



CONTENTS

Appendix 11-A	A. DET	AILED FAUNA METHODOLOGY AND RESULTS	1					
A.1	Nathan	dam fauna survey methods	1					
	A.1.1	Site descriptions	1					
	A.1.2	Amphibian survey methods	2					
	A.1.3	Reptile survey methods	2					
	A.1.4	Diurnal bird survey methods	2					
	A.1.5	Nocturnal bird survey methods	3					
	A.1.6	Non-flying mammal survey methods	3					
	A.1.7	Survey limitations	8					
	A.1.8	Weather conditions	8					
A.2	Pipeline	e fauna survey methods	10					
A.3	Fauna d	database search results, Nathan Dam and Pipeline	17					
A.4	Fauna s	Fauna survey results, Nathan Dam and Pipeline						
A.5	EVR sp	ecies profiles	41					
	A.5.1	Introduction	41					
	A.5.2	Boggomoss Snail, Adclarkia dawsonensis	41					
	A.5.3	Rough Frog, Cyclorana verrucosa	43					
	A.5.4	Brigalow Scaly-foot, Paradelma orientalis	45					
	A.5.5	Short-necked Worm-skink, Anomalopus brevicollis	46					
	A.5.6	Golden-tailed Gecko, Strophurus taenicauda	47					
	A.5.7	Grey Snake, Hemiaspis damelii	48					
	A.5.8	Squatter Pigeon (southern subspecies), Geophaps scripta scripta	49					
	A.5.9	Black-chinned Honeyeater, Melithreptus gularis	51					
	A.5.10	Painted Honeyeater, Granitella picta	52					
	A.5.11	Little Pied Bat, Chalinolobus picatus	52					
	A.5.12	Grey Falcon, Falco hypoleucos	53					
	A.5.13	Cotton Pygmy-goose, Nettapus coromandelianus	54					
	A.5.14	Black-necked Stork, Ephippiorhynchus asiaticus	54					





TABLES

Table 11-A-1 Nathan Dam Fauna Survey Sites	1
Table 11-A-2 Survey effort over the study period	6
Table 11-A-3 Daily weather observations at Taroom Post Office during the survey period (BoM 2008)	9
Table 11-A-4 Pipeline fauna survey site descriptions	10





PLATES

Plate 1 Boggomoss Snail, Adclarkia dawsonensis (Photo: D. O'Brien)	43
Plate 2 Rough Frog, Cyclorana verrucosa (Photo: D. Fleming)	45
Plate 3 Brigalow Scaly-foot, Paradelma orientalis (Photo: J. Richard)	46
Plate 4 Golden-tailed Gecko, Strophurus taenicauda (Photo: D. Fleming)	48
Plate 5 Grey Snake, Hemiaspis damelli	49
Plate 6 Squatter Pigeon (southern sub species) Geophaps scripta scripta (Photo: D. Fleming, J. Richard)	51





Appendix 11-A. DETAILED FAUNA METHODOLOGY AND RESULTS

A.1 Nathan dam fauna survey methods

A.1.1 Site descriptions

The following table lists the fauna survey sites in which trapping, targeted searches and opportunistic observations were made.

Table 11-A-1 Nathan Dam Fauna Survey Sites

Site No.	Site Name	Other Site Information
1	Dam Wall Site	Proposed Nathan Dam wall site
2	Nathan Gorge	
3	Poplar Box on sand	Glebe Homestead
4	Coolibah	Glebe Homestead
5	Mid Cockatoo Ck (west)	
6	Upper Cockatoo Ck	at the crossing of Cracow Rd
7	River Red Gum	Dawson River south
8	Bundulla Road	Dawson River crossing
9	Boggomoss Reserve	EPA Reserve at the intersection of Glebe Weir Rd and Spring Creek Rd.
10	Glebe Weir	
11	Spring Creek	Spring Ck Station
12	Cypress Pine	Spring Ck Station
13	Brigalow	Spring Ck Station
14	Chain Lagoons	Local recreational area on the Liechhardt Hwy
15	Mid Cockatoo Ck (east)	
16	Upper Cockatoo Ck (east)	
17	Brigalow Patch (Cockatoo Ck)	
18	Belah Patch	
19	Poplar Box (Cracow Rd)	
20	Dawson River Billabong	
21	Bottle Tree Scrub	
22	Lower Cockatoo Ck (east)	
23	Dawson River (south)	
24	Coolibah Floodplain	
25	Blue Gum Wetland	Mt Rose Station
26	Blue Gum	Mt Rose Station
27	Blue Gum GAB Spring	Mt Rose Station
28	Other GAB Springs	Mt Rose Station
29	Spring Gully	Mt Rose Station
30	Palm Tree Creek	Liechhardt Hwy crossing
31	Unnamed Creek	Spring Ck Station





Site No.	Site Name	Other Site Information
T1	Vehicle Transect along Cracow Road	From Taroom to Price Creek
T2	Vehicle Transect along Glebe Road	From the intersection of Glebe Rd and Cracow Rd.
Т3	Vehicle Transect along Liechhardt Highway	From the intersection of Glebe Weir Rd and the Liechhardt Hwy
T4	Vehicle Transect along Glebe Weir Road	From the intersection of the Liechhardt Hwy to Glebe Weir
PL	observed on the pipeline corridor	
LM	observed at Lake Murphy Conservation Reserve	
Орро.	Opportunistic sighting	

A.1.2 Amphibian survey methods

Amphibian sampling involved a combination of diurnal and nocturnal census. Systematic day time searches for tadpoles and adult frogs were conducted with at least a survey effort of one hour at each survey site, according to the amount of habitat requiring survey. Particular attention was given to likely breeding sites such as creeks and waterholes. In addition, damp and watery sites such as dams, wetlands, soaks and GAB springs were targeted. Frog species were identified from visual inspection or by calls made during sampling. Driving very slowly along roads during damp conditions also enabled the capture of frogs as they crossed the road.

A.1.3 Reptile survey methods

A range of sampling techniques are necessary for reptiles as no single technique will capture all species (Schultz and de Oliverira 1995). Techniques used included pitfall trapping, active searching and spotlighting on foot and from a car travelling at slow speed.

Sampling undertaken during the warmer March survey period, when reptiles were more active, included pitfall trapping with drift fences. Deep pits (>1.1m) capture many species (e.g. geckoes, legless lizards, dragons and snakes) which appear to escape from shallow pits. Pitfall traps were not able to be installed at every site due to difficult substrates.

Timed, diurnal, active searches were undertaken at each site. Thirty minute searches were undertaken before midmorning at each site before reptiles have reached their optimal body temperature. Basking individuals were identified by sight, however cryptic species required destructive searching of fallen logs, litter, decorticating and fallen bark and rock outcrops.

Nocturnal spotlighting of tree trunks and other habitat was used to detect geckoes and nocturnal snakes. Spotlighting involved on foot and vehicle transects. Transects completed on foot included thirty minutes per site. Spotlighting was also completed along roads and tracks whilst travelling to each site.

A.1.4 Diurnal bird survey methods

Birds were observed by both sight and vocalisations. Birds were surveyed early in the morning during peak calling times (within two hours of dawn). Weather conditions over the survey period were generally favourable for birds calls (i.e. still or slightly breezy and clear mornings).





Species were recorded as present within the site or flying overhead.

The time spent searching is an important factor in the number of species that will be detected. Many species forage over a large area each day and therefore two surveys of 30 minutes each were conducted in the morning and afternoon for each site.

A.1.5 Nocturnal bird survey methods

Several studies have found owls and other nocturnal birds are most likely to be detected by call playback techniques combined with spotlighting. This technique involved listening for vocalisations, broadcasting of the target species call, using at least a 10 Watt amplifier, and spotlighting. A 10W amplifier may be heard by owls in approximately a one kilometre radius, although it is difficult to hear Barn Owls (*Tyto alba*) beyond 800 metres.

The methodology involved the observer(s) listening for a period of 10 to 15 minutes, followed by a spotlight search for 10 minutes to detect any animal in the immediate vicinity. The calls of each target species were then played intermittently for 5 minutes followed by a 10 minute listening period. After all the calls were played, another 10 minutes of spotlighting and listening were conducted in the vicinity to check for birds attracted by the calls but not vocalising.

Only one census was conducted on the same night unless sites were sufficiently separated (greater than one kilometre apart) as to make the censuses independent. Owls call most frequently in the early evening and before dawn although the surveys were undertaken only at dusk. The weather during the survey period was generally acceptable to detect owl calls, however strong winds during some evenings negated the use of call playback.

It is important to avoid undertaking activities that may directly affect sensitive species or species sensitive at a particular survey time such as nesting owls. Species such as Powerful Owls (*Ninox strenua*), Masked Owls (*T. novaehollandiae*) and Grass Owls (*T. capensis*) are known to be particularly sensitive to disturbance during the breeding and nesting season and were considered likely occurrences in the study area.

A.1.6 Non-flying mammal survey methods

Elliott trapping

Elliott traps were numbered, tagged and established in a systematic manner following a specified sampling regime for the survey area. Sampling effort per site equated to 92 trap nights. The approach for this survey involved 20 Elliott Type A and 3 Elliott Type B traps in each trap line placed with a spacing of between 15 and 25 metres. Trap lines were in place for four nights at each site.

Elliott traps were checked every morning to ensure that any animals caught were not left to dehydrate during the course of the day, and then reset in the evening.

Wire cage traps

Wire cage traps were used to target larger mammals such as possums and feral Cats (*Felis catus*). A cage trap was placed for four nights at each site and checked each morning. Cages were also covered to prevent excessive exposure of trapped animals to adverse weather conditions.





Pitfall trapping

Pitfall traps used for this survey were large 20 litre buckets with the top of the bucket at or just below ground level. Within each pit, a rock or small piece of wood, dirt and leaves was placed to provide a refuge for trapped animals. Foam was placed in the pit to provide a refuge if heavy rain was predicted to occur over the survey period.

Each pit was separated by a drift fence located at least five metres either side of the pit (i.e. ten metres minimum per pit). The fences were made from black plastic builders dampcourse which were erected to approximately 30 centimetres in height with the lower five centimetres buried into the soil, supported by steel pegs. Pitfall traps were installed at sites where the substrate was suitable for digging of pits. Each trap line comprised of three to five pits and remained open for six consecutive nights.

Tracks, scats and scratches

Scat, sign and track searches target animal scats and identifiable signs such as footprints, tell-tale scratches on trees (for example the Yellow-bellied Glider, *Petaurus australis*, leaves a distinctive V-shaped feeding scar on food trees), and nests. Survey effort involved at least a 30 minute search performed in appropriate habitat. This technique was combined with other searching techniques (e.g. diurnal reptile searches).

Any scats that were unable to be placed to a species were verified by a person with specialist expertise in the analysis of scats. Predator scats will also be collected and analyses performed on their contents (such as hair from prey) by a specialist. Names of specialists and the results of their analyses will be included in the survey report.

Spotlighting

Survey effort on foot involved a search for one hour with a hand-held spotlight of appropriate power for the conditions. Spotlighting was conducted on at each site along a traverse of at least one kilometre, which samples the least disturbed parts within the habitat type. Where the patch of remnant vegetation was too small to achieve a one kilometre traverse, a proportionate amount of spotlighting was completed.

Spotlighting from a slow moving vehicle is considered to be an effective method of observing nocturnal fauna. Spotlighting with a 100 watt spotlight from a vehicle was undertaken along designated transects along roads and tracks and opportunistically during travel to, from and between sites.

Infrared camera

Infrared cameras are useful for targetting large predators such as Dogs (*Canis lupus familiaris*), Dingoes (*C. I. dingo*) and Foxes (*Vulpes vulpes*) that are generally unable to be trapped. The target species are attracted to the camera location by the use of a bait station containing meat. One infrared camera with bait station was deployed across ten sites within the dam study area.

Bat survey methods

Ultrasonic bat detectors (Anabat SD1, Titley Electronics Pty. Ltd.) were used in conjunction with harp trapping to census the microchiropteran bat fauna. Bat detectors were randomly deployed overnight at each site for a minimum of two





consecutive nights whilst harp traps were erected within potential bat flyways for a minimum of two consecutive nights. Bat detectors were also carried by observers during spotlighting to actively target observed bats.

The presence of megachiropteran bats are substantially easier to ascertain than microchiropteran bats, given their size and audibly detectible vocalisations. However, due to their generally highly mobile and nomadic habits, determining the importance of an area for megachiropteran bats may be more difficult.

Spotlight searches combined with listening for calls and watching for movements in trees were completed for flying-foxes, focussing on fruiting or flowering trees and known roost sites or camps.





