Mammals	Sugar Glider	<i>Petaurus breviceps</i>							x		x
Mammals	Common Brushtail Possum	<i>Trichosurus vulpecula</i>								x	x
Mammals	Red-cheeked Dunnart	<i>Sminthopsis v. virginiae</i>							x	x	x
Mammals	Grassland Melomys	<i>Melomys burtoni</i>							x	x	x
Mammals	Cape York Melomys	<i>Melomys capensis</i>						x	x		x
Mammals	Canefields Rat	<i>Rattus sordidus</i>							x	x	x
Mammals	Delicate Mouse	<i>Pseudomys delicatulus</i>							x	x	x
Mammals	Giant White-tailed Rat	<i>Uromys caudimaculatus</i>							x		x
Reptiles	Frilled-neck Lizard	<i>Chlamydosaurus kingii</i>	x	x	x	x	s				
Reptiles	Dragon	<i>Lophognathus temporalis</i>		x	x	x					
Reptiles	Eastern Blue-tongue Lizard	<i>Tiliqua scincoides</i>		x	x	x					
Reptiles	Spotted Tree Monitor	<i>Varanus scalaris</i>	x	x	x	x					

1. RTA 2011, 2. Internal RTA data

Notes:

- (a) Key to abbreviations
s = specific species recorded
r = closely related species recorded
f = family grouping specified in literature
g = broad generic group specified