

4 FUTURE SURVEY WORK

The systematic fauna survey described here provides adequate baseline information on the fauna of Lane Cove NP. There is much scope to build on this work in the future, in a way that provides important information to aid in the management of biodiversity within the park.

Future work could include the formation of a plan to undertake systematic fauna surveys within the park on a regular basis, for example every five years. These surveys should use the techniques described herein, thus providing a means of monitoring fauna within the park over time. Of particular interest would be to investigate changes in the distribution of threatened species and changes in fauna species composition and abundance in relation to time since fire, feral animal control programs, and other management actions. Future systematic surveys should also attempt to establish sites within vegetation communities that were not targeted during this survey, particularly Coachwood Simple Rainforest and Grey Mangrove Low Closed Forest. Any systematic work undertaken in the future should be undertaken utilising the methods described in Section 2.3 and in NPWS (1997). Data entry into the BSS is the responsibility of the survey coordinator and time and resources for data entry should be included within the original survey proposal. This will ensure that the data is available to all staff and clients of DEC with accurate details and also the data to be included in any analysis of systematic data undertaken.

Future work could also seek to assess the difference in fauna species composition between areas where native vegetation is largely intact and areas that are heavily weed-infested. This could also include an investigation of the impact of bush regeneration works on fauna species. Addressing this question would require a replicated sampling design, where multiple survey sites were established in a number of treatments within the same vegetation type, including: in tact vegetation; weed infested vegetation; bush regeneration sites. Ideally sites in each of these treatments would be sampled repeatedly over time, in order to ascertain the impact that progressive 'improvement' in vegetation due to bush regeneration has on fauna species.

5 THREATENED SPECIES

This section provides a profile of each of the threatened fauna species that were recorded during the current surveys. The aim of these profiles is to provide:

- A background on the species biology.
- A summary of threats to the species.
- An assessment of how well the species is protected in the region.
- A map of known records of the species in the park and the surrounding two kilometres.
- An appraisal of the distribution and status of the species in Lane Cove NP and the adjacent public lands.

A number of other threatened species have previously been recorded within and in a two kilometre radius surrounding Lane Cove NP. The list of threatened vertebrate fauna for Lane Cove NP and surrounds, however contains records of various levels of reliability. These species are listed in Table 3, together with annotation for each species regarding the latest record in the area, spatial and temporal accuracy and the reliability of identification. Maps 5, 6, 7 and 8 present the location of records of threatened fauna species within a two kilometre radius of the park.

Table 3: Threatened fauna species recorded on the Atlas of NSW Wildlife within and two kilometres surrounding Lane Cove National Park. Data extracted June 2004.

Scientific name	Common name	Status in NSW (TSC Act)	Status in Australia (EPBC Act)	No. of locations within LCNP ¹		No. of locations within adjacent public lands		No. of locations within a two kilometre radius of LCNP ¹	Notes on reliability and date of last record
				DEC ²	Other ³	DEC ²	Other ³		
<i>Ptilinopus superbus</i>	Superb Fruit-Dove	V						9	Not recorded in park. Detected between 1973 and 1996, including three Australian Museum records.
<i>Sterna albibrons</i>	Little Tern	V						1	Not recorded in park. Australian Museum record from 1970.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	V			1				Observed once in the park in 2000.
<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	E			4				Observed in the park, near the weir, on four occasions between 1991 and 1992. Most likely the same animal repeatedly recorded.
<i>Falco hypoleucos</i>	Grey Falcon	V						1	Not recorded in park. An anonymous record from the 1960s. Low reliability, therefore not included on map.
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V			1			1	Recorded in 1999 and 2000. One record is from Birds Australia and has low spatial accuracy.
<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo	V						1	Not recorded in park. Recorded in 1994 outside park. Likely to be an aviary escapee, therefore not included on map.
<i>Xanthomyza phrygia</i>	Regent Honeyeater	E	E					1	Not recorded in park. Last recorded in 1951. Three records occur prior to this date, but the species has not been detected since.
<i>Ninox connivens</i>	Barking Owl	V					1		Not recorded in park. Observed once just outside the park in 2000.
<i>Ninox strenua</i>	Powerful Owl	V		2	11	2	4	21	Recorded during DEC surveys in 2004 in and around the park. Numerous records in the area but likely to be a limited number of birds recorded repeatedly.
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E					2	Not recorded in park. Two sightings made by different people in 2001 and 2002 within two kilometres of park.
<i>Petaurus australis</i>	Yellow-bellied Glider	V					1		Not recorded in park. Recorded once just outside of the park in 1999 by a consultant. Uncertain reliability therefore not included on map.
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	V						1	Not recorded in park. Recorded once in region in 1972.
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	4	1	4	2	10	Most recently recorded on park in early 2004 during DEC surveys. Numerous records throughout the area.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-wing Bat	V		5		2	8	2	Detected during DEC surveys on park by ultrasonic recordings (Anabat). Numerous other records occur in region, including a museum specimen.
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V		0				1	Not recorded in park. Museum specimen collected in 1969.
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V						1	Not recorded in park. Detected once by ultrasonic call within two kilometres of the park in 2002.
<i>Pseudophryne australis</i>	Red-crowned Toadlet	V		2	6	4	15	3	Recorded in and around park during DEC surveys in early 2004. A number of records occur in region, including a museum specimen.
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V					4	Not recorded in park. Recorded four times within two kilometres of the park between 1988 and 1999, at different locations by different observers.

¹ Numbers indicate the number of records for the species, rather than the number of individuals. Only includes records on the Atlas of NSW Wildlife.² Includes all records collected during 2004 DEC surveys³ Includes records on the Atlas of NSW Wildlife obtained from sources other than DEC systematic survey

Map 5: Threatened diurnal bird species within two kilometres of Lane Cove National Park

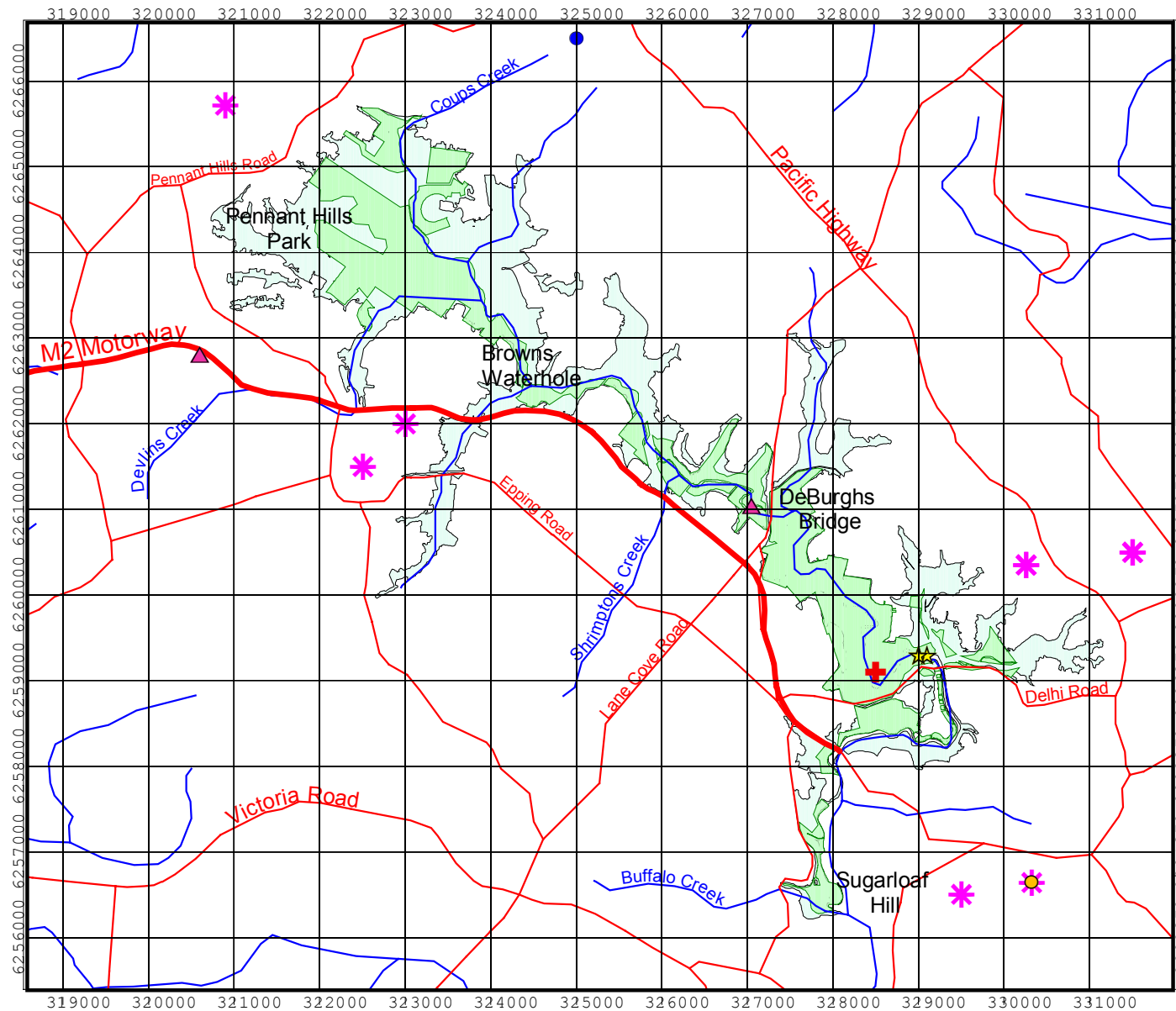
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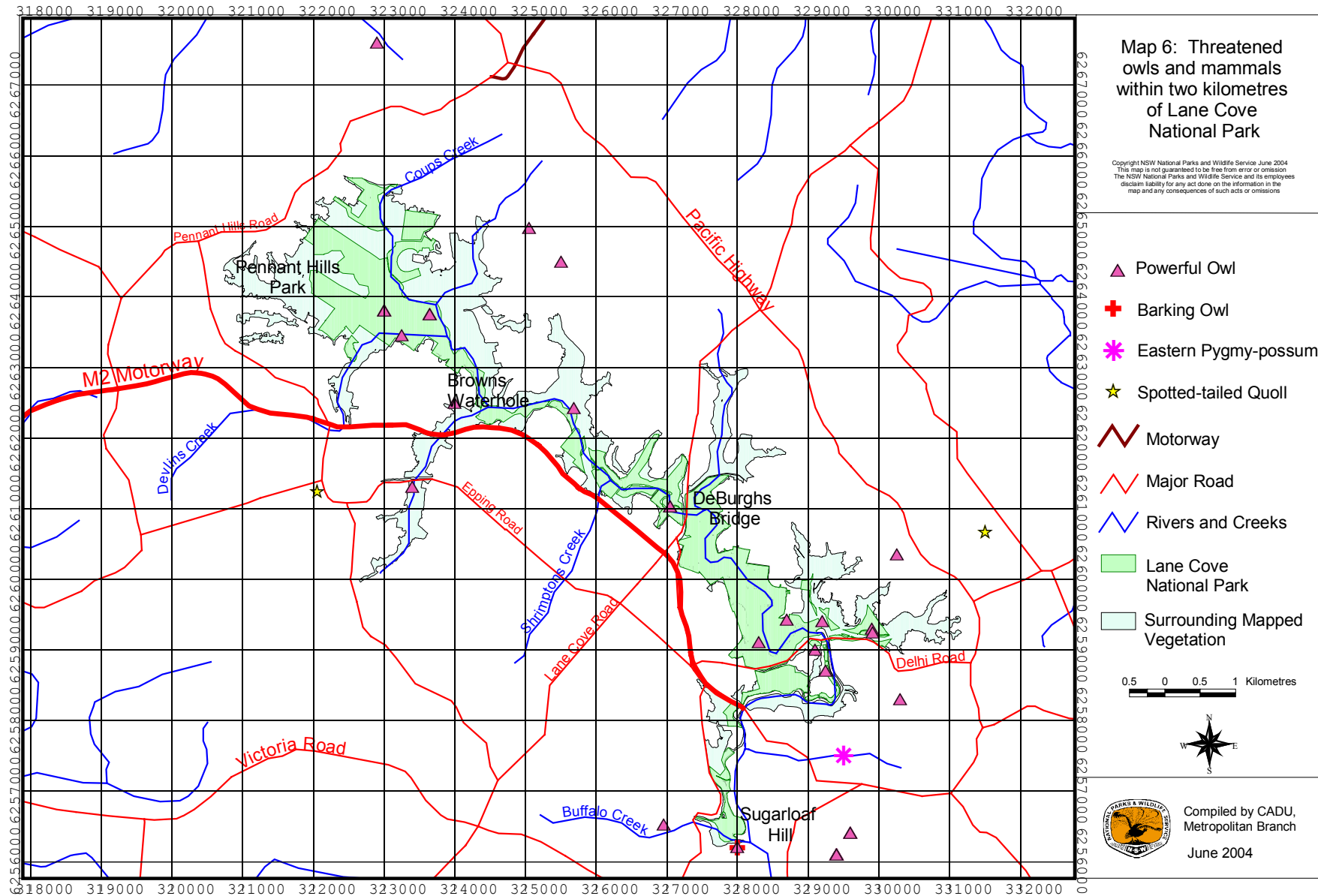
- + Australasian Bittern
- ★ Cotton Pygmy-Goose
- ▲ Glossy Black-Cockatoo
- Little Tern
- Regent Honeyeater
- ✱ Superb Fruit-Dove
- Highway /Major Road
- Rivers
- Lane Cove National Park
- Surrounding Vegetation Mapping