Table 11-A-2 Survey effort over the study period

Site No	Site name	Diurnal herp search	Call playback	Diurnal bird search	Stag- watching	Elliott traps (small & (large) ETN*	Cage traps	Infrared camera (nights)	Anabat (nights)	Spotlight (person hours)	Harp traps*	Pitfall traps*
		Survey effort is in person hours										
1	Dam Wall Site	1	1	1	1	80 (small) 12 (large)	12	2	1	-	-	-
2	Nathan Gorge	1	1	1	1	-	-	3	1	1	3	-
3	Poplar Box on sand (Glebe Homestead)	1	1	1	1	80 (small) 12 (large)	12	2	1	1	2	30
4	Coolibah (Glebe Homestead)	1	1	1	1	80 (small) 12 (large)	12	2	-	1	-	-
5	Mid Cockatoo Ck (west)	1	1	1	1	80 (small) 12 (large)	12	4	1	1	-	-
6	Upper Cockatoo Ck (Cracow Rd)	1	1	1	1	80 (small) 12 (large)	12	2	1	1	2	30
7	River Red Gum (Dawson River south)	1	1	1	1	-	-	-	1	1	-	-
8	Bundulla Road (Dawson Crossing)	1	1	1	1	-	-	-	1	1	-	-
9	Boggomoss Reserve	1	1	1	1	80 (small) 12 (large)	12	4	1	1	-	30
10	Glebe Weir	1	1	1	1	80 (small) 12 (large)	12	4	1	1	-	30
11	Spring Creek (Spring Ck Station)	1	1	1	1	80 (small) 12 (large)	12	4	-	1	3	-
12	Cypress Pine (Spring Ck Station)	1	1	1	1	80 (small) 12 (large)	12	4	1	1	-	30
13	Brigalow (Spring Ck Station)	1		1	1	-	-	-	1	1	-	-





Site No	Site name	Diurnal herp search	Call playback	Diurnal bird search	Stag- watching	Elliott traps (small & (large) ETN*	Cage traps *	Infrared camera (nights)	Anabat (nights)	Spotlight (person hours)	Harp traps*	Pitfall traps*
		Survey	effort is in per	son hours								
14	Chain Lagoons	1	1	1	1	-	-	-	1	1	-	-
15	Mid Cockatoo Ck (east)	1	-	1	1	-	-	-	1	1	-	-
16	Upper Cockatoo Ck (east)	1	-	1	1	-	-	-	1	1	-	-
17	Brigalow Patch (Cockatoo Ck)	1	1	1	1	-	-	-	1	1	-	-
18	Belah Patch	1	-	1	1	-	-	-	-	1	-	-
19	Poplar Box (Cracow Rd)	1	-	1	-	-	-	-	-	-	-	-
20	Dawson River Billabong	1	-	1	-	-	-	-	1	-	-	-
21	Bottle Tree Scrub	1	-	1	-	-	-	-	-	-	-	-
22	Lower Cockatoo Ck (east)	1	1	1	1	-	-	-	1	1	-	-
23	Dawson River (south)	1	-	1	-	-	-	-	-	-	-	-
24	Coolibah Floodplain	1	-	1	-	-	-	-	-	-	-	-
25	Blue Gum Wetland (Mt. Rose)	1	-	1	1	-	-	-	1	1	-	-
26	Blue Gum (Mt. Rose)	1	1	1	1	-	-	-	1	1	-	-
27	Blue Gum GAB Spring (Mt. Rose)	1	-	1	1	-	-	-	1	1	-	-
28	Other GAB Springs (Mt. Rose)	1	-	1	-	-	-	-	-	1	-	-
29	Spring Gully (Mt. Rose)	1	1	1	1	-	-	-	1	1	-	-
30	Palm Tree Creek (Liechhardt Hwy)	1	-	1	-	-	-	-	-	-	-	-
31	Unnamed Creek (Spring Ck Station)	1	-	1	-	-	-	-	-	-	-	-
Total	survey effort	31	17	31	23	760 (small) 108 (large)	72	31	22	23	10	150

^{*} ETN = Effective Trap Nights. This refers to a trap that was open from dusk to dawn.





A.1.7 Survey limitations

A summer/autumn/autumn field survey program combined with a targeted winter survey was adequate to detect a representative suite of fauna. The occurrence of substantial rainfall in the preceding weeks prior to the summer/autumn/autumn survey triggered a breeding event for many species, such as amphibians, and most standing water was found to contain amphibian eggs and/or tadpoles. Reptile activity during the summer/autumn/autumn program was particularly high and is represented by the high diversity of species observed. The abundance of frogs throughout the study area is also likely to have prompted activity of frog-eating snakes, including the endangered Grey Snake and Eastern Small-eyed Snake (*Cryptophis nigrecens*).

The occurrence of warm, wet conditions are also likely to have resulted in increased insect activity and in turn providing an abundant food source for insectivorous birds and microchiropteran bats. In contrast, the timing of the summer/autumn/autumn survey did not coincide with peak flowering times for River Red Gums (*Eucalyptus camaldulensis*) or Queensland Blue Gum (*E. tereticornis*), which tend to occur in the late Spring, early summer/autumn months, although Queensland Blue Gums flower sporadically throughout the year. Many Blue Gums observed during the winter survey were budding and several bird species such as Rainbow Lorikeets (*Trichoglossus haemotodus*), Little Friarbirds (*Philemon citreogularis*) and other honeyeaters were feeding on this resource.

Other limitations of the surveys included restricted access to properties or remote areas, which were unable to be surveyed. This was an uncommon restriction and did not limit the applicability of the survey.

A.1.8 Weather conditions

The daily weather observations for the region are shown in **Table 11-A-3**. The nearest weather station to the study area is the Taroom Post Office (latitude -25.64°S, longitude 149.80°E, elevation 199 metres), which is adjacent to the western boundary of the dam study area (BoM 2008).

Weather conditions during the survey periods were generally within the long term average values for the region. Temperatures during the day for the summer/autumn survey were between 28 to 31.5 degrees Celsius (°C) and overnight temperatures fell to between 14.5 and 17.5°C. Minimum temperatures were slightly lower than the long term average (Taroom Post Office averages from 1870 - 2008) of 18°C. Cloud cover was generally less than an eight of the sky during the day and overnight.

No rain fell during the survey period apart from several very brief, isolated showers over the study area on the 18th of March. Total rainfall during the previous wet season (1 October 2007 to 31 March 2008) was generally average based on long term rainfall data for the region (Bureau of Meteorology, BoM 2008a). The rainfall was associated with a late developing La Nina system, an active monsoon trough and localised thunderstorm activity, which occurred after many years of below or very much below average rainfall (BoM 2008b).

Temperatures during the day for the winter survey were between 28 to 31.5°C and overnight temperatures fell to between 0.5 and 8.5°C. Minimum temperatures were lower than the long term average of between 5-6°C and were influenced by a cold front crossing southern Australia during the survey period. Maximum daytime temperatures also fluctuated significantly. Cloud cover was generally less than an eight of the sky during the day and overnight and a light frost occurred on the morning of the 30th and 31st of July. Light showers occurred over the study area in response to the crossing of the cold front early in the survey period.





Table 11-A-3 Daily weather observations at Taroom Post Office during the survey period (BoM 2008)

	Tempera	ature		9 am				3 pm			
Date	Min °C	Max °C	Rain mm	Temp °C	RH %	Dir	Spd km/h	Temp °C	RH %	Dir	Spd km/h
summe	er/autumn :	survey									
10/3	14.6	28.2	0	22.2	69	SSE	13	27.9	51	ESE	19
11/3	14.6	30.2	0	23	59	ESE	13	29.4	36	NNE	6
12/3	14.5	31.5	0	23.8	59	ESE	6	30.7	38	E	4
13/3	15.2	31.2	0	23.2	65	SSE	6	30.2	38	ENE	9
14/3	15.2	31.7	0	23.3	68	NE	6	29.9	36	ESE	13
15/3	15	31.2	0	23.2	66	ENE	9	29	40	NE	13
16/3	15.3	30.2	0	23.9	62	ESE	24	29.2	40	SSE	28
17/3	16.5	31	0	25.2	54	ENE	17	29.8	39	ESE	28
18/3	17.6	28.9	0	24.2	66	ENE	17	27.9	53	NE	13
19/3	15.5	29.7	0	24	64	SE	17	28.1	53	ESE	19
20/3	15.3	31.2	0	24.6	66	ENE	9	30.2	46	ESE	6
21/3	16	31	0	24.5	68	ESE	6	30.2	41	ESE	6
pipelin	e survey										
12/5	7.9	27.5	0	18.9	70	Е	2	26.2	33	NE	4
13/5	9.6	26.9	0	18	70	SSW	2	25.1	38	SSE	4
14/5	4.6	27.2	0	17.1	69	WSW	2	26	27	NNE	6
15/5	7.8	27	0	17.4	66	Е	4	26.2	30	NNE	6
16/5	10.2	28.2	0	19.2	63	NNE	4	26.2	40	NW	6
winter	survey										
28/7	5.8	15	2.4	11	78	SW	24	12.8	49	NE	28
29/7	3.4	17.7	0.1	9.6	67	NE	17	16.9	35	SW	13
30/7	1.9	20	0	9.2	67	S	6	19	30	WNW	6
31/7	0.4	23	0	8.4	86	N	4	21.2	28	S	4
1/8	8.4	29.1	0	16	51	NNE	9	28.7	25	NNW	24

Legend:

Temperature = Min/Max, minimum and maximum temperatures in the 24 hours to 9am.

Rain = rainfall in the 24 hours to 9am.

Temp = temperature

RH = relative humidity

Dir = wind direction averaged over 10 minutes

Spd = wind speed averaged over 10 minutes





A.2 Pipeline fauna survey methods

The following table lists the pipeline fauna survey sites in which the rapid habitat assessments and opportunistic searches were made.

Table 11-A-4 Pipeline fauna survey site descriptions

Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
1	0	Warrego Hwy	11.3.2	Mixed eucalypt woodland on floodplains / wetlands	Poplar box woodland with native grasses	Young regrowth, but few hollows
2	0	Jimbour Ck	11.3.21	Mixed eucalypt woodland on floodplains / wetlands	Disturbed Blue Gum open woodland	
3	0	Warrego Hwy	NR	Non-remnant	Floodplain sedgeland	Habitat for the Rough Frog within the northern part of the road reserve
4	С	Coorang Ck	NR	Non-remnant	Disturbed Blue Gum open woodland along creek	Some corridor value
5	0	Jingi Jingi Ck	NR	Non-remnant	Roadside grassy reserve	Poor habitat value
6	С	Warrego Hwy	NR	Non-remnant	Disturbed Brigalow on cracking clay soils	Habitat for rare and threatened reptiles and some corridor values along road reserve
7	С	Warrego Hwy	NR	Non-remnant	Brigalow and Belah open forest on cracking clay soils	Disturbed vegetation, but some habitat for rare and threatened reptiles
8	0	Warrego Hwy	NR	Non-remnant	Disturbed Blue Gum and Bloodwood woodland	Some habitat values for birds
9	С	Park	NR	Non-remnant	River Red Gum and Stringybark open forest with managed understorey	Well connected canopy, but very disturbed understorey
10	С	Charleys Ck	11.3.25/11.3.3/ 11.3.4	Fringing riparian woodland / Mixed eucalypt woodland on floodplains / wetlands	River Red Gum and Ironbark riparian open forest	Good habitat and connectivity values





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
11	С	Rocky Ck	11.3.25/11.3.3/ 11.3.4	Fringing riparian woodland / Mixed eucalypt woodland on floodplains / wetlands	Blue Gum riparian open forest	Good habitat and connectivity values
12	С	Charleys Ck, Burnt Bridge Rd	11.3.25/11.3.4/ 11.3.3	Fringing riparian woodland / Mixed eucalyptu woodland on floodplains / wetlands	Cleared powerline easement with adjacent Blue Gum riparian woodland on alluvium.	Limited habitat value within the cleared easement – <i>Acacia spp.</i> regrowth only. Adjacent Blue Gum riparian woodland provides good habitat for arboreal fauna and small birds. Very weedy including Chinese Elm, Nightshade, Prickly Pear, Buffell Grass.
13	С	Rocky Ck, Auburn Rd	11.3.25/11.3.4/ 11.3.3	Fringing riparian woodland / Mixed eucalypt woodland on floodplains / wetlands	Blue Gum riparian woodland on alluvium with road culvert across creek. Other tree species include Coolibah, Brigalow, Popular Box and Kurrajong. Creek has been dammed on southern side, with sedges and rushes around pools of water.	Good habitat for arboreal fauna, and provides connectivity to other patches.
14	С	Grays Lane, Engine Rd	11.5.1/11.7.4/1 1.3.4	Eucalypt, Cypress Pine, She-oak woodland on sand / Eucalypt woodland on duricrust / Mixed Eucalypt woodland on floodplains	Narrow-leaved Ironbark, Cypress Pine and She-oak woodland on sandy loam.	Fallen trees and branches and leaf litter are abundant; excellent habitat for log dependent fauna. Good recruitment of Cypress Pine and She-oak and scattered understorey of shrubs providing good habitat for birds.
15	С	Engine Rd	NR	Cleared paddock; adjacent to 11.5.1/11.7.4/11.3.4 (description as 14)	Cleared paddock with scattered Narrow-leaved Ironbark regrowth on sandy loam.	Limited habitat value; scattered Ironbark trees can be avoided.
16	С	Warrens Rd	NR	Cleared paddock; adjacent to 11.5.1/11.7.4/11.3.4 (description as 14).	Disturbed Narrow-leaved Ironbark woodland with scattered Spotted Gum on sandy loam.	Poor habitat values, but provides connectivity to other habitat patches.





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
17	С	Warrens Rd	11.5.1/11.7.4/1 1.3.4	Eucalypt, Cypress Pine, She-oak woodland on sand / Eucalypt woodland on duricrust / Mixed Eucalypt woodland on floodplains	Mixed Eucalypt woodland on floodplains with Blue Gum and Popular Box around a wetland.	Hollows are common providing average habitat for arboreal fauna, and fallen trees and branches and grass provided good ground cover for fauna. Swamp Wallaby was observed in grass around wetland.
18	С	'Gleneric', Davies Rd	11.5.1	Eucalypt, Cypress Pine, She-oak woodland on sand	Narrow-leaved Ironbark and Popular Box woodland on sandy loam.	Poor habitat value, patch is isolated and grazed. Fallen trees and branches provide some habitat for reptiles.
19	С	Ryalls-Boort Koi Stock Route	11.5.1/11.7.7/1 1.7.5/11.7.2	Eucalypt, Cypress Pine, She-oak woodland on sand / Eucalypt woodland on duricrust / Shrubland on sedimentary rocks / Acacia woodland on duricrust	Narrow-leaved Ironbark, Popular Box and Cypress Pine woodland on floodplain. Rocky creek nearby.	Hollows and fallen trees and branches are scattered providing limited habitat for reptiles and arboreal fauna. However, multi-aged vegetation structure provides average habitat for birds.
20	С	Dogwood Ck	11.3.2/11.3.26	Popular Box woodland on alluvial plains / Eucalypt woodland on margins of alluvial plains	Blue Gum riparian woodland on alluvium with Coolibah and River Oak. Steep banks sloping down to Dogwood Creek. Natural grassland understorey.	Hollows are abundant providing good habitat for aboreal fauna. There has been sighting of Koala on property. Scattered fallen trees and branches and natural grasslands provide good ground cover for fauna. Also fallen trees across the creek provide good roosting habitat. Cattle have been excluded for a couple of years.
21	С	Hookswood Rd	NR	Cleared paddock	Regrowth Narrow-leaved Ironbark woodland (approx. 5 year old) on sandy loam with occasional mature Ironbark trees and Acacia spp understorey.	Poor habitat value, but provides connectivity to other patches.