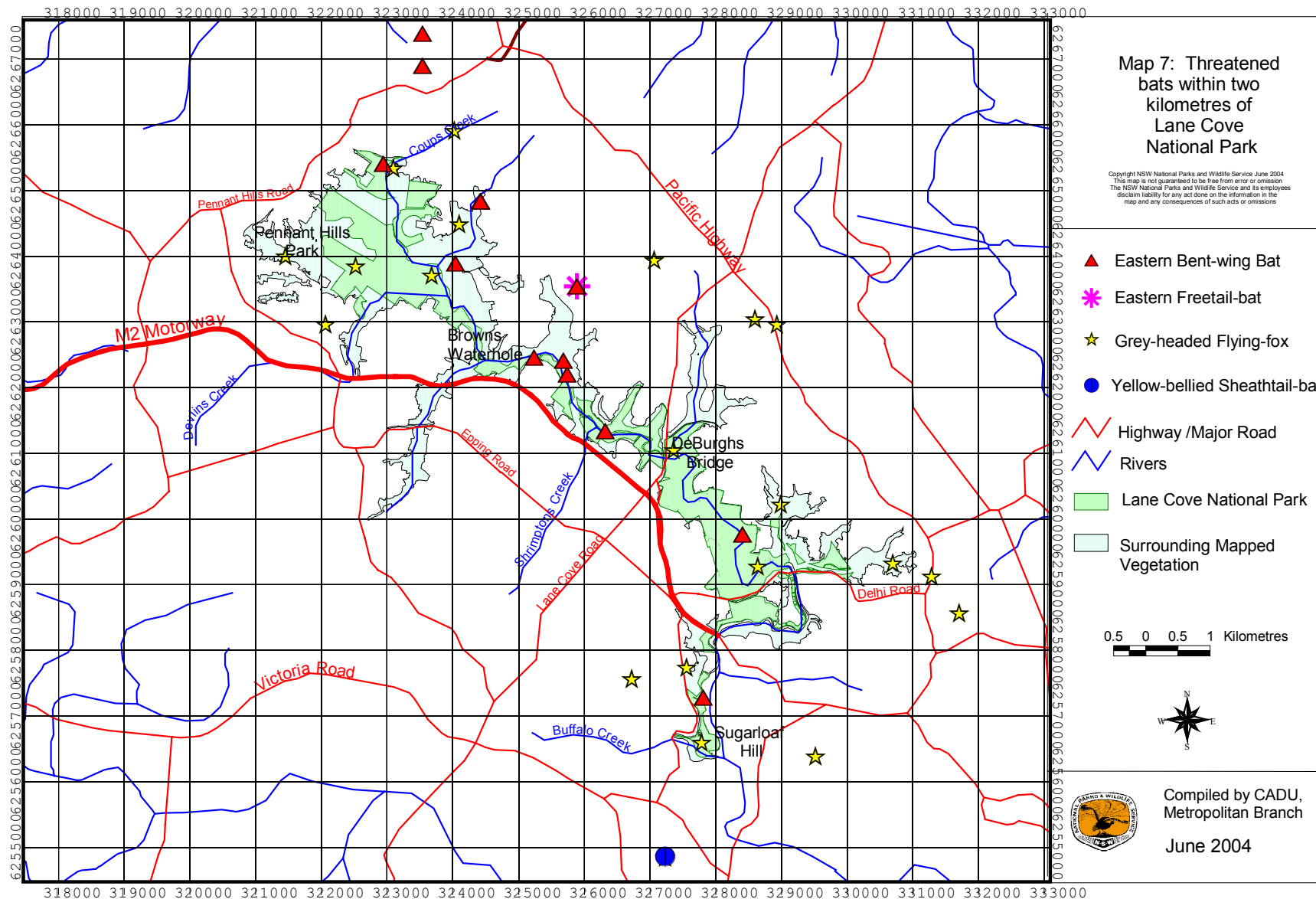
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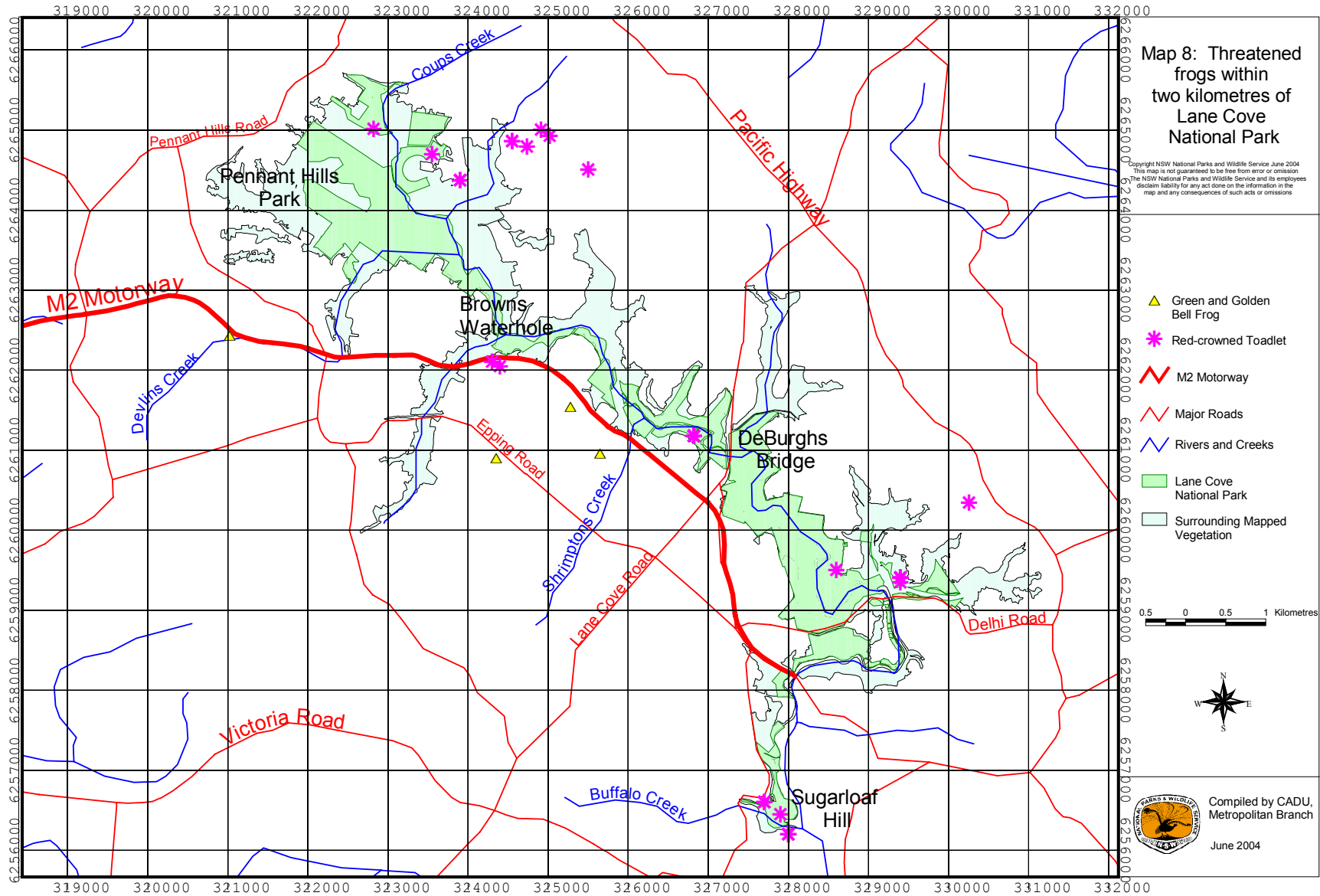


Compiled by CADU,
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RED-CROWNED TOADLET

Species Profile

The Red-crowned Toadlet (*Pseudophryne australis*) is a small (20 to 25 millimetres), strikingly coloured litter-dwelling frog. It is fairly restricted in its distribution, only occurring on the sandstone geologies of the Sydney Basin. Within this range some morphological and genetic variation exists. The Red-crowned Toadlet lays its eggs in moist leaf litter, relying on rain to wash the eggs into a temporal pond where they can complete their development (NPWS 2001a).



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Threats

Development of ridgetop land is the primary threat to the Red-crowned Toadlet. Other threats may include habitat alteration due to fire, bush rock removal, water pollution and chytrid fungus (NPWS 2001a). Due to their size and morphology, this species has only a limited ability to disperse, making them vulnerable to local extinction.

Local and Regional Conservation Status

The Red-crowned Toadlet is listed as Vulnerable on the NSW TSC Act (1995). Suitable habitat for this species is widespread across the sandstone plateaux of the Sydney Basin Bioregion, with the major populations in the upper and lower Blue Mountains, Hornsby Plateau near the Hawkesbury River and the Woronora Plateau extending to Royal NP (DEC 2004a). Throughout its range it has been recorded in numerous National Parks, including a number within the Sydney urban area such as Garigal, Ku-ring-gai Chase and Royal National Parks and Berowra Valley Regional Park (DEC 2004a). The majority of locality data for the species is concentrated within the proximity of urban areas, where reporting of the species has dramatically increased since the introduction of threatened species legislation requiring environmental assessment to be made prior to developments.

During the current survey, these small distinctive frogs were seen or heard calling in two locations within the boundaries of the park, and four locations in adjacent remnant bushland. The frogs were located in a variety of habitats, including along drainage lines, in soaks, and most commonly within small sandstone quarries. These old quarries ranged in size from one metre by two metres to 40 metres by twelve metres (Plate 4). Each contained ephemeral pools of water, from the edges of which the Toadlets were heard calling. In addition to these sites, between 1993 and 2000 the species has been recorded at a further twelve locations within two kilometres of the park (Map 8). Potential habitat for the species is widespread in the study area, within drainage lines and ephemeral soaks and pools within remnant sandstone ridgetop woodlands and forests that sit above the narrow Lane Cove River Valley. Any additional quarries with the above characteristics within the study area would also provide habitat for the species, and should be managed accordingly. It is likely that further records of the species will be collected in coming years, particularly after the current drought breaks.

Lane Cove National Park and surrounding remnant bushland are located within the dense cluster of Red-crowned Toadlet records associated with the sandstone ridges and upper slopes of the Hornsby Plateau. Within this area, now mostly covered by Sydney's expanding northern and north-western suburbs, over half of this species former habitat has been lost (Wells 2002). Degradation and fragmentation of remnant populations are a continued threat to the persistence of the species in the region (Wells 2002). Records within the study area thus have high conservation significance, due to the level of protection they are afforded within the National Park and council reserves. Known locations and areas of potential habitat should be managed accordingly, with a focus placed in reducing disturbance and minimising the chance of spreading chytrid fungus. Any further visitation to the habitats must be undertaken in strict accordance with the *Hygiene Protocol for the Control of Disease in Frogs* (NPWS 2001b).

POWERFUL OWL

Species Profile

The Powerful Owl (*Ninox strenua*) is the largest owl in Australia and is distinguished by its relatively small, round head and long tail. It is dark brown above with prominent off-white barring, and paler underneath with diagnostic dark chevrons. It inhabits various forest habitats, though it usually breeds and roosts in closed forest, including rainforest and wet sclerophyll forest. It hunts in more open forests, where it feeds mainly on arboreal mammals, particularly Common Ringtail Possums (*Pseudocheirus peregrinus*) and Greater Gliders (*Petauroides volans*). It usually nests in a hollow in a eucalypt within or below the canopy, and normally lays two eggs. A breeding pair usually maintain a territory of between 300 and 1500 hectares, with size dependent on habitat quality and prey density. It is endemic to eastern Australia, being recorded between Eungella (Queensland) to near the South Australia-Victoria border (Higgins 1999).



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Threats

Past land clearance for agriculture has reduced the area of habitat available for the Powerful Owl (Garnett and Crowley 2000), particularly the availability of roost sites. It can, however, survive in areas with some levels of disturbance, such as in selectively logged forests (Kavanagh 1997), and is also frequently recorded in suburban areas of Brisbane, Sydney and Melbourne (Garnett and Crowley 2000). Two of the determining factors for the species persistence in disturbed areas is the presence and suitable abundance of prey species (Chafer 1992) and nesting/roosting sites (Debus and Chafer 1994).

Local and Regional Conservation Status

The Powerful Owl is listed as Vulnerable on the NSW TSC Act (1995). It is found throughout the Sydney Basin Region from the rural-urban fringes of the Sydney Metropolitan area to the west of the Dividing Range and into the Central Tablelands. Many reserves within the Bioregion support known territories of this species, including Berowra Valley Regional Park, Ku-ring-gai Chase, Garigal and Royal National Parks (NPs). Recent DEC surveys across the Warragamba Special Area, and the neighbouring Blue Mountains, Kanangra-Boyd and Nattai NPs have found Powerful Owls to be relatively abundant and widespread in the region (DEC in prep.).

Powerful Owls are well known from remnant bushland within the Northern Suburbs of Sydney (DEC 2004a). The species has been recorded within Lane Cove NP and the surrounding gully systems over many years (Map 6). Bird observers occasionally report roosting sites in sandstone gullies from Cattai to Berowra Valley Regional Park. As an indication of the propensity of the species to persist in urban environments, an owl was recorded roosting for several weeks in the Royal Botanic Gardens in the Sydney CBD, and others have been recorded at Dover Heights, and at Brighton in the south of Sydney. A cursory examination of Powerful Owl records in the urban areas of northern Sydney, however, may lead to an over-estimation of numbers as it is likely that resident individuals and pairs of the species are repeatedly reported by bird-watchers and enthusiastic locals.

One of the aims of the current survey was to estimate the minimum number of Powerful Owls that occur within Lane Cove NP and surrounding public lands. Nine systematic nocturnal call playback surveys were undertaken over the two nights, during which a total of four owls were heard calling and an additional two owls observed. The pattern of responses suggests, using a conservative estimate, that at least four Powerful Owls utilise the study area, including at least one pair. The pair was observed on the northern bank of the Lane Cove River within Blackbutt-Smooth-barked Apple Forest that included tall Sydney Blue Gum (*Eucalyptus saligna*) trees. This is typical habitat for the species. The high density of prey species, particularly Common Ringtail Possum, and the presence of remnant trees with hollows, sustains the very high density of the owls within the area. It is possible that a high number of Powerful Owls use the park for nesting and roosting, yet forage widely in surrounding suburbs. These results highlight the important contribution the bushland of Lane Cove NP makes to the conservation of species in the region. Habitats for the species within the park should be managed accordingly, including minimising disturbance to known or potential roost sites and trees with hollows.

GREY-HEADED FLYING-FOX

Species Profile

The Grey-headed Flying-fox (*Pteropus poliocephalus*) is a large fruit bat that has dark grey body fur, a slightly paler grey head and a russet collar. It is the largest bat in the study area, with a wingspan of up to one metre. It is a highly mobile species and numbers roosting at specific camps may vary depending on season and food availability. They feed on nectar and pollen of various trees including *Eucalyptus*, *Melaleuca* and *Banksia* as well as fruits, originally of rainforest species, but now including commercial and garden crops. They can travel up to twenty kilometres to a food source, and are an important pollinator and disperser of native plants. It is endemic to the east of Australia between Melbourne, Victoria and Bundaberg in Queensland, though it formerly ranged as far north as Rockhampton (NSW Scientific Committee 2001).

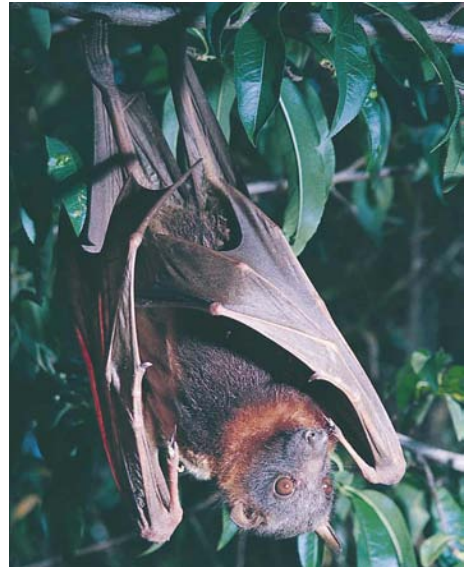
Threats

Counts of flying-foxes over the past decade suggest that the national population may have declined by up to 30 percent (Birt 2000 in NSW Scientific Committee 2001). The main threats to the Grey-headed Flying-fox are destruction of habitat (particularly of foraging habitat) by clearing for urban development and agriculture, disturbance of roosting sites (particularly of pregnant females) unregulated shooting (particularly when feeding on commercial crops) and electrocution on power lines (particularly in urban areas) (NSW Scientific Committee 2001).

Local and Regional Conservation Status

The Grey-headed Flying-fox is listed as Vulnerable on the NSW TSC Act (1995) and as Vulnerable on the Commonwealth EPBC Act (1999). It has declined in numbers across the entire state of NSW and is considered to be vulnerable to further declines. Eby *et al.* (1999) estimated that there are approximately sixteen camps within the Sydney Basin Bioregion, three of which were occupied in July 1998. The nearest known maternity roost for the species to the study area is located at Flying-fox Reserve in Gordon. Current locality data suggest that the species is primarily distributed across coastal and hinterland environments in the Bioregion, although this may reflect a reporting bias due to the density of human observers. The species has been recorded in a number of reserves including Royal, Ku-ring-gai Chase and Garigal National Parks (DEC 2004a) and is an iconic inhabitant of the Royal Botanic Gardens in the Sydney CBD. The large home range and nomadic habit of the species means, however, that colonies do not rely on any single reserve for their survival.

The Grey-headed Flying-fox is well known and well documented within Metropolitan Sydney and a feature of the city skies at dusk in summer, as the animals leave their roosts in search of fruiting and flowering trees (often large planted figs (*Ficus microphylla*) and Cocos Palms (*Arecastrum romanzoffianum*)). Grey-headed Flying-foxes were observed flying over the Lane Cove National Park in large numbers at dusk during the fauna surveys in February and March 2004. Individuals were heard uttering their distinctive calls during numerous spotlighting and nocturnal call playback surveys, most frequently at the margins of the park, where the species was likely to be feeding within planted trees in neighbouring gardens. Prior to the 2004 surveys, the species has been recorded on numerous occasions within the park (Map 7), and injured individuals from the region are often rehabilitated at the Kukundi Wildlife Shelter. The species is known to feed on flowering Blackbutt (*Eucalyptus pilularis*) (NPWS 2002) which is a dominant canopy species on sheltered slopes and gullies in the study area. Consequently, Lane Cove National Park and surrounding lands are likely to make an important contribution to the matrix of foraging habitat for the species across northern Sydney, the retention of which is crucial to the continued survival of the species in the region.



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EASTERN BENT-WING BAT

Species Profile

The Common Bent-wing Bat (*Miniopterus schreibersii*) is the most widely distributed bat in the world, occurring through Europe, Africa and Australasia (Churchill 1998), though recent research suggests that there may be three taxa in Australia (Duncan *et al.* 1999). The subspecies *oceanensis* (Eastern Bent-wing Bat) is the relevant taxa for New South Wales and extends at least between central Victoria and Cape York Peninsula, Queensland (Duncan *et al.* 1999). This species is distinguished from most others by the long last bone in the third wing digit and from the Little Bent-wing Bat (*M. australis*) by the longer forearm (greater than 44mm) (Parnaby 1992a). The ultrasonic call can be distinctive, however it is often inseparable from *Vespadelus darlingtoni* and *V. regulus* (Reinhold *et al.* 2001). It utilises a wide variety of habitats where it usually roosts in caves, though it has been known to use mines and road culverts (Churchill 1998). It is a fast flying species that usually feeds above the canopy (Churchill 1998) and has been known to travel up to 65 kilometres in a night (Dwyer 1966 in Ayers *et al.* 1996). Though individuals often use numerous roosts, they congregate en masse at a small number of caves to breed and hibernate (Churchill 1998).



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Threats

Damage and disturbance to roosting sites are the greatest threats to this species. Because only relatively few nursery caves are used, significant population changes can occur if these sites are damaged (Dwyer 1995). Disturbance of hibernating colonies can lead to starvation due to loss of energy reserves (Gilmore and Parnaby 1994). Disturbance of smaller roosts by recreational caving and tourism may also be significant, as may modification to feeding habitat by agriculture and urban development (Gilmore and Parnaby 1994). Some individuals are preyed upon by feral Cats (*Felis catus*) and, less often, foxes (*Vulpes vulpes*) (Dwyer 1995).

Local and Regional Conservation Status

The Eastern Bent-wing Bat is listed as Vulnerable on the NSW TSC Act (1995). The species is widely recorded in the eastern third of NSW, with the number of records decreasing with distance from the coast (DEC 2004a). Large numbers of records of the species have been collected in the Sydney Metropolitan area in recent years, particularly with the increase in use of ultrasonic bat call recording devices by wildlife surveyors. The number of ultrasonic call records is inflated, however, by the very large distances travelled by individuals whilst foraging. In contrast, the species is rarely captured in harp traps, due to their high-flying habits. Thus it is hard to estimate the abundance and density of the species in the region. Records of the species are known from numerous reserves, such as Berowra Valley Regional Park, and Ku-ring-gai Chase, Sydney Harbour and Royal National Parks. The species has the ability roost in man-made infrastructures, for example the species has been recorded within stormwater drains in the vicinity of Sydney Olympic Park at Homebush Bay (SOPA 2002).

The Eastern Bent-wing Bat was recorded for the first time within Lane Cove National Park during the systematic surveys. The species was detected by its ultrasonic call at five locations in the park, and at two locations in adjacent public lands, during March and May 2004 (Map 7). These locations are spread across the length of the reserve and within adjoining council reserves to the north of the park boundary. It is evident that the animal forages widely over in the area, being detected at both ridge and gully sites and in a variety of vegetation communities from Sydney Peppermint Woodlands to Blackbutt-Smooth-barked Apple Tall Forest. The surveys did not detect any potential roosting sites for the species, though it is possible the species roosts nearby (if not within) the study area, possibly within man-made structures such as a road culverts. In addition to records obtained during the current surveys, the species has previously been detected at numerous locations within two kilometres of the park boundary (Map 7).

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APPENDIX A: SURVEY SITES

Location of, vegetation type and techniques undertaken at systematic fauna survey sites in Lane Cove National Park and adjacent public lands

Site number	Easting	Northing	Vegetation community (UBM Consultants 2001)	Diurnal bird census	Diurnal reptile census	Site spotlight census	Harp trap	Bat ultrasound detection	Nocturnal call playback	Elliott trap	Cage trap
HRN01W	322650	6264090	Scribbly Gum Woodland/Open Woodland/Low Open Woodland	1	1	1					
HRN02W	323574	6264209	Silvertop Ash Low Woodland/Low Open Woodland	1	1	1					
HRN03W	323279	6265005	Red Bloodwood Low Open Forest	1	1	1					
HRN04W	322763	6264749	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland	1	1	1					
HRN05W	324147	6264476	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest	1	1	1					
HRN06O	321379	6264058	Coachwood Simple Rainforest		1				1		
HRN07O	322848	6265210	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest							1	
HRN08W	323200	6264700	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest								1
HRN09W	322775	6264053	Scribbly Gum Woodland/Open Woodland/Low Open Woodland				1				
HRN10W	323536	6265138	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
HRN11W	325050	6264975	Unmapped. Red Bloodwood canopy with dense and diverse shrub storey.				1		1		
HRN12W	323365	6264857	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
HRN14W	322892	6265478	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland					1	1		
LCOW10I	323650	6263755	Scribbly Gum Woodland/Open Woodland/Low Open Woodland						1		
PAR01W	325798	6262682	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest	1		1				1	
PAR02O	325465	6263546	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest	1	1	1				1	
PAR03W	322273	6263510	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest	1	1	1					
PAR04W	327834	6256517	Red Bloodwood Low Open Forest	1	1	1			1	1	
PAR05W	327692	6257500	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest	1	1	1					1
PAR06W	327559	6260894	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland	1	1	1					
PAR07O	327286	6260274	Scribbly Gum Open Forest	1	1	1					
PAR08W	328196	6258877	Scribbly Gum Woodland/Open Woodland/Low Open Woodland	1	1	1					

Site number	Easting	Northing	Vegetation community (UBM Consultants 2001)	Diurnal bird census	Diurnal reptile census	Site spotlight census	Harp trap	Bat ultrasound detection	Nocturnal call playback	Elliott trap	Cage trap
PAR09W	323432	6263755	Scribbly Gum Woodland/Open Woodland/Low Open Woodland	1		1				1	
PAR10W	322390	6262644	Weed Dominated Community	1							
PAR11O	325918	6261621	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest	1	1	1				1	
PAR12W	324654	6262313	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland	1	1	1				1	
PAR13W	324405	6262550	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR14O	324478	6262666	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR15W	328384	6259372	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR16W	327400	6261050	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest						1		1
PAR17W	325350	6262450	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest								1
PAR18W	323927	6263436	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR19W	328020	6262930	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR20W	327725	6261550	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR21W	326005	6261826	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland				1				
PAR22W	325705	6262885	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR23W	325180	6262600	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest				1				
PAR24R	327850	6257200	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR25W	325230	6262480	Sydney Peppermint Woodland/Open Woodland/Mallee Open Woodland					1			
PAR26W	323300	6263475	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR27W	326336	6261340	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR28W	325745	6262218	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR29W	328460	6259730	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest					1			
PAR30W	326767	6261211	Closed Shrubland/Shrubland	1							
PAR31O	328694	6259425	Sydney Peppermint-Smooth-barked Apple Tall Forest/Forest/Open Forest					1	1		
PAR32O	330799	6259294	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest						1		
PAR33W	325684	6262424	Blackbutt-Smooth-barked Apple Tall Forest/Forest/Open Forest					1	1		
Total				18	15	16	11	11	9	7	4

APPENDIX B: FAUNA SPECIES LIST

Below is a list of fauna species recorded on the Atlas of NSW Wildlife within 200 metres of Lane Cove National Park. The data was extracted from the Atlas on 14 June 2004.

Records have been included from the 2004 DEC systematic survey, licensed data sets (Birds Australia and the Australian Museum) and incidental observations submitted by park rangers, field officers, environmental consultants and individuals. In order to increase the accuracy of the list, records collected prior to 1950 and from the Royal Australian Ornithologists Union prior to 1984, have been excluded (for reasons outlined in Section 2.1 above). The list contains records of various levels of reliability. Introduced species are indicated with the addition of an [!].

Family	Scientific Name	Common Name	Conservation Status	DEC Systematic Survey	Licensed Datasets	Other Sources
Frogs						
Myobatrachidae	<i>Crinia signifera</i>	Common Eastern Froglet	P	x		x
Myobatrachidae	<i>Limnodynastes peronii</i>	Striped Marsh Frog	P	x		x
Myobatrachidae	<i>Pseudophryne australis</i>	Red-crowned Toadlet	V	x		x
Myobatrachidae	<i>Uperoleia laevigata</i>	Smooth Toadlet	P	x		x
Hylidae	<i>Litoria caerulea</i>	Green Tree Frog	P			x
Hylidae	<i>Litoria dentata</i>	Keferstein's Tree Frog	P	x		x
Hylidae	<i>Litoria peronii</i>	Peron's Tree Frog	P			x
Hylidae	<i>Litoria phyllochroa</i>	Green Stream Frog	P	x		
Reptiles						
Gekkonidae	<i>Oedura lesueurii</i>	Lesueur's Velvet Gecko	P			x
Gekkonidae	<i>Phyllurus platurus</i>	Broad-tailed Gecko	P	x		x
Pygopodidae	<i>Lialis burtonis</i>	Burton's Snake-lizard	P			x
Agamidae	<i>Amphibolurus muricatus</i>	Jacky Lashtail	P	x		x
Agamidae	<i>Physignathus lesueurii</i>	Eastern Water Dragon	P	x	x	x
Varanidae	<i>Varanus varius</i>	Lace Monitor	P	x		x
Scincidae	<i>Bassiana platynota</i>	Red-throated Cool-skink	P	x	x	x
Scincidae	<i>Cryptoblepharus virgatus</i>	Cream-striped Shinning-skink	P	x		
Scincidae	<i>Ctenotus taeniolatus</i>	Copper-tailed Ctenotus	P	x	x	x
Scincidae	<i>Egernia whitii</i>	White's Rock-skink	P			x
Scincidae	<i>Eulamprus quoyii</i>	Eastern Water-skink	P	x		x
Scincidae	<i>Eulamprus tenuis</i>	Bar-sided Forest-skink	P			x
Scincidae	<i>Lampropholis delicata</i>	Dark-flecked Garden Sunskink	P	x	x	x
Scincidae	<i>Lampropholis guichenoti</i>	Pale-flecked Garden Sunskink	P	x	x	x
Scincidae	<i>Saiphos equalis</i>	Yellow-bellied Three-toed Skink	P		x	x
Scincidae	<i>Saproscincus mustelinus</i>	Weasel Shadeskink	P		x	x
Scincidae	<i>Tiliqua scincoides</i>	Common Bluetongue	P	x	x	x
Typhlopidae	<i>Ramphotyphlops nigrescens</i>	Blackish Blind Snake	P		x	
Boidae	<i>Morelia spilota spilota</i>	Diamond Python	P	x		x
Colubridae	<i>Dendrelaphis punctulata</i>	Green Tree Snake	P		x	
Elapidae	<i>Cacophis squamulosus</i>	Golden Crowned Snake	P			x
Elapidae	<i>Demansia psammophis</i>	Yellow-faced Whipsnake	P	x		

Family	Scientific Name	Common Name	Conservation Status	DEC Systematic Survey	Licensed Datasets	Other Sources
Elapidae	<i>Pseudechis porphyriacus</i>	Red-bellied Black Snake	P	x		x
Elapidae	<i>Pseudonaja textilis</i>	Eastern Brown Snake	P			x
Birds						
Anatidae	<i>Anas castanea</i>	Chestnut Teal	P		x	x
Anatidae	<i>Anas platyrhynchos</i>	Mallard ¹	U			x
Anatidae	<i>Anas superciliosa</i>	Pacific Black Duck	P	x	x	x
Anatidae	<i>Anas superciliosa x platyrhynchos</i>	Pacific Black Duck Mallard Hybrid ¹	U	x		
Anatidae	<i>Aythya australis</i>	Hardhead	P			x
Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	P	x	x	x
Anatidae	<i>Cygnus atratus</i>	Black Swan	P		x	x
Anatidae	<i>Nettapus coromandelianus</i>	Cotton Pygmy-Goose	E			x
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	P			x
Anhingidae	<i>Anhinga melanogaster</i>	Darter	P			x
Phalacrocoracidae	<i>Phalacrocorax carbo</i>	Great Cormorant	P			x
Phalacrocoracidae	<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant	P	x	x	x
Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	P		x	x
Phalacrocoracidae	<i>Phalacrocorax varius</i>	Pied Cormorant	P		x	x
Ardeidae	<i>Ardea alba</i>	Great Egret	P			x
Ardeidae	<i>Botaurus poiciloptilus</i>	Australasian Bittern	V			x
Ardeidae	<i>Butorides striatus</i>	Striated Heron	P			x
Ardeidae	<i>Egretta garzetta</i>	Little Egret	P			x
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	P	x		x
Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night Heron	P			x
Threskiornithidae	<i>Platalea flavipes</i>	Yellow-billed Spoonbill	P		x	x
Threskiornithidae	<i>Platalea regia</i>	Royal Spoonbill	P		x	x
Accipitridae	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	P			x
Accipitridae	<i>Accipiter fasciatus</i>	Brown Goshawk	P	x	x	x
Accipitridae	<i>Aviceda subcristata</i>	Pacific Baza	P	x	x	x
Accipitridae	<i>Elanus axillaris</i>	Black-shouldered Kite	P		x	
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	P	x		
Falconidae	<i>Falco berigora</i>	Brown Falcon	P			x
Falconidae	<i>Falco peregrinus</i>	Peregrine Falcon	P	x		x
Rallidae	<i>Fulica atra</i>	Eurasian Coot	P			x
Rallidae	<i>Gallinula tenebrosa</i>	Dusky Moorhen	P	x	x	x
Rallidae	<i>Gallirallus philippensis</i>	Buff-banded Rail	P			x
Rallidae	<i>Porphyrio porphyrio</i>	Purple Swamphen	P	x		x
Recurvirostridae	<i>Himantopus himantopus</i>	Black-winged Stilt	P		x	
Charadriidae	<i>Vanellus miles</i>	Masked Lapwing	P	x	x	x
Laridae	<i>Larus novaehollandiae</i>	Silver Gull	P	x		
Columbidae	<i>Chalcophaps indica</i>	Emerald Dove	P		x	
Columbidae	<i>Columba leucomela</i>	White-headed Pigeon	P			x
Columbidae	<i>Columba livia</i>	Rock Dove	U			x
Columbidae	<i>Geopelia humeralis</i>	Bar-shouldered Dove	P			x
Columbidae	<i>Macropygia amboinensis</i>	Brown Cuckoo-Dove	P	x		x
Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	P	x	x	x

Family	Scientific Name	Common Name	Conservation Status	DEC Systematic Survey	Licensed Datasets	Other Sources
Columbidae	<i>Phaps chalcoptera</i>	Common Bronzewing	P			x
Columbidae	<i>Streptopelia chinensis</i>	Spotted Turtle-Dove ¹	U	x	x	x
Cacatuidae	<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	P	x	x	x
Cacatuidae	<i>Cacatua sanguinea</i>	Little Corella	P	x		x
Cacatuidae	<i>Cacatua tenuirostris</i>	Long-billed Corella	P		x	x
Cacatuidae	<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	P	x	x	x
Cacatuidae	<i>Calyptorhynchus funereus</i>	Yellow-tailed Black-Cockatoo	P	x	x	x
Cacatuidae	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V		x	
Cacatuidae	<i>Eolophus roseicapillus</i>	Galah	P	x	x	x
Psittacidae	<i>Alisterus scapularis</i>	Australian King-Parrot	P	x	x	x
Psittacidae	<i>Glossopsitta concinna</i>	Musk Lorikeet	P		x	x
Psittacidae	<i>Glossopsitta pusilla</i>	Little Lorikeet	P	x		
Psittacidae	<i>Platycercus adscitus</i>	White Cheeked Rosella	P			x
Psittacidae	<i>Platycercus adscitus x eximius</i>	Eastern/Pale-headed Rosella	P			x
Psittacidae	<i>Platycercus adscitus eximius</i>	Eastern Rosella	P		x	x
Psittacidae	<i>Platycercus elegans</i>	Crimson Rosella	P	x	x	x
Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	P	x	x	x
Cuculidae	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo	P		x	x
Cuculidae	<i>Cacomantis variolosus</i>	Brush Cuckoo	P		x	
Cuculidae	<i>Chalcites basalis</i>	Horsfield's Bronze-Cuckoo	P		x	
Cuculidae	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	P		x	x
Cuculidae	<i>Eudynamys orientalis</i>	Pacific Koel	P	x	x	x
Cuculidae	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	P		x	x
Strigidae	<i>Ninox boobook</i>	Southern Boobook	P	x	x	x
Strigidae	<i>Ninox connivens</i>	Barking Owl	V			x
Strigidae	<i>Ninox strenua</i>	Powerful Owl	V	x	x	x
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	P	x	x	x
Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	P		x	x
Alcedinidae	<i>Alcedo azurea</i>	Azure Kingfisher	P			x
Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	P	x	x	x
Halcyonidae	<i>Todiramphus sanctus</i>	Sacred Kingfisher	P		x	x
Coraciidae	<i>Eurystomus orientalis</i>	Dollarbird	P		x	x
Menuridae	<i>Menura novaehollandiae</i>	Superb Lyrebird	P			x
Climacteridae	<i>Cormobates leucophaeus</i>	White-throated Treecreeper	P	x	x	x
Maluridae	<i>Malurus cyaneus</i>	Superb Fairy-wren	P	x	x	x
Maluridae	<i>Malurus lamberti</i>	Variiegated Fairy-wren	P	x	x	x
Maluridae	<i>Malurus splendens</i>	Splendid Fairy-wren	P			x
Pardalotidae	<i>Pardalotus punctatus</i>	Spotted Pardalote	P	x	x	x
Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote	P		x	
Acanthizidae	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	P		x	
Acanthizidae	<i>Acanthiza lineata</i>	Striated Thornbill	P		x	x
Acanthizidae	<i>Acanthiza nana</i>	Yellow Thornbill	P	x	x	x
Acanthizidae	<i>Acanthiza pusilla</i>	Brown Thornbill	P	x	x	
Acanthizidae	<i>Gerygone mouki</i>	Brown Gerygone	P	x	x	x
Acanthizidae	<i>Gerygone olivacea</i>	White-throated Gerygone	P		x	

Family	Scientific Name	Common Name	Conservation Status	DEC Systematic Survey	Licensed Datasets	Other Sources
Acanthizidae	<i>Origma solitaria</i>	Rockwarbler	P			x
Acanthizidae	<i>Sericornis frontalis</i>	White-browed Scrubwren	P	x	x	x
Acanthizidae	<i>Sericornis magnirostris</i>	Large-billed Scrubwren	P		x	
Meliphagidae	<i>Acanthorhynchus tenuirostris</i>	Eastern Spinebill	P	x	x	x
Meliphagidae	<i>Anthochaera carunculata</i>	Red Wattlebird	P	x	x	x
Meliphagidae	<i>Anthochaera chrysoptera</i>	Little Wattlebird	P	x	x	x
Meliphagidae	<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater	P	x	x	x
Meliphagidae	<i>Lichenostomus fuscus</i>	Fuscous Honeyeater	P		x	
Meliphagidae	<i>Lichmera indistincta</i>	Brown Honeyeater	P		x	
Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	P	x	x	x
Meliphagidae	<i>Manorina melanophrys</i>	Bell Miner	P		x	x
Meliphagidae	<i>Meliphaga lewinii</i>	Lewin's Honeyeater	P		x	x
Meliphagidae	<i>Melithreptus lunatus</i>	White-naped Honeyeater	P		x	x
Meliphagidae	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	P		x	x
Meliphagidae	<i>Philemon corniculatus</i>	Noisy Friarbird	P		x	x
Meliphagidae	<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	P	x	x	x
Meliphagidae	<i>Phylidonyris novaehollandiae</i>	New Holland Honeyeater	P	x		x
Petroicidae	<i>Eopsaltria australis</i>	Eastern Yellow Robin	P	x	x	x
Petroicidae	<i>Petroica boodang</i>	Scarlet Robin	P			x
Petroicidae	<i>Petroica rosea</i>	Rose Robin	P		x	x
Eupetidae	<i>Psophodes olivaceus</i>	Eastern Whipbird	P	x	x	x
Neosittidae	<i>Daphoenositta chrysoptera</i>	Varied Sittella	P		x	
Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	P	x	x	x
Pachycephalidae	<i>Falcunculus frontatus</i>	Eastern Shrike-tit	P		x	x
Pachycephalidae	<i>Pachycephala pectoralis</i>	Golden Whistler	P	x	x	x
Pachycephalidae	<i>Pachycephala rufiventris</i>	Rufous Whistler	P		x	x
Dicruridae	<i>Dicrurus bracteatus</i>	Spangled Drongo	P			x
Dicruridae	<i>Grallina cyanoleuca</i>	Magpie-lark	P	x	x	x
Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	P	x	x	x
Dicruridae	<i>Monarcha trivirgatus</i>	Spectacled Monarch	P		x	
Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	P			x
Dicruridae	<i>Myiagra inquieta</i>	Restless Flycatcher	P		x	
Dicruridae	<i>Myiagra rubecula</i>	Leaden Flycatcher	P		x	x
Dicruridae	<i>Rhipidura albiscapa</i>	Grey Fantail	P	x	x	x
Dicruridae	<i>Rhipidura leucophrys</i>	Willie Wagtail	P	x	x	x
Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	P	x	x	x
Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	P	x	x	x
Oriolidae	<i>Oriolus sagittatus</i>	Olive-backed Oriole	P		x	x
Oriolidae	<i>Sphecotheres vieillotii</i>	Australasian Figbird	P			x
Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	P			x
Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird	P	x	x	x
Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	P	x	x	x
Artamidae	<i>Strepera graculina</i>	Pied Currawong	P	x	x	x
Corvidae	<i>Corvus coronoides</i>	Australian Raven	P	x	x	x
Ptilonorhynchidae	<i>Ailuroedus crassirostris</i>	Green Catbird	P			x

Family	Scientific Name	Common Name	Conservation Status	DEC Systematic Survey	Licensed Datasets	Other Sources
Ptilonorhynchidae	<i>Ptilonorhynchus violaceus</i>	Satin Bowerbird	P			x
Passeridae	<i>Passer domesticus</i>	House Sparrow ¹	U			x
Estrildidae	<i>Neochmia temporalis</i>	Red-browed Finch	P	x	x	x
Estrildidae	<i>Stagonopleura oculata</i>	Red-eared Firetail	P		x	
Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	P			x
Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	P	x	x	x
Pycnonotidae	<i>Pycnonotus jocosus</i>	Red-whiskered Bulbul ¹	U	x	x	x
Zosteropidae	<i>Zosterops lateralis</i>	Silvereye	P	x	x	x
Muscicapidae	<i>Turdus merula</i>	Eurasian Blackbird ¹	U			x
Sturnidae	<i>Acridotheres tristis</i>	Common Mynal ¹	U	x	x	x
Sturnidae	<i>Sturnus vulgaris</i>	Common Starling ¹	U		x	x
Mammals						
Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	P		x	x
Dasyuridae	<i>Antechinus</i> sp.	Unidentified Antechinus	P	x		
Dasyuridae	<i>Antechinus stuartii</i>	Brown Antechinus	P	x		
Peramelidae	<i>Perameles nasuta</i>	Long-nosed Bandicoot	P	x		
Petauridae	<i>Petaurus australis</i>	Yellow-bellied Glider