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
22	С	Hookswood Rd	11.7.4/11.7.7/1 1.7.5/11.7.2	Mixed Eucalypt woodland on duricrusts / Eucalypt woodland on duricrusts / Shrubland on sedimentary rocks / <i>Acacia spp.</i> woodland on duricrusts	Narrow-leaved Ironbark woodland with tall tree layer of Cypress Pine, She-oak and <i>Acacia spp.</i>	Hollows are scattered providing poor habitat for arboreal fauna, but fallen trees and branches are common providing average habitat for reptiles and small birds.
23	С	Tin Hut Ck, 'Burton' property	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains	Remnant eucalypt woodland with <i>Corymbia bloxsomei</i> , Blue Gum and Cypress Pine on sandy plain. Tall and low understorey shrub layers and grassy ground layer. Adjacent to Creek.	Shrub layers and floral diversity provide good habitat for small birds. Hollows are common within mature Blue Gum trees providing average habitat for arboreal fauna.
24	С	Little Tree Creek Rd	11.5.21/11.7.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts	Remnant eucalypt woodland with <i>Corymbia bloxsomei</i> , Narrow-leaved Ironbark, Cypress Pine. Tall understorey of She-oak and <i>Acacia spp</i> , scattered shrubs and grassy ground layer.	Hollows are scattered providing poor habitat for arboreal fauna, but fallen trees and branches are common providing good habitat for reptiles. Macropod scats and tracks were evident.
25	С	Welsh Rd	11.5.21/11.7.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts	Remnant eucalypt woodland with Corymbia bloxsomei, Narrow-leaved Ironbark, Cypress Pine. Abundant understorey tree layer of She-oak and <i>Acacia spp</i> with scattered shrubs.	Evidence of recent fire, but good regeneration. Fallen trees and branches were common and leaf litter cover patchy, providing good cover for reptiles. Poor habitat for arboreal fauna.





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
26	С	Little Tree Ck, Little Tree Creek Rd	11.3.14	Mixed Eucalypt and Cypress Pine woodland on alluvial plains	Remnant eucalypt woodland fringing creek with Blue Gum, Corymbia bloxsomei and Cypress Pine with tall and low shrub layers and grassy ground layer.	Complex vegetation structure with a tall and short understorey shrub layer and grassy ground layer, with minimal grazing and a rocky creek nearby. This area provides good quality habitat for small birds and macropods, and potential habitat for the vulnerable Squatter Pigeon. A diversity of honeyeaters and small birds were observed including Yellow-tufted Honeyeater, Fuscous Honeyeater, White-eared Honeyeater, Scarlet Honeyeater, Yellow-faced Honeyater, Little Friarbird, Striated Pardelote, Yellow-rumped Thornbill and Rufous Whistler.
27	С	Gas Pipeline	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains	She-oak closed woodland with emergent Narrow-leaved Ironbark on sandy loam. Scattered understorey of <i>Acacia spp.</i> and Cypress Pine; no low shrub layer.	Fallen trees and branches were common and leaf litter cover patchy, providing good cover for reptiles. Poor habitat for arboreal fauna.
28	С	Stiller Brothers Rd, Gas Pipeline	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains	Narrow-leaved Ironbark and She-oak woodland with emergent Blue Gum on sandy loam.	Scattered hollows provide poor habitat for arboreal fauna, however good ground habitat for reptiles. Lack of understorey tree layers provides poor habitat for small birds.
29	С	Stiller Brothers Rd, Gas Pipeline	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains	Popular Box, Narrow-leaved Ironbark, Coolibah, Blue Gum and Cypress Pine woodland on sandy loam with understorey tree layer of Soap Ash.	Scattered hollows and fallen trees and branches providing poor habitat value for arboreal fauna and reptiles. However tree layers provide average habitat for small birds. In road reserve therefore no grazing.





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
30	С	Stillers Brothers Rd	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains		
31	С	Stillers Brothers Rd	11.5.21/11.7.4/ 11.5.4	Bloodwood, Cypress Pine and Ironbark woodland on sand plains / Mixed Eucalypt woodland on duricrusts / Ironbark, Cypress Pine woodland on sandy plains	Narrow-leaved Ironbark, Blue Gum and Cypress Pine woodland on sandy loam, with tall understorey of shrubs/trees (i.e. Soap Ash and Wilga) and continous grass/herb cover. In road reserve therefore no grazing.	Good habitat value and provides connectivity to other habitat patches.
32	С	Downfall Creek Rd	NR	Regrowth Brigalow	Brigalow, Belah and Narrow-leaved Bottletree woodland on sedimentary with scattered understorey of vine thicket species. Narrow linear strip highly disturbed by cattle grazing. Prickly Pear common.	Hollows are scattered providing some habitat for arboreal fauna. Fallen trees and branches are common providing average habitat for reptiles. However this is reduced by presence of weeds (Buffell Grass and Prickly Pear) and cattle grazing. Lack of understorey layers provides poor habitat for small birds.
33	С	Downfall Creek Rd	NR	Regrowth Brigalow	Brigalow, Belah and Narrow-leaved Bottletree woodland on sedimentary. Narrow linear strip highly disturbed by cattle grazing.	Hollows are absent providing poor habitat value for arboreal fauna, but fallen trees and branches are common and leaf litter patchy providing average habitat for reptiles. Buffell grass and cattle grazing reduces habitat quality.
34	С	Juandah Ck	11.3.25/11.3.1 9/11.3.2	Fringing riparian woodland / Cypress Pine, Eucalypt woodland on alluvium / Mixed eucalypt woodland on floodplains, wetlands	Disturbed Blue Gum and Ironbark woodland on floodplain	Some habitat values, but grazed understorey
35	0	Nathan Rd	NR	Non-remnant	Regrowth Brigalow, Wilga and Bauhinia woodland	Disturbed vegetation, but floristically diverse





Site Number	Survey Type ¹	Feature Name	RE ²	Habitat Type	Field Description	Special Habitat Values / Observations
36	0	Nathan Rd	11.3.25/11.9.1 0/11.9.7	Fringing riparian woodland / Brigalow, Poplar Box open forest / Eucalypt woodland on granite	Disturbed Blue Gum riparian woodland	Poor habitat value
37	С	Bullock Ck	11.10.9/11.3.2	Eucalypt, Cypress Pine, She- oak woodland on sand / Mixed eucalypt woodland on floodplains, wetlands	Disturbed Red Gum and Ironbark riparian woodland	Some habitat value for wildlife
38a	С	Bungaban Ck	NR	Non-remnant	Ironbark and Red Gum riparian open forest	Some habitat and connectivity values, but grazed understorey
38b	0	Nathan Rd	11.10.7/11.9.2	Eucalypt woodland on granite	Ironbark, Box, Bloodwood woodland with grazed understorey	Some habitat values
39		Nathan Rd	11.10.7/11.9.2	Eucalypt woodland on granite	Brigalow/Belah woodland with Poplar Box (outside road reserve)	Good habitat for Golden-tailed Gecko and Brigalow Scaly-foot adjacent to road reserve
40	0	Nathan Rd	NR	Non-remnant	Box and Moreton Bay Ash woodland	Some habitat values and frog habitat on eastern side
41	0	Cockatoo Ck	NR	Non-remnant	Blue Gum and Box woodland on floodplain	Habitat for frogs and Grey Snake on adjacent cracking clay grasslands
42	0	Cockatoo Ck	NR	-	-	Dead wild Dog on road
43	0	Nathan Rd	NR	Non-remnant	Brigalow and bottle tree vine forest adjacent to road reserve	No habitat within road reserve

¹ Survey Type; O = Observational site, C = Comprehensive site

² RE = corresponding mapped regional ecosystem; NR = mapped non-remnant vegetation





A.3 Fauna database search results, Nathan Dam and Pipeline

Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Invertebrates								
Acanthodillo sp. A	a slater							
Adclarkia dawsonensis	Boggomoss Snail	CE (EPBC)						Wildnet
Aphylum sp. A	an insect							
Elsothera hewittorum	a land snail							
Gwahiria bifoveata	an insect							
Hanoniscus sp. A	a slater							
Harpobittacus christine	a scorpion fly							
Jalmenus evagoras eubulus	imperial hairstreak (northern subspecies)	V (NC)						Wildnet
Mengenellidae	new insect family							
Pelechorhynchus fulvus	an insect							
Spherillo sp. A	a slater							
Amphibians								
Rhinella (Bufo) marina	Cane Toad	1						Wildnet, QM
Crinia deserticola	Desert Froglet							QM
Crinia parasignifera	Beeping Froglet	С						Wildnet, QM
Cyclorana alboguttata	Striped Burrowing Frog	С						Wildnet, QM
Cyclorana brevipes	Short-footed Frog	С						Wildnet, QM
Cyclorana novaehollandiae	New Holland Frog	С						Wildnet, QM
Limnodynastes fletcheri	Barking Frog	С						Wildnet, QM
Limnodynastes ornatus	Ornate Burrowing Frog	С						Wildnet, QM
Limnodynastes peronii	Brown-striped Frog	С						Wildnet, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Limnodynastes salmini	Salmon-striped Frog	С						Wildnet, QM
Limnodynastes tasmaniensis	spotted grassfrog							
Limnodynastes tasmaniensis	Spotted Grassfrog	С						Wildnet, QM
Limnodynastes terraereginae	Scarlet-sided Pobblebonk	С						Wildnet, QM
Litoria caerulea	Green Tree Frog	С						Wildnet, QM
Litoria fallax	Eastern Sedgefrog	С						Wildnet, QM
Litoria inermis	Peter's Frog							QM
Litoria latopalmata	Broad-palmed Frog	С						Wildnet,QM
Litoria peronii	Emerald-spotted Treefrog	С						Wildnet, QM
Litoria rubella	Desert Tree Frog	С						Wildnet, QM
Litoria wilcoxii	Stoney Creek Frog	С						Wildnet, QM
Pseudophyrne major	Great Brown Broodfrog	С						Wildnet, QM
Pseudophyrne raveni	Copper-backed Broodfrog	С						Wildnet
Uperoleia rugosa	Chubby Gungan	С						Wildnet
Reptiles								
Acanthophis antarcticus	Death Adder	V (NC)						QM
Amphibolurus nobbi	Nobbi Dragon	С						
Anomalopus leuckartii	Two-clawed Worm-skink	С						Wildnet, QM
Antaresia maculosa	Spotted Python	С						Wildnet
Aspidites melanocephalus	Black-headed Python	С						Wildnet
Boiga irregularis	Brown Tree Snake	С						QM
Brachyurophis australis	Australian Coral Snake	С						QM
Cacophis harriettae	White-crowned Snake							QM
Carlia pectoralis	Open-litter Rainbow-skink	С						Wildnet, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Carlia schmeltzii	Robust Rainbow-skink	С						Wildnet, QM
Carlia vivax	Tussock Rainbow-skink	С						QM
Chelodina expansa	Broad-shelled Turtle	С						Wildnet
Chlamydosaurus kingii	Frilled Lizard	С						Wildnet
Cryptoblepharus metallicus	metallic snake-eyed skink							Wildnet
Cryptoblepharus plagiocephalus	Callose-palmed Shinning-skink	С						QM
Cryptoblepharus pulcher pulcher	elegant snake-eyed skink							Wildnet
Cryptoblepharus virgatus	Cream-striped Shinning-skink	С						QM
Cryptophis (Rhinoplocephalus) nigrescens	Eastern Small-eyed Snake	С						Wildnet, QM
Ctenotus robustus	Robust Ctenotus	С						Wildnet, QM
Ctenotus taeniolatus	Copper-tailed Skink							QM
Cyclodomorphus gerrardii	Pink-tongued Lizard							QM
Demansia psammophis	Yellow-faced Whip Snake	С						Wildnet
Demansia torquata	collared whip snake							Wildnet
Demansia vestigiata	Lesser Black Whipsnake	С						
Demansia virgata	Collared Whip Snake	С						
Dendrelaphis punctulata	Green Tree Snake	С						Wildnet
Diplodactylus steindachneri	Box-patterned Gecko	С						QM
Diplodactylus vittatus	Stone Gecko	С						Wildnet, QM
Diporiphora australis	Tommy Roundhead	С						Wildnet, QM
Egernia striolata	Tree Skink							QM
Elseya albagula	southern snapping turtle							Wildnet





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Elseya sp. aff. dentata	a snapping turtle	С						
Emydura macquarii kreffti	Krefft's Turtle	С						Wildnet, QM
Emydura macquarii macquarii	Murray turtle							Wildnet
Eremiascincus fasciolatus	Narrow-banded Sand-swimmer							QM
Eulamprus brachysoma	Northern Barsided Skink	С						Wildnet, QM
Eulamprus martini	Dark Barsided Skink	С						Wildnet
Eulamprus quoyii	Eastern Water Skink	С						Wildnet, QM
Eulamprus tenuis	Barred-sided Skink	С						Wildnet, QM
Furina diadema	Red-naped Snake	С						Wildnet
Furina ornata	Orange-naped Snake							QM
Gehyra dubia	Dubious Dtella	С						Wildnet, QM
Gehyra variegata	Tree Dtella	С						
Heteronotia binoei	Bynoe's Gecko	С						Wildnet, QM
Hoplocephalus bitorquatus	pale-headed snake							Wildnet, QM
Lerista fragilis	Eastern Mulch-slider	С						Wildnet, QM
Lerista punctatovittata	Eastern Robust Slider	С						Wildnet, QM
Lialis burtoni	Burton's Snake-lizard	С						Wildnet, QM
Lygisaurus (Carlia) foliorum	Tree-base Litter-skink	С						Wildnet, QM
Macrochelodina expansa	broad-shelled river turtle							Wildnet
Menetia (Lygisaurus) timlowi	Dwarf Litter-skink	С						Wildnet, QM
Menetia greyii	Common Dwarf Skink	С						
Morelia spilota	Carpet Python	С						Wildnet, QM
Morethia boulengeri	South-eastern Morethia Skink	С						Wildnet, QM
Morethia taeniopleura	Fire-tailed Skink	С						Wildnet, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Oedura rhombifer	Ziz-zig Velvet Gecko	С						QM
Oedura robusta	Robust Velvet Gecko	С						Wildnet, QM
Oedura tyroni	Southern Spotted Velvet Gecko	С						Wildnet, QM
Paradelma orientalis	Brigalow Scaly-foot	V (EPBC)						Wildnet, QM
Parasuta dwyeri	Dwyer's Snake	С						
Physignathus leuserii	Eastern Water Dragon	С						Wildnet, QM
Pogona barbata	Bearded Dragon	С						Wildnet, QM
Pseudechis porphyriacus	Red-belllied Black Snake	С						
Pseudonaja textilis	Eastern Brown Snake	С						Wildnet
Pygopus schraderi	Eastern Hooded Scaly-foot	С						QM
Ramphotyphlops ligatus	Robust Blind Snake							QM
Ramphotyphlops proximus	Proximus Blind Snake							QM
Rheodytes leukops	Fitzroy River turtle	V (NC)						
Saltuarius salebrosus	Rough-throated Leaf-tailed Gecko							QM
Simoselaps australis	coral snake							Wildnet
Strophurus (Diplodactylus) taenicauda	Golden-tailed Gecko	NT (NC)						Wildnet
Strophurus (Diplodactylus) williamsi	Eastern Spiny-tailed Gecko	С						Wildnet
Tropidonophis mairii	Freshwater Snake	С						Wildnet, QM
Varanus gouldii	Gould's Monitor	С						Wildnet
Varanus tristis	Black-headed Monitor	С						
Varanus varius	Lace Monitor	С						Wildnet, QM
Vermicella annulata	Bandy-bandy							QM
Wollumbinia (Elseya)	Saw-shelled Turtle	С						Wildnet





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
latisternum								
Birds								
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	С						Wildnet, birdata
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	С						
Acanthiza nana	Yellow Thornbill	С						Wildnet, birdata
Acanthiza pusilla	Brown Thornbill	С						Wildnet, QM
Acanthiza reguloides	Buff-rumped Thornbill	С						Wildnet, QM
Acanthorhychus tenuirostris	Eastern Spinebill	С						Wildnet
Accipiter cirrhocephalus	Collared Sparrowhawk	С						
Accipiter fasciatus	brown goshawk							Wildnet
Acrocephalus australis	Australian Reed-Warbler	С						Wildnet
Aegotheles cristatus	Australian Owlet-nightjar	С						Wildnet, birdata
Alcedo azurea	Azure Kingfisher	С						Wildnet, birdata, QM
Alectura lathami	Australian Brush Turkey	С						Wildnet
Alisterus scapularis	Australian King-Parrot	С						Wildnet
Anas castanea	Chestnut Teal	С						
Anas gracilis	Grey Teal	С						Wildnet, birdata
Anas platyrhynchos	mallard							Wildnet, birdata, QM
Anas rhynchotis	Australasian shoveler							Wildnet
Anas superciliosa	Pacific Black Duck	С						Wildnet, birdata
Anhinga melanogaster	Darter	С						Wildnet, birdata
Anthus australis	Australian Pipit	С						Wildnet, birdata
Aprosmictus erythropterus	Red-winged Parrot	С						Wildnet, birdata





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Aquila audax	Wedge-tailed Eagle	С						Wildnet, birdata
Ardea alba	Great Egret							Birdata
Ardea intermedia	Intermediate Egret	С						Wildnet, birdata
Ardea modesta	great egret							Wildnet
Ardea pacifica	White-necked Heron	С						Wildnet, birdata
Ardeotis australis	Australian Bustard	С						Wildnet, birdata, QM
Artamus cinereus	Black-faced Woodswallow	С						Wildnet, birdata
Artamus cyanopterus	dusky woodswallow							Wildnet, birdata
Artamus leucorhynchus	White-breasted Woodswallow	С						Wildnet, birdata
Artamus superciliosus	white-browed woodswallow							Wildnet
Aythya australis	hardhead							Wildnet, birdata QM
Burhinus grallarius	Bush Stone-curlew	С						
Cacatua galerita	Sulphur-crested Cockatoo	С						Wildnet, birdata
Cacatua sanguinea	Little Corella	С						
Cacomantis flabelliformis	Fan-tailed Cuckoo	С						Wildnet, QM
Cacomantis pallidus	pallid cuckoo							Wildnet
Cacomantis variolosus	Brush Cuckoo	С						Wildnet, Birdata
Centropus phasianinus	Pheasant Coucal	С						Wildnet, birdata
Chalcophaps indica	Emerald Dove	С						Wildnet
Chenonetta jubata	Australian Wood-Duck	С						Wildnet, birdata
Chlamydera maculata	Spotted Bowerbird	С						Birdata
Chlidonias hybrida	whiskered tern							Wildnet
Chrysococcyx basalis	Horsfield's Bronze-cuckoo	С						Wildnet





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Chrysococcyx lucidus	Shining-bronze Cuckoo	С						Wildnet, Birdata
Chrysococcyx osculans	Black-eared Cuckoo							Wildnet, Birdata
Chthonicola sagittata	Speckled Warbler	С						Wildnet, birdata
Cincloramphus cruralis	Brown Songlark	С						
Cincloramphus mathewsi	Rufous songlark	С						Wildnet, QM
Cisticola exilis	Golden-headed Cisticola	С						Wildnet, birdata
Climacteris picumnus	brown treecreeper							Wildnet, QM
Collurincincla harmonica	Grey Shrike-thrush	С						Wildnet, birdata, QM
Columba livia*	Feral Pigeon	I						Wildnet, birdata
Coracina maxima	Ground Cuckoo-shrike	С						Wildnet
Coracina novaehollandiae	Black-faced Cuckoo-shrike	С						Wildnet, birdata, QM
Coracina papuensis	White-bellied Cuckoo-shrike	С						Wildnet, birdata
Coracina tenuiostris	Cicadabird	С						Wildnet, birdata, QM
Corcorax melanorhamphos	White-winged Chough	С						Wildnet, birdata
Cormobates leucophaea	White-throated Treecreeper	С						Wildnet, Birdata, QM
Corvus bennetti	Little Crow	С						
Corvus coronoides	Australian Raven	С						Wildnet, birdata
Corvus orru	Torresian Crow	С						Wildnet, birdata
Coturnix ypsilophora	brown quail							Wildnet, birdata
Cracticus nigrogularis	Pied Butcherbird	С						Wildnet, birdata
Cracticus torquatus	Grey Butcherbird	С						Wildnet, birdata
Cuculus pallidus	Pallid Cuckoo	С						Birdata, QM





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Cygnus atratus	Black Swan	С						Wildnet, birdata
Dacelo leachii	Blue-winged Kookaburra							Birdata
Dacelo novaeguineae	Laughing Kookaburra	С						Wildnet, birdata
Daphoenositta chrysoptera	varied sittella							Wildnet
Dendrocygna arcuata	wandering whistling-duck							Wildnet
Dendrocygna eytoni	plumed whistling-duck							Wildnet
Dicaeum hirundinaceum	Mistletoebird	С						Wildnet, birdata
Dicrurus bracteatus	Spangled Drongo	С						Wildnet
Dromaius novaehollandiae	Emu	С						Wildnet, QM
Egretta novaehollandiae	White-faced Heron	С						Wildnet, birdata
Elanus axillaris	Black-shouldered Kite	С						Wildnet, birdata
Elseyornis melanops	Black-fronted Dottrel	С						Wildnet, birdata, QM
Entomyzon cyanotis	Blue-faced Honeyeater	С						Wildnet, birdata
Eolophus roseicapillus	Galah	С						Wildnet, birdata
Eopsaltria australis	Eastern Yellow Robin	С						Wildnet, birdata
Ephippiorhynchus asiaticus	black-necked stork							Wildnet, birdata
Eudynamys scolopacea	common koel							Wildnet, birdata
Eurystomus orientalis	Dollarbird	С						Wildnet, birdata, QM
Falco berigora	Brown Falcon	С						Wildnet, birdata
Falco cenchroides	Nankeen Kestrel	С						Wildnet, birdata
Falco fasciatus	Brown Goshawk	С						
Falco hypoleucos	grey falcon	R (NC)	у					
Falco longipennis	Australian Hobby	С						





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Falco peregrinus	Peregrine Falcon	С						
Gallinula tenebrosa	dusky moorhen							Wildnet, birdata
Gallirallus philippensis	buff-banded rail							Wildnet, birdata
Geopelia humeralis	Bar-shouldered Dove	С						Wildnet, birdata
Geopelia placida	Peaceful Dove	С						Wildnet, birdata
Geophaps scripta scripta	Squatter Pigeon	V (EPBC)						
Gerygone albogularis	white-throated gerygone							Wildnet
Gerygone fusca	Western Gerygone	С						Wildnet, birdata
Gerygone olivacea	White-throated Gerygone	С						Birdata
Gliciphila melanops	Tawny-crowned Honeyeater	С						
Glossopsitta pusilla	little lorikeet							Wildnet, birdata
Grallina cyanoleuca	Magpie-lark	С						Wildnet, birdata
Grus rubicunda	Brolga	С						Wildnet, birdata
Gymnorhina tibicen	Australian Magpie	С						Wildnet, Birdata
Haliaeetus fasciatus	White-bellied Sea-Eagle	С						
Haliaeetus leucogaster	white-bellied sea-eagle							Wildnet, birdata
Haliastur sphenurus	Whistling Kite	С						Wildnet, birdata
Hieraaetus morphnoides	Little Eagle	С						Wildnet, birdata
Himantopus himantopus	black-winged stilt							Wildnet, birdata
Hirundo ariel	Fairy Martin	С						Birdata
Hirundo neoxena	Welcome Swallow	С						Wildnet, birdata
Hirundo nigricans	Tree Martin	С						Birdata
Ixobrychus flavicollis	black bittern							Wildnet, birdata
Lalage leucomela	Varied Triller	С						Wildnet, birdata





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Lalage tricolor	White-winged Triller	С						Wildnet, birdata, QM
Lichenostomus chrysops	Yellow-faced Honeyeater	С						Wildnet
Lichenostomus fuscus	Fuscous Honeyeater							Birdata
Lichenostomus leucotis	White-eared Honeyeater							QM
Lichenostomus melanops	yellow-tufted honeyeater							Wildnet
Lichenostomus penicillatus	White-plumed Honeyeater	С						Wildnet, birdata
Lichenostomus plumulus	Grey-fronted Honeyeater	С						
Lichenostomus virescens	Singing Honeyeater							QM
Lichmera indistincta	Brown Honeyeater	С						Wildnet, birdata, QM
Lonchura castaneothorax	Chestnut-breasted Mannikin	С						Wildnet, birdata
Lophoictinia isura	square-tailed kite							Wildnet, birdata
Macronectes giganteus	Southern Giant-Petrel							QM
Macropygia amboinensis	Brown Cuckoo-Dove	С						
Malurus cyaneus	Suberb Fairy-Wren	С						Wildnet, birdata
Malurus lamberti	Variegated Fairy-Wren	С						Wildnet, birdata
Malurus melanocephalus	Red-backed Fairy-wren	С						Wildnet, birdata, QM
Manorina flavigula	Yellow-throated Miner	С						Wildnet, birdata
Manorina melanocephala	Noisy Miner	С						Wildnet, birdata, QM
Megalurus gramineus	Little Grassbird	С						
Meliphaga lewinii	Lewin's Honeyeater	С						Wildnet, birdata
Melithreptus albogularis	White-throated Honeyeater	С						Wildnet, birdata, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Melithreptus brevirostris	Brown-headed Honeyeater	С						Wildnet
Melithreptus gularis	Black-chinned Honeyeater	R (NC)						Wildnet, birdata, QM
Melithreptus lunatus	White-naped Honeyeater	С						
Melopsittacus undulatus	Budgerigar	С						
Merops ornatus	Rainbow Bee-eater	С		,				Wildnet, birdata
Microcarbo melanoleucos	little pied cormorant							Wildnet
Microeca fascinans	Jacky Winter	С						Wildnet, birdata
Milvus migrans	Black Kite	С						Wildnet, birdata
Mirafra javanica	Singing Bushlark	С						Wildnet, birdata
Myiagra cyanoleuca	satin flycatcher							Wildnet
Myiagra inquieta	Restless Flycatcher	С						Wildnet, birdata
Myiagra rubecula	Leaden Flycatcher	С						Wildnet, birdata, QM
Myzomela sanguinolenta	Scarlet Honeyeater	С						Wildnet
Neochmia modesta	Plum-headed Finch	С						Wildnet, birdata
Neochmia temporalis	Red-browed Finch	С						Wildnet, QM
Netttapus coromandelianus	Cotton Pygmy-goose	R (NC)						Wildnet
Ninox boobook	Southern Boobook	С						Wildnet, birdata, QM
Ninox strenua	powerful owl	V (NC)						
Nycticorax caledonicus	Nankeen Night Heron	С						Wildnet, birdata
Nymphicus hollandicus	Cockatiel	С						Wildnet, birdata
Ocyphaps lophotes	Crested Pigeon	С						Wildnet, birdata
Oriolus sagittatus	Olive-backed Oriole	С						Wildnet, birdata





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Pachycephala pectoralis	golden whistler							Wildnet, birdata, QM
Pachycephala rufiventris	Rufous Whistler	С						Wildnet, birdata, QM
Pardalotus punctatus	spotted pardalote							Wildnet, birdata
Pardalotus striatus	Striated Pardalote	С						Wildnet, birdata, QM
Passer domesticus	House Sparrow	С						Wildnet, birdata
Pelicanus conspicillatus	Australian Pelican	С						Wildnet, birdata
Petrochelidon ariel	fairy martin							Wildnet
Petrochelidon nigricans	tree martin							Wildnet, QM
Petroica goodenovii	red-capped robin							Wildnet, birdata
Petroica rosea	Rose Robin	С						Wildnet, QM
Phalacrocorax carbo	great cormorant							Wildnet, birdata
Phalacrocorax melanoleucos	Little Pied Cormorant	С						Birdata
Phalacrocorax sulcirostris	Little Black Cormorant	С						Wildnet, birdata
Phalacrocorax varius	pied cormorant							Wildnet, birdata
Phalocrocorax carbo	Great Coromorant	С						
Phaps chalcoptera	Common Bronzewing	С						
Philemon citreogularis	Little Friarbird	С						Wildnet, birdata, QM
Philemon corniculatus	Noisy Friarbird	С						Wildnet, birdata, QM
Platelea flavipes	Yellow-billed Spoonbill	С						Wildnet, birdata
Platycercus adscitus	Pale-headed Rosella	С						Wildnet, birdata, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Platycercus adscitus eximius	Eastern Rosella	С						
Plectorhyncha lanceolata	Striped Honeyeater	С						Wildnet, birdata, QM
Podargus strigoides	Tawny Frogmouth	С						Wildnet, QM
Podiceps cristatus	great crested grebe							Wildnet
Pomatostomus temporalis	Grey-crowned Babbler	С						Wildnet, birdata, QM
Porphyrio porphyrio	purple swamphen							Wildnet
Porzana tabuensis	Spotless Crake	С						Wildnet, birdata
Psephotus haematonotus	Red-rumped Parrot	С						Wildnet
Ptilonorhynchus maculatus	spotted bowerbird							Wildnet
Rhipidura albiscapa	grey fantail							Wildnet, birdata
Rhipidura fuliginosa	Grey Fantail	С						
Rhipidura leucophrys	Willie Wagtail	С						Wildnet, birdata
Rhipidura rufifrons	Rufous Fantail	С						Wildnet
Rostratula benghalensis	Painted Snipe							QM
Scythrops novaehollandiae	Channel-billed Cuckoo	С						Wildnet, birdata
Sericornis frontalis	White-browed Scrub-wren	С						Wildnet, birdata, QM
Smicrornis brevirostris	Weebill	С						Wildnet, birdata, QM
Sphecotheres viridis	Figbird	С						Wildnet, birdata, QM
Stictonetta naevosa	freckled duck							Wildnet
Strepera graculina	Pied Currawong	С						Wildnet, birdata, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Struthidea cinerea	Apostlebird	С						Wildnet, birdata
Sturnus vulgaris*	Common Starling	I						Birdata
Tachybaptus novaehollandiae	Australasian Grebe	С						Wildnet, birdata
Taeniopygia bichenovii	Double-barred Finch	С						Wildnet, birdata
Taeniopygia guttata	Zebra Finch	С						Wildnet, birdata
Threskiornis molucca	Australian White Ibis	С						Wildnet
Threskiornis spinicollis	Straw-necked Ibis	С						Wildnet, birdata
Todiramphus macleayi	Forest Kingfisher	С						Wildnet
Todiramphus sanctus	Sacred Kingfisher	С						Wildnet, birdata
Todiramphus sanctus	sacred kingfisher							
Trichoglossus haematodus	Rainbow Lorikeet	С						Wildnet, birdata
Turnix maculosus	red-backed button-quail							Wildnet
Tyto alba	Barn Owl	С						QM, Wildnet
Tyto capensis	Grass Owl	С						
Tyto novaehollandiae	Masked Owl	С						Garnet&Crowley
Vanellus miles	Masked Lapwing	С						Wildnet, birdata
Vanellus tricolor	Banded Lapwing							Birdata
Zosterops lateralis	Silvereye	С						Wildnet, birdata
Mammals								
Aepyprymnus rufescens	Rufous Bettong	С						Wildnet
Bos taurus	European cattle							Wildnet
Canis lupus*	Dingo, domestic dog	1						Wildnet
Chalinolobus gouldii	Gould's Wattled Bat	С						Wildnet
Chalinolobus picatus	Little Pied Bat	R (NC)						Wildnet





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Equus caballus	horse							Wildnet
Felis catus*	Cat	1						Wildnet
Hydromys chrysogaster	Water Rat	С						Wildnet, QM
Isoodon macrourus	Northern Brown Bandicoot							QM
Lepus capensis*	Brown Hare	I						
Macropus dorsalis	Black-stripe Wallaby	С						Wildnet, QM
Macropus giganteus	Eastern Grey Kangaroo	С						Wildnet
Macropus parryi	Whiptail Wallaby	С						Wildnet
Macropus robustus	Wallaroo	С						Wildnet, QM
Macropus rufogriseus	Red-necked Wallaby	С						Wildnet, QM
Melomys cervinipes	Fawn-footed Melomys	С						
Mormopterus planiceps	Southern Free-tail Bat							QM
Mus musculus*	House Mouse	1						Wildnet, QM
Nyctophilus geoffroyi	Lesser Long-eared Bat	С						
Nyctophilus gouldi	Gould's Long-eared Bat	С						
Nyctophilus timoriensis	greater long-eared bat	R (NC)						
Nyctophilus sp.	Long-eared Bat	С						Wildnet
Oryctolagus cuniculus*	Rabbit	1						Wildnet
Petauroides volans	Greater Glider	С						Wildnet
Petaurus australis	Squirrel Glider	С						
Petaurus breviceps	Sugar Glider	С						Wildnet
Petaurus norfolcensis	squirrel glider							Wildnet, QM
Petrogale herberti	Herbert's rock-wallaby							Wildnet
Phascolarctos cinereus	Koala	С						Wildnet, QM





Scientific name	Common name	Status ¹	ISON Jan 96	ISON Oct 96	QM Mar 97	Hyder Oct 98	EPA 2002	Source ²
Pteropus scapulatus	Little Red Flying Fox	С						Wildnet, QM
Rattus rattus*	Black Rat	ļ						Wildnet
Saccolaimus flaviventris	Yellow-bellied Sheathtail Bat	С						Wildnet
Scotorepens balstoni	Inland Broad-nosed Bat	С						
Scotorepens greyii	Little Broad-nosed Bat							QM
Sminthiopsis macroura	Stripe-faced Dunnart	С						Wildnet, QM
Smithoiopsis murina	Common Dunnart	С						Wildnet
Sus scrofa*	Feral Pig	I						Wildnet
Tachyglossus aculeatus	Short-beaked Echidna	С						Wildnet
Trichosurus vulpecula	Common Brushtail Possum	С						Wildnet, QM
Vulpes vulpes*	Fox	I						
Wallabia bicolor	Swamp Wallaby	С						Wildnet, QM

1 Status: EPBC = Environment Protection and Biodiversity Conservation Act 1999

NC = Nature Conservation (Wildlife) Regulation 2006

CE = Critically Endangered; V = Vulnerable; R = Rare; NT = Near Threatened

ISON – ISON Environmental Planners survey completed January 1996

ISON – ISON Environmental Planners survey completed October 1996

QM – Queensland Museum survey completed March 1997

Hyder – Hyder Environmental survey completed October 1996

EPA - Fauna of the Lower Dawson River Floodplain - An Assessment of Fauna Downstream of the Proposed Nathan Dam, completed January 2002 (Note: EVR species only are included in this dataset)

2 Source: Wildnet – EPA Wildlife Online Fauna Database (Accessed March 2008)

QM – Queensland Museum Vertebrate Fauna Database (Accessed March 2008)

Birdata – Birds Australia BirData Database of Birds Records





A.4 Fauna survey results, Nathan Dam and Pipeline

Species Name	Common Name	Status ¹	Site Recorded ²
Amphibians			
Crinia parinsignifera	Eastern Sign-bearing Froglet	С	25, 27, 28
Cyclorana alboguttata	Striped Burrowing Frog	С	4, 6, 8, 11, 14
Cyclorana novaehollandiae	New Holland Frog	С	3, 5, 6, 10, 11, 14
Cyclorana verrucosa	Rough Frog	R (NC)	10, 11
Limnodynastes ornatus	Ornate Burrowing Frog	С	1, 3, 4, 6, 7, 8, 9, 10, 11, 12, 22
Limnodynastes peronii	Brown-striped Frog	С	27
Limnodynastes salmini	Salmon-striped Frog	C, Priority Taxa	25, T2
Limnodynastes tasmaniensis	Spotted Grass Frog	С	15, 28, 30
Litoria caerulea	Green Tree Frog	С	1, 2, 4, 6, 7, 9, 10, 11, 14, 15, 17, 23, 30
Litoria fallax	Eastern Sedge-frog	С	28
Litoria latopalmata	Broad-palmed Frog	С	4, 7, 25
Litoria peroni	Emerald-spotted Tree-frog	С	27
Litoria rubella	Desert Tree Frog	С	6, 7, 17
Litoria wilcoxii	Stoney Creek Frog	С	1, 2
Pseudophyrne major	Great Brown Broodfrog	С	1, 2, 5
Rhinella marina	Cane Toad	1	2, 3, 4, 5, 9, 10, 14, 15, 25, 28
Reptiles			
Amphibolurus nobbi	Nobbi Dragon	С	T2
Anomalopus brevicollis	Short-necked Worm-Skink	R (NC)	25
Anomalopus leuckartii	Two-clawed Worm-skink	С	9, 27
Antaresia maculosa	Spotted Python	С	2
Aspidites melanocephalus	Black-headed Python	С	Т3
Boiga irregularis	Brown Tree Snake	С	6, 12
Brachyurophis australis	Australian Coral Snake	С	1
Carlia pectoralis	Open-litter Rainbow-skink	С	1
Carlia vivax	Tussock Rainbow-skink	С	Орр
Chelodina expansa	Broad-shelled Turtle	C, R/IK, Priority Taxa	10
Cryptoblepharus plagiocephalus	Callose-palmed Shinning-skink	С	6
Cryptoblepharus virgatus	Cream-striped Shinning-skink	С	1, 2, 731
Cryptophis nigrescens	Eastern Small-eyed Snake	С	2
Ctenotus robustus	Robust Ctenotus	С	15
Demansia vestigiata	Lesser Black Whipsnake	С	T1
Diplodactylus steindachneri	Box-patterned Gecko	С	5, Opp
Diplodactylus vittatus	Stone Gecko	С	13





Species Name	Common Name	Status ¹	Site Recorded ²
Emydura macquarii kreffti	Krefft's Turtle	C, R/IK, Priority Taxa	Орр
Gehyra dubia	Dubious Dtella	С	Орр
Gehyra variegata	Tree Dtella	С	4, 5, 11, 12, 14, 15, 17, 29, 31
Hemiaspis damelli	Grey Snake	E (NC)	T2
Heteronotia binoei	Bynoe's Gecko	С	1, 4, 5, 11, 12, 14, 15, 17, 22, 30, 31
Lerista fragilis	Eastern Mulch-slider	С	9
Lerista punctatovittata	Eastern Robust Slider	С	3
Lialis burtoni	Burton's Snake-lizard	С	13
Lygisaurus (Carlia) foliorum	Tree-base Litter-skink	С	10
Menetia greyii	Common Dwarf Skink	С	6, 9, 12
Morethia boulengeri	South-eastern Morethia Skink	С	23
Morethia taeniopleura	Fire-tailed Skink	С	2, 5, 9, 10
Oedura rhombifer	Ziz-zig Velvet Gecko	С	12
Paradelma orientalis	Brigalow Scaly-foot	V (NC)	13
		V (EPBC)	
Parasuta dwyeri	Dwyer's Snake	С	T1
Pogona barbata	Bearded Dragon	С	10
Pseudonaja textilis	Eastern Brown Snake	С	T1
Pygopus schraderi	Eastern Hooded Scaly-foot	С	T1
Strophurus taenicauda	Golden-tailed Gecko	NT (NC)	T1, PI
Underwoodisaurus millii	Barking Gecko	С	PI
Birds			
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	С	3, 4, 22
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	С	3, P33, P30, P28, P26, P24, P21, P19, P15, P14, P13
Acanthiza pusilla	Brown Thornbill	С	3, 25, P33, P15
Acanthiza reguloides	Buff-rumped Thornbill	С	3, 1, 5, P30
Accipiter cirrhocephalus	Collared Sparrowhawk	С	11
Aegotheles cristatus	Australian Owlet-nightjar	С	1, 2, 3, 4, 5, 12
Alisterus scapularis	Australian King-Parrot	С	3
Anas castanea	Chestnut Teal	С	4, 6
Anas gracilis	Grey Teal	С	4, 14, 22, 23
Anas superciliosa	Pacific Black Duck	С	4, 6, 22, 23
Anhinga melanogaster	Darter	С	22
Anseranas semipalmata	Magpie Goose	С	17
Anthus australis	Australian Pipit	С	3, 28
Aprosmictus erythropterus	Red-winged Parrot	С	3, 13, 21 ,22, 25
Aquila audax	Wedge-tailed Eagle	С	3





Species Name	Common Name	Status ¹	Site Recorded ²
Ardea intermedia	Intermediate Egret	С	22
Ardea pacifica	White-necked Heron	С	4
Ardeotis australis	Australian Bustard	C, NT	T2
Artamus cinereus	Black-faced Woodswallow	С	T4
Cacatua galerita	Sulphur-crested Cockatoo	С	3, 4, 11, 14, 15, 21, 23, 25, P33, P18, P12
Cacatua sanguinea	Little Corella	С	9
Cacomantis flabelliformis	Fan-tailed Cuckoo	С	1
Cacomantis variolosus	Brush Cuckoo	С	1, 3, 13
Centropus phasianinus	Pheasant Coucal	С	3, 25
Chenonetta jubata	Australian Wood-Duck	С	14, 15, 22, 29
Chrysococcyx basalis	Horsfield's Bronze-cuckoo	С	12, 13
Cincloramphus cruralis	Brown Songlark	С	Орр
Cisticola exilis	Golden-headed Cisticola	С	Орр
Collurincincla harmonica	Grey Shrike-thrush	С	9, P30, P28, P22, P20
Coracina maxima	Ground Cuckoo-shrike	С	Орр
Coracina novaehollandiae	Black-faced Cuckoo-shrike	С	1, 3, 9, 10, 15, 30, P27, P20
Coracina papuensis	White-bellied Cuckoo-shrike	С	3
Coracina tenuiostris	Cicadabird	С	12, 13
Corcorax melanorhamphos	White-winged Chough	С	3, 6, 11, 15, 25, 29
Cormobates leucophaea	White-throated Treecreeper	С	3
Corvus coronoides	Australian Raven	С	4
Corvus orru	Torresian Crow	С	4, 6, 9, 10, 11, 14, 22, 25, 31, P33, P32, P31, P30, P20, P19, P14, P13, P12, P20
Cracticus nigrogularis	Pied Butcherbird	С	1, 3, 9, 10, 12, 13, 14, 30, P33, P32, P31, P28, P20, P13, P12
Cracticus torquatus	Grey Butcherbird	С	3, 4, 10, 22, 23, 25, P15
Cygnus atratus	Black Swan	С	Орр
Dacelo novaeguineae	Laughing Kookaburra	С	1, 3, 4, 5, 10, 11, 12, 14, 15, 25, 31, P12
Dicaeum hirundinaceum	Mistletoebird	С	3, 4, 6, 10
Dicrurus bracteatus	Spangled Drongo	С	1, 13
Dromaius novaehollandiae	Emu	С	17
Egretta novaehollandiae	White-faced Heron	С	4, 22
Elseyornis melanops	Black-fronted Dottrel	С	22, 23
Entomyzon cyanotis	Blue-faced Honeyeater	С	10, 12, 14, 22, 30
Eolophus roseicapillus	Galah	С	1, 3, 6, 9, 10, 12, 22, 25, 29, 31, P33, P32, P31, P17, P13, P18, P17, P13
Eopsaltria australis	Eastern Yellow Robin	С	2, 3, 13
Ephippiorhynchus asiaticus	Black-necked stork	R (NC)	LM





Species Name	Common Name	Status ¹	Site Recorded ²
Eurystomus orientalis	Dollarbird	С	3, 6
Falco berigora	Brown Falcon	С	3, 4
Falco cenchroides	Nankeen Kestrel	С	29
Falco hypoleucos	Grey Falcon	R (NC)	29(?)
Geopelia humeralis	Bar-shouldered Dove	С	13, 21
Geopelia placida	Peaceful Dove	С	3, 10, 14, P17
Geophaps scripta scripta	Squatter Pigeon	V (EPBC) V (NC)	11, 23, 27
Gerygone fusca	Western Gerygone	С	3
Gerygone olivacea	White-throated Gerygone	С	14, 17, 30, P20
Grallina cyanoleuca	Magpie-lark	С	3, 4, 10, 11, 14, 22, 23, 29, 30, 31, P33, P17, P13
Grantiella picta	Painted Honeyeater	R (NC)	2
Grus rubicunda	Brolga	С	27
Gymnorhina tibicen	Australian Magpie	С	1, 3, 4, 6, 9, 10, 11, 12, 13, 15, 21, 25, 29, 30, 31, P32, P20, P19, P17
Haliastur sphenurus	Whistling Kite	С	3, 6, 10, 13, 14, 17
Hieraaetus morphnoides	Little Eagle	С	Орр
Hirundo ariel	Fairy Martin	С	23
Hirundo neoxena	Welcome Swallow	С	3
Lalage leucomela	Varied Triller	С	1
Lalage tricolor	White-winged Triller	С	P30
Lichenostomus chrysops	Yellow-faced Honeyeater	С	P26, P24, P20
Lichenostomus fuscus	Fuscous Honeyeater	С	P26
Lichenostomus leucotis	White-eared Honeyeater	С	P29, P27, P26, P24, P22, P21, P14
Lichenostomus melanops	Yellow-tufted Honeyeater	С	P26
Lichenostomus penicillatus	White-plumed Honeyeater	С	3, 4, 22, P17
Lichenostomus plumulus	Grey-fronted Honeyeater	С	3, 4, P30
Lichmera indistincta	Brown Honeyeater	С	3, 10, 11, 21, 25, 27, 29
Macropygia amboinensis	Brown Cuckoo-Dove	С	2, 5, 11
Malurus splendens	Splendid Fairy-wren	С	P20
Malurus melanocephalus	Red-backed Fairy-wren	С	5, 9, 10, 27
Manorina flavigula	Yellow-throated Miner	С	17, 22
Manorina melanocephala	Noisy Miner	С	3, 4, 10, 11, 29, 30, 31, P33, P28, P25,P23, P20, P18, P17, P16, P13, P12
Megalurus gramineus	Little Grassbird	С	T4
Melanodryas cucullata	Hooded Robin	С	PI
Melithreptus albogularis	White-throated Honeyeater	С	2, 6, 10, 12, 13
Melithreptus gularis	Black-chinned Honeyeater	R (NC)	14





Species Name	Common Name	Status ¹	Site Recorded ²
Melithreptus lunatus	White-naped Honeyeater	С	1, 6, 13, 15, 17
Melopsittacus undulatus	Budgerigar	С	Орр
Merops ornatus	Rainbow Bee-eater	С	12, 13
Microeca fascinans	Jacky Winter	С	3, 10, 22, 23, P17
Milvus migrans	Black Kite	С	3
Myiagra rubecula	Leaden Flycatcher	С	3, 4, 5, 14
Myzomela sanguinolenta	Scarlet Honeyeater	С	1, 6, 10, 25, 29, 30, P26
Neochmia temporalis	Red-browed Finch	С	Орр
Nettapus coromandelianus	Cotton Pygmy-goose	R (NC)	LM
Ninox boobook	Southern Boobook	С	3, 7, 12, 17, 25
Ninox connivens	Barking Owl	C, NT, Priority Taxa	29
Nymphicus hollandicus	Cockatiel	С	3, 11, 23, 29
Ocyphaps lophotes	Crested Pigeon	С	3, 4, 11, 21, 22, 23, 31, P33, P31, P18
Oriolus sagittatus	Olive-backed Oriole	С	6
Pachycephala rufiventris	Rufous Whistler	С	1, 3, 4, 6, 10, 17, 22, 23, 30, P26
Pardalotus striatus	Striated Pardalote	С	1, 3, 10, 11, 14, 15, 17, 23, 25, 27, 28, 29, 30, 31, P31, P30, P26, P24, P23, P21, P20, P19, P17, P13
Pelecanus conspicillatus	Australian Pelican	С	22, 23
Petroica goodenovii	Red-capped Robin	С	14
Phalacrocorax sulcirostris	Little Black Cormorant	С	22
Phalacrocorax varius	Pied Cormorant	С	23
Phaps chalcoptera	Common Bronzewing	С	3, 12, P30
Philemon citreogularis	Little Friarbird	С	1, 2, 3, 6, 11, 14, 22, 23, 25, 29, 31, P26, P20, P17
Philemon corniculatus	Noisy Friarbird	С	1, 2, 3, 4, 6, 9, 10, 11, 13, 14, 21, P20
Platycercus adscitus	Pale-headed Rosella	С	3, 4, 10, 11, 14, 22, 29, 30, 31, P12
Plectorhyncha lanceolata	Striped Honeyeater	С	3
Podargus strigoides	Tawny Frogmouth	С	3, 5, 29
Pomatostomus temporalis	Grey-crowned Babbler	C, NT, Priority Taxa	3, 11, 15, 31, P33, P28, P27, P12
Psephotus haematonotus	Red-rumped Parrot	С	3
Rhipidura fuliginosa	Grey Fantail	С	10, 14, 15, 17, 22, 23, 25, 27, 30, P20
Rhipidura leucophrys	Willie Wagtail	С	3, 10, 11, 15, 22, 23, 27, P33, P29, P15
Sericornis frontalis	White-browed Scrubwren	С	10
Smicrornis brevirostris	Weebill	С	11, 25





Species Name	Common Name	Status ¹	Site Recorded ²
Strepera graculina	Pied Currawong	С	2, Opp, P12
Struthidea cinerea	Apostlebird	С	3, 6, 11, 15, 22, 23, 30, 31
Taeniopygia bichenovii	Double-barred Finch	С	3, 22, 23, 25, 29, P30
Taeniopygia guttata	Zebra Finch	С	T4
Threskiornis molluca	Australian White Ibis	С	Орр
Threskiornis spinicollis	Straw-necked Ibis	С	Орр
Todiramphus sanctus	Sacred Kingfisher	С	1, 3, 4, 30
Trichoglossus haematodus	Rainbow Lorikeet	С	1, 3, 4, 6, 10, 11, 13, 15, 25, 27, P22, P20, P17
Tyto alba	Barn Owl	С	5, 10, 29
Tyto capensis	Grass Owl	C, NT, Priority Taxa	T4
Vanellus miles	Masked Lapwing	С	23
Zosterops lateralis	Silvereye	С	22, 23
Mammals			
Aepyprymnus rufescens	Rufous Bettong	C, Priority Taxa	3, 15
Bos taurus	Cattle	1	Орр
Canis lupus*	Dingo, domestic dog	1	3
Chaerephon jobensis	Northern Free-tailed Bat	С	7, 10, 14
Chalinolobus gouldii	Gould's Wattled Bat	С	2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 29
Chalinolobus nigrogriseus	Hoary Wattled Bat	C, Priority Taxa	8, 9, 11, 12, 14, 27, 29
Chalinolobus picatus	Little Pied Bat	R (NC)	1, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 29
Equus equinus	Horse	I	13
Felis catus*	Cat	1	3, 4
Hydromys chrysogaster	Water Rat	С	1
Lepus capensis*	Brown Hare	1	Орр
Macropus dorsalis	Black-striped Wallaby	C, Priority Taxa	Орр
Macropus giganteus	Eastern Grey Kangaroo	С	3, 5, Opp
Macropus rufogriseus	Red-necked Wallaby	С	3, 4, 5
Miniopterus schreibersii oceanensis	Eastern Bent-winged Bat	C, Priority Taxa	6, 7, 10, 11, 12, 13, 14
Mormopterus beccarii	Beccarii's Free-tailed Bat	С	1, 6, 7, 8, 10, 11, 12, 13, 14, 29
Mormopterus sp. 2	Eastern Free-tailed Bat	С	1, 2, 7, 10
Mormopterus sp. 3	Inland Free-tailed Bat	С	1, 2, 6, 7, 10, 12, 13, 14, 26, 27, 29





Species Name	Common Name	Status ¹	Site Recorded ²
Mus musculus	House Mouse	I	6
Nyctophilus geoffroyi	Lesser Long-eared Bat	С	2, 3, 29
Oryctolagus cuniculus*	Rabbit	1	3, 4, Opp
Petauroides volans	Greater Glider	C, Priority Taxa	1, 5, 7, 10
Petaurus breviceps	Sugar Glider	С	3
Phascolarctos cinereus	Koala	C, Priority Taxa	15
Rhinolophus megaphyllus	Eastern Horseshoe Bat	С	7, 27
Saccolaimus flaviventris	Yellow-bellied Sheath-tailed bat	С	7, 9, 10, 11, 12, 13, 14
Scotorepens balstoni	Inland Broad-nosed Bat	С	1, 2, 6, 7, 11, 12, 14
Scotorepens greyii	Little Broad-nosed Bat	С	1, 6, 7, 9, 10, 11, 12, 13, 14
Sminthiopsis macroura	Stripe-faced Dunnart	С	6
Sus scrofa	Pig	I	4
Tachyglossus aculeatus	Short-beaked Echidna	С	3, 25
Tadarida australis	White-striped Free-tailed Bat	С	2, 1,0, 11, 13, 29
Taphozous georgianus	Common Sheath-tailed Bat	С	7, 9, 10, 11, 12, 13, 14
Trichosurus vulpecula	Common Brushtail Possum	C, Priority Taxa	1, 3, 5, 7, 8, 10, 15
Vespadelus troughtoni	Eastern Cave Bat	С	2, 7, 9, 11, 12
Vespadelus vulturnusN. baverstocki	Little/Inland Forest Bat	C, Priority Taxa	7, 10, 11, 12, 14, 26
Vulpes vulpes*	Fox	1	3, Opp
Wallabia bicolor	Swamp Wallaby	С	3, P17

¹ Status: EPBC = Environment Protection and Biodiversity Conservation Act 1999

A.5 EVR species profiles

A.5.1 Introduction

The following section provides background information on the biology, ecology and conservation status of EVR species that are known from within the dam study area and pipeline corridor during the current survey or from previous surveys.

A.5.2 Boggomoss Snail, Adclarkia dawsonensis

The Boggomoss Snail is a snail from the monotypic genus, *Adclarkia*, and is endemic to the Taroom region in central Queensland. The species was discovered by Queensland Museum staff during fauna investigations for the Dawson

NC = Nature Conservation (Wildlife) Regulation 2006

 $E = Endangered; \ V = Vulnerable; \ R = Rare; \ NT - Near \ Threatened; \ C = Least \ Concern; \ I = Introduced$

² Site descriptions provided in Table 11-A-1 for dam survey sites and Table 11-A-4 for pipeline survey sites. All pipeline survey sites are prefixed with a P to distinguish from dam survey sites.





Dam in the mid 1990's. Two populations were found; in the Dawson Valley, north-east of Taroom and on the Dawson River floodplain (Stanisic 1996). The Dawson Valley population is found in a 44.5 hectare patch of riparian vegetation at Isla-Delusion Crossing, while a smaller population is in a 0.75 ha Boggomoss near the Dawson River.

Description

The shell of the snail is of a light brown colour, becoming greenish-yellow at the anterior, with a white lip. It has a thin shell, with an average diameter of about 2.3 centimetres that is made up of 5 1/8 - 5 5/8 whorls (**Plate 1**). The shell is 1.5 cm high with a depressed spire. The snail is light brown to white in colour, with the amounts of grey around the neck, on the sides of the foot and above the tail varying between specimens (Stanisic 1996).

Distribution and habitat

Recent surveys for the Boggomoss Snail with the two known sites have resulted in revised population estimates at each site. The Mt. Rose Boggomoss contains the bulk of the population with an estimated 350 individuals, while the population at the Isla-Delusion was unable to be estimated (BAAM 2009). In addition, new populations were discovered at both sites, including populations within two boggomosses at Mt. Rose Station and a range extension for the Isla-Delusion population to include upstream riparian habitats.

Recent field surveys suggest that the species was, prior to clearing, restricted to the gilgaied Brigalow habitats along the alluvial flats and riparian habitats of the Dawson River between Taroom and Theodore. The soils within this region are brown/grey loams and clay derived from basalt which are productive and consequently have been historically cleared for agriculture (Clarke and Spier-Ashcroft 2003).

The Boggomosses that occur within this region are dominated by water-tolerant species, such as Coolibah, sedges and ferns, although depending upon the level of cattle grazing can be degraded. This vegetation produces a deep, moist accumulated leaf litter, which provide the microhabitat features suitable for the snail (BAAM 2009). Fallen timber and rotting woody vegetation also provides shelter sites for the snail.

Distribution in Protected Areas

One of the known population's of the Boggomoss Snail is located in a camping and water reserve between Taroom and Theodore, at the Isla-Delusion crossing of the Dawson River (Stanisic 2008). No other known protected populations of the Boggomoss Snail.

Ecology

It is assumed that, like many other slugs and snails, it feeds on decaying plant matter, bacteria and fungi (Clarke and Spier-Ashcroft 2003).

Other aspects of the snail's ecology such as lifespan, growth rates and mode of reproduction are still unknown. The Boggomoss Snail belongs to the Camaenidae group of snails which are known to live for up to four years without feeding, suggested that this snail may have a long life span (Clarke and Spier – Ashcroft 2003).





The Boggomoss Snail and its' unique habitats are subject to a number of ongoing threats including; flooding in the Dawson River, drying out of boggomoss habitat, fire, grazing, introduced weeds, timber collection and quarrying (Threatened Species Scientific Committee, TSSC, 2007). In particular, the thin, fragile shell of the snail suggests that they may be particularly sensitive to habitat modification which may result in desiccation.

It is thought that the populations of the Boggomoss Snail are in decline. There are claims that it will decline by 5% over the next 3 years and has a 50% probability of becoming extinct in the wild in the next 20 years (TSSC 2007). Stanisic (2009) has reported that some of the Mt. Rose Station individuals are able to be translocated to a suitable alternative habitat area without endangering the existing source population. Further investigations and translocation trials are likely to be ongoing throughout the Project timeline.



Plate 1 Boggomoss Snail, Adclarkia dawsonensis (Photo: D. O'Brien)

A.5.3 Rough Frog, Cyclorana verrucosa

Description

The Rough Frog is largely similar to other members of the burrowing frog genus Cyclorana. They are relatively large with short, squat bodies and muscular limbs and a comparatively larger head and gape compared to other frogs. They tend to acquire a posture similar to that of Cane Toads (*Bufo marinus*) when at rest, often leading to misidentifications with the exotic pest.

The Rough Frog is distinguished from other burrowing frogs by a series of short skin folds arranged longitudinally along its back (**Plate 2**). The dorsal surface is irregularly marked with patches of dark chocolate on a pale tan and sometimes dark green background. A pale stripe is located along the middle of the back. The tympanum is prominent and there is a dark stripe on the sides of the head. As with other Cyclorana the fingers are unwebbed and the toes are slightly webbed near the base (Barker, *et al* 1995).





Distribution and habitat

The distribution of the Rough Frog is listed in Barker, *et al* (1995) as a band from southern inland Queensland to far western New South Wales, though Cogger (2000) presents a similar though protracted distribution. The frog is most often found in open grasslands and woodlands vegetation and are usually near temporary ponds, ditches, claypans or creeks. RE 11.3.2 (Poplar Box woodland on alluvial plains – palustrine wetlands) are considered key habitats for this species (Environmental Protection Agency 2002).

Whilst the geographical distribution of this species is well known, localised occurrences are not well known and cannot be predicted with any accuracy (Cogger 2000). Furthermore, they are not known to occur solely within discrete habitats within the landscape, nor associated with any particular water sources.

Distribution in protected areas

The Rough Frog is likely to be protected in State Forests (SFs) and National Parks (NPs) across the bioregion, including Expedition NP, Isla Gorge NP and Barakula SF.

Ecology

As with all burrowing frogs, the Rough Frog forms a burrow during dry conditions where it consecutively sheds layers of skin to form an impermeable cocoon that prevents water loss (Barker, *et al* 1995). After significant rainfall events, the frog emerges to breed, with males calling year round apart from the coldest months. Female frogs are thought to reach sexual maturity within two years and a mature female lays an average annual clutch of up to 1 000 eggs (Cogger 2000). Eggs are laid in clumps and without foam. Tadpoles are relatively large and are a light gold or pale grey in colour. They can develop guickly depending upon seasonal conditions (Cogger 2000).

Threats and conservation status

The range of the Rough Frog is thought to have decreased although this is largely speculative. The potential threats on this species are not well known, although habitat modification and degraded water quality have been suggested as potential factors (Cogger, *et al.*1993).

The Rough Frog is listed as rare in Queensland under the NC Act, although it is not listed in The Action Plan for Australian Frogs (Tyler 1997).

Poplar Box woodland on alluvial swamps occurs within the water storage and are recognised as a key habitat for this species.







Plate 2 Rough Frog, Cyclorana verrucosa (Photo: D. Fleming)

A.5.4 Brigalow Scaly-foot, *Paradelma orientalis*

Description

Brigalow Scaly-foots are legless lizards that belong to the monotypic genus Paradelma. They are distinguish by a pair of moderately large flaps which are the vestiges of hind limbs and a conspicuous pale to tan band across the back of the head which is bordered by a darker band on the nape (**Plate 3**). The rest of the body and tail is a glossy dark brown or grey above with a cream to white belly. They have a conspicuous ear opening. They are a moderately long lizard with a snout-vent length of just under 200 millimetres.

Distribution and habitat

Scaly-foots are restricted to central-eastern Queensland and are most often associated with sandstone ridges, vine thickets and woodlands of the Brigalow Belt (Wilson and Swan 2008). They are found in a wide variety of open forest habitats on several soil types (Schultz and Eyre 1997; Tremul 2000). In some areas lizards are found in remnant Brigalow (*Acacia harpophylla*) woodland with sparse tussock grasses on grey cracking clay soils (Cogger *et al.*1993).

The species has been collected on cultivated areas, suggesting persistence despite clearing (McDonald *et al.*1991).

Distribution in Protected Areas

In the Brigalow Belt, southern Desert Uplands and Mulga Land bioregions, known populations of the Brigalow Scaly-foot are protected in Idalia NP, Lilly Hills Reserve on Boyne Island, Carnarvon NP, Dunmore SF near Cecil Plains, Eena SF, Barakula SF (Cogger *et al.*1993; Covacevich *et al.*1996a; Schultz & Eyre 1997; Tremul 2000; Wilson & Knowles 1988).

Ecology

Brigalow Scaly-foots are often found sheltering under sandstone slabs, surface debris, dense leaf litter or in grass hummocks (Wilson and Swan 2008). They are nocturnal and have been observed to climb wattles (*Acacia* spp.) using the trunk and main branches to reach heights in excess of two metres. It is thought that the lizard lick the exudates (sap)





from some wattles and exudate from Broad-leaf Wattle (*A. falciformis*) forms a major portion of the diet of juvenile and adult lizards on Boyne Island, near Gladstone in central Queensland. Their primary food source is arthropods including spiders and insects.

Little is known about the reproductive biology of the Brigalow Scaly-foot. Tremul (2000) captured a gravid female from Boyne Island and successfully incubated the laid eggs. Two elongate eggs were laid in captivity a few weeks after capture with the eggs hatching in late January after being incubated between 18 and 36°C. Hatching is a slow process, taking from 7.5 to 53 hours for the hatchling to finally exit the egg (Tremul 2000).

Threats and conservation status

The threats on this species are habitat loss due to land clearing and thinning operations, inappropriate road side management, and predation by feral animals. Habitat degradation from grazing remains a significant threat due to the destruction of shelter sites and removal of vegetation (EPA 2002a).

This species is listed as vulnerable under the Queensland NC Act and the Commonwealth EPBC Act. They are listed as vulnerable in The Action Plan for Australian Reptiles (Cogger, *et al.*1993).



Plate 3 Brigalow Scaly-foot, Paradelma orientalis (Photo: J. Richard)

A.5.5 Short-necked Worm-skink, *Anomalopus brevicollis*

Description

The short-necked worm-skink is a small, limbless, burrowing skink that grows up to 16 cm. Body colouration is light tan to buff, the head and tail are darker bluish-brown, the belly is whitish and the chin and throat are spotted with dark brown. A dark speckle on each scale creates a pattern of dotted lines along the length of the animal. This species has a rounded snout and inconspicuous ear-openings.





Distribution and habitat

This species is a habitat generalist being found in dry sclerophyll forest, monsoon rainforest, permanently moist rainforest and vine scrub on rock outcrops. The skink seeks shelter in leaf litter and under rocks and fallen timber on well-draining soils.

This species is endemic to Queensland and is found only in central-eastern Queensland. It is restricted to the northern half of the Mackenzie/Fitzroy/Dawson catchment, from Eungella in the north to Clermont in the west and south to Theodore.

Ecology

The Short-necked Worm-skink is a burrowing species, and when disturbed, it will burrow deep into soft substrates or rock crevices. It produces clutches of one or two eggs, however gestation time is not known. The diet of this species is unknown, although other members of the *Anomalopus* genus feed on crawling insects and insect larvae.

Threats and conservation status

Much of this species range is threatened by habitat loss due to land clearing and thinning operations, inappropriate fire regimes and weed invasion. Potential threats include grazing effects and inappropriate road side management.

The Short-necked Worm-skink is listed as rare in Queensland under the NC Act.

A.5.6 Golden-tailed Gecko, Strophurus taenicauda

Description

The Golden-tailed Gecko is a member of the gecko sub-family Diplodactylinae, which includes the spiny-tailed, striped and jewelled geckoes. They are one of the most striking of geckoes with distinctive black spots on a pale grey to cream body colour (**Plate 4**). The tail bears a bright orange dorso-lateral stripe. The eye is almost entirely a dark red to deep orange colour except for the pupil slit which has a scattering of white dots. The mouth lining is a deep blue colour (Wilson and Swan 2008).

The gecko has a snout-vent length of about 70 millimetres with a relatively long tail. Though related to the spiny-tailed geckoes, the Golden-tailed Gecko lacks spines or enlarged tubercules (a rounded or pointed projection).

Distribution and habitat

The gecko inhabits the open woodlands and open forests of central and south-east Queensland, excluding the south-east coast, although most records are from the Brigalow Belt. It has a patchy distribution but is regularly associated with forests and woodlands containing Cypress Pines. The gecko is generally arboreal (although it will readily occur on the ground) where it shelters under loose bark and within the hollow limbs of trees.

Ecology

Like all geckoes, the Golden-tailed Gecko is nocturnal and hunts for arthropod prey such as spiders and insects. If disturbed or threatened (such as from a predator) it can produce a thick, viscous fluid from its tail. The fluid readily dries in the air to form cobweb-like filaments. The fluid is known to be an irritant if it comes in contact with the eye.





The threats on this species are habitat loss due to land clearing, thinning operations and inappropriate road side management. The Golden-tailed Gecko is listed as near threatened under the Queensland NC Act (recently delisted from rare status).

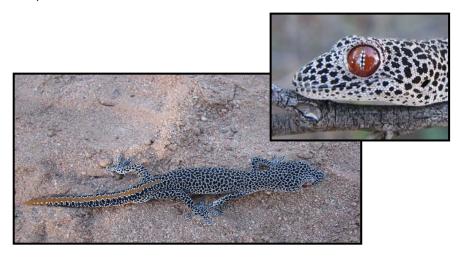


Plate 4 Golden-tailed Gecko, Strophurus taenicauda (Photo: D. Fleming)

A.5.7 Grey Snake, Hemiaspis damelii

Description

The Grey Snake is an indistinct elapid that occurs in south-eastern Queensland and extending into northern NSW. It is a uniform pale grey to olive grey colour along its body with a black band extending from the back of the head to the nape (Plate 5). It is moderately size snake with a total length of around 60 centimetres. The ventral surfaces are generally white or cream with a few dark flecks.

Distribution and habitat

The snake is generally found to the west of the Great Dividing Range although it does occur near Rockhampton. It occurs on low-lying floodplains usually in association with heavy cracking clay soils and Cogger (2000) notes that these can include dry sclerophyll forests and woodlands. It is a crepuscular (dawn and dusk) to nocturnal species that shelters during the day in soil cracks or under fallen timber, disused burrows and railway sleepers (EPA 2002a), usually near a watercourse (Wilson and Swan 2008).

Ecology

Grey snakes are primarily predators of frog though Cogger (2000) notes that they will take skinks. They are ovoviviparous and females produce 4–16 young in each litter usually from January to March. Young snakes take about twelve months to mature.





As the ecology of this species is not well known, potential threats are suspected to include land clearing, Cane Toad poisoning through ingestion and modification of wetlands (EPA 2006). The BBS Fauna Expert Panel (EPA 2002a) noted that this species has experienced a range contraction in the east of its range.

The Grey Snake is listed as endangered under the Queensland NC Act, though the EPA (2002a) note that this status should be reviewed as devalues the conservation status of other threatened Brigalow Belt snakes such as Dunmall's Snake (*Furina dumalii*), which is listed as vulnerable.



Plate 5 Grey Snake, Hemiaspis damelli

A.5.8 Squatter Pigeon (southern subspecies), Geophaps scripta scripta

Description

The threatened southern sub species of the Squatter Pigeon is a medium sized brownish pigeon (26 – 32 centimetres body length) with distinctive black and white markings on the face (**Plate 6**). The breast is a deep bluey grey with a deep white 'V' outlining the wings. The wings are brown in colour with pale feather margins giving them a mottled appearance and occasional green or violet iridescent patches. The southern sub species has a blue-grey ring around the eye (Pizzey and Knight, 2007). Both sexes are similar in appearance, although juveniles have a duller appearance.

Distribution and habitat

The Squatter Pigeon is distributed across much of Queensland and northern NSW apart from the far west of both states. Isolated patches occur along the Darling River in central NSW. The two sub species overlap in a broad line from the Gulf of Carpentaria to between Townsville and Mackay. The pigeon prefers habitats on the inland slopes of the Great Dividing Range, although it occurs on the coast between Proserpine and Port Curtis and occasionally to south-east Queensland.

The extent of the Squatter Pigeon's range is estimated to be 440 000 km², which is based on distribution maps with a medium reliability (Garnett and Crowley 2000).





The pigeon is predominantly observed in grassy eucalypt woodlands and open forests and are often not far from water (Pizzey and Knight 2007). The pigeons do not appear to be restricted to these habitats as birds have also been recorded in pasture with scattered remnant trees, disturbed habitats such as road sides and railway easements and are relatively common in heavily-grazed grasslands north of Rockhampton.

Distribution in Protected Areas

The Squatter Pigeon (southern) is well represented in 12 conservation reserves including Carnarvon NP and Expedition NP which are within 100 kilometres of the study area.

Population information

The combined population size for both sub species is estimated at 40 000 breeding birds, although Garnett and Crowley (2000) note that this is of low reliability. The population of the southern sub species is thought to be stable at present

Ecology

No specific information has been gained on the life history of the Squatter Pigeon (southern), such as ages of sexual maturity, life expectancy or natural mortality. However, Garnett and Crowley (2000) note that nesting occurs on the ground and two eggs are laid in sheltered positions in each breeding season. The season usually extends from May to June, although the birds are said to be capable of breeding throughout most of the year if conditions are good (Pizzey and Knight 2007).

Pigeons forage on the ground or from low vegetation for the seeds of grasses, legumes and other herbs and forbs. It also feeds on insects and ticks where it is attracted to cattle camps (Pizzey and Knight 2007). Cattle camps also provide a source of water where the birds are known to drink from troughs.

The Squatter Pigeon (southern) is usually seen in individuals, pairs or small flocks of up to 20 or more birds (Pizzey and Knight 2007).

Threats and conservation status

Whilst the current range of the Squatter Pigeon (southern) is not currently in decline (Garnett and Crowley, 2000), drastic range contractions occurred in the late 19th and early 20th centuries. Many local or regional populations declined, particularly in the southern part of its range within northern NSW and southern Queensland. The consequent decline in population has since slowed and the Squatter Pigeon (southern) remains locally abundant in the northern part of its range (Garnett and Crowley 2000).

No populations have been identified as being especially important to the long-term survival or recovery of the Squatter Pigeon (southern) (DEWHA 2008). The habitat at the southern part of the range (i.e. south of the Carnarvon Ranges) is fragmented, however the degree of fragmentation and its effect upon the pigeon is unknown (Garnett and Crowley 2000).

The Squatter Pigeon is listed as vulnerable under the Commonwealth EPBC Act and Queensland NC Act.









Plate 6 Squatter Pigeon (southern sub species) Geophaps scripta (Photo: D. Fleming, J. Richard)

A.5.9 Black-chinned Honeyeater, *Melithreptus gularis*

Description

The eastern race of the Black-chinned Honeyeater has experienced a decline in its range during most of the last century (Garnett and Crowley, 2000), whilst the northern race is relatively stable. The Black-chinned Honeyeater is a medium sized honeyeater with a black bill and head, a bold white line around the nape with another extending down either side of the throat with an often inconspicuous black chin. The belly is pale grey and the dorsal surface including wings are a bright golden colour. Mature birds have a bright blue crescent above the eyes.

Distribution and habitat

The honeyeater occurs throughout the woodlands and open forests from the inland slopes of the Great Dividing Range to the coast between Sydney and Newcastle in NSW and between Brisbane and Rockhampton in Queensland. Historically, the eastern race extended from central and western NSW into inland Victoria and south-eastern South Australia, although the species has declined markedly in these regions. From Dubbo (NSW), to Rockhampton the eastern race intergrades with the northern race in a broad band stretching west to southern Cape York Peninsula, and again around Mt Isa (Pizzey and Knight, 2007).

Black-chinned Honeyeaters occupy drier eucalypt woodlands and open forests within an annual rainfall range of 400-700 millimetres, particularly communities containing ironbark and box, and often around timber on watercourses.

Ecology

Like most honeyeaters, Black-chinned Honeyeaters glean insects and lerp from foliage as well as feeding on nectar (Pizzey and Knight 2007).

Breeding occurs from July to December and the nest is a fragile cup of shredded bark, spiders' web, grass and other plant fibres constructed high in the outer branches of trees. Two eggs are produced.





Similar to other woodland dependent birds of south-eastern Australian forests, the range of the Black-chinned Honeyeater (eastern race) has declined, particularly in the southern extents. Much of the suitable habitat within these areas has been cleared and the remainder has been fragmented. They are relatively mobile throughout the landscape, however they are generally absent from small habitat patches for unknown reasons (Garnett and Crowley, 2000).

The Black-chinned Honeyeater is listed as rare under the Queensland NC Act.

A.5.10 Painted Honeyeater, *Granitella picta*

Description

The Painted Honeyeater is small (16 cm) and distinctive, with a black head and black and white underparts with dark streaks on the flanks. The wings and tail are black with bright yellow edgings. The distinctive bill is pink with a dark tip. The female is greyer on the upperparts and has less streaking on the flanks (Simpson and Day 2004).

Distribution and habitat

The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution.

Ecology

This species inhabits Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. It is a specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias and prefers mistletoes of the genus Amyema. Insects and nectar from mistletoe or eucalypts are occasionally eaten. It nests from spring to autumn in a small, delicate nest hanging within the outer canopy of drooping eucalypts, she-oak, paperbark or mistletoe branches (Garnett and Crowley 2000).

Threats and conservation status

Threats to this species include the clearing of woodlands and open forests, removal of large, old trees with heavy mistletoe infestations, degradation of open forest and woodland remnants, including thinning of trees bearing mistletoe and heavy grazing of grassy woodlands.

The Painted Honeyeater is listed as rare under the Queensland NC Act.

A.5.11 Little Pied Bat, *Chalinolobus picatus*

Description

The Little Pied Bat is a distinctive black and white bat that weighs four to eight grams. The head and body are about 4.5 cm in length; the tail 3.5 cm. The fur is glossy black on the back, grey on the belly, with white fur along the flanks forming a 'V' in the pubic area (van Dyckand Strahan 2008).





Distribution and habitat

The Little-Pied Bat is found in inland Queensland and NSW (including Western Plains and slopes) extending slightly into South Australia and Victoria. Occurs in dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress-pine forest, mallee, and Bimbil box (Churchill 1998).

Ecology

The Little pied Bat roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. The species occurs in semi-arid areas and can tolerate high temperatures and dryness but needs access to nearby open water. Little is known of diet other than that it feeds on moths and possibly other flying invertebrates (van Dyck and Strahan 2008).

Threats and conservation status

The Little Pied Bat is listed as rare under the Queensland NC Act. Threats are poorly documented but are likely to include loss of roost sites, clearing of foraging habitat.

A.5.12 Grey Falcon, *Falco hypoleucos*

Description

The Grey Falcon is a small falcon of 30 – 45 centimetres with heavy-set, broad shoulders. It is primarily grey above and white below with a number of dark striations on the belly. There is a prominent dark streak below the eyes and bright yellow eye rings and legs (Simpson and Day 2004).

Distribution and habitat

The falcon has been observed throughout much of arid and semi-arid Australia with most observations made along the inland rivers of Queensland, NSW, South Australia and the Northern Territory. Timbered lowland plains are frequented in the warmer months and acacia shrublands adjacent to riparian vegetation provide suitable hunting habitat. In the cooler months, the falcon tends to range into more open woodlands, grasslands and tusskock grasslands (Olsen and Olsen, 1986).

Ecology

The Grey Falcon is an active predator on small mammals and birds, particularly granivorous parrots and pigeons (Marchant and Higgins, 1993). In an absence of prey items, the falcon will scavenge on dead animals.

Nesting may occur from July to October, but breeding may be confined to years of above average rainfall within inland river systems (more than 500 ml annual rainfall). The falcon nests in the disused nests of other birds and are usually in the tallest trees along watercourses, particularly River Red Gums (Marchant and Higgins, 1993). Two to three eggs are laid during each breeding event.

Threats and conservation status

The Grey Falcon is listed as rare under the Queensland NC Act. Threats are poorly documented and speculative but are likely to include clearing and overgrazing of semi-arid and arid areas, which may affect prey abundance (Olsen and Olsen 1986).





A.5.13 Cotton Pygmy-goose, Nettapus coromandelianus

Description

The Cotton Pygmy-goose is a very small duck of 34 – 38 centimetres with a short black bill and glossy green crown, back and upper wings. The face is white as is the neck and underparts. A narrow black band occurs around the breast (Simpson and Day 2004).

Distribution and habitat

The pygmy-goose is restricted to the eastern Queensland coast from Princess Charlotte Bay to Brisbane and inland along major river systems. It is more common in the north-eastern portion of its range. It is an occasionally vagrant to north-eastern NSW and even Victoria.

It prefers deep freshwater waterholes (e.g. lagoon, swamps, dams) with abundant aquatic vegetation such as waterlilies and other floating vegetation.

Ecology

The species is a surface feeder and subsists almost entirely on aquatic vegetation, particularly hydrilla and pondweed. It uses its goose-like bill to pick at bits of floating vegetation or by stripping seeds and flowers from aquatic plants (Marchant and Higgins 1990).

The Cotton Pygmy-goose nests and roosts in hollows within dead trees near water. Breeding occurs from November to April and clutch size is usually 8-15 oval, pearly-white eggs.

Threats and conservation status

The Cotton Pygmy-goose is listed as rare in Queensland. Threats include loss of dead standing timber near water, spread of invasive aquatic weeds such as Water Hyacinth (*Eichhornia azurea*), changes to water hydrology and water quality and drainage of wetlands for flood control (NSW National Parks & Wildlife Service 1999).

A.5.14 Black-necked Stork, *Ephippiorhynchus asiaticus*

Description

The Black-necked Stork is a striking wetland bird standing up to 1.3 metres tall with a wing span of 2 metres (Simpson and Day 2004). The body is white which contrasts with generally black wings and tail and the glossy green-black neck and head. The bill is long, heavily built and black in colour and the legs are gangly and red. The female has yellow eyes.

Distribution and habitat

The species occurs throughout coastal northern and eastern Australia and inland along major river systems and floodplains. The bird is rarely seen south of Sydney.

Black-necked Storks inhabit a variety of wetland habitats including coastal wetlands, mangroves, tidal mudflats, floodplains, open woodland adjacent to water, irrigated lands, farm dams and sewage ponds.





Ecology

They are active predators taking a variety of prey including fish, frogs, eels, turtles, crabs and snakes. They feed in shallow, still water where prey items can be seen.

The Black-necked Stork nests and roosts on dead trees near on in water (Simpson and Day 2008). Nests are flat and large up to 2 metres in diameter and constructed out of sticks, grasses and rushes. Breeding occurs from October to May with clutch sizes usually 2 to 4 eggs.

Threats and conservation status

The Black-necked Stork is listed as rare in Queensland. Threats include loss of wetland habitat through clearing and draining for flood mitigation, agriculture and residential development, degradation of existing wetlands and changes in hydrology of natural wetlands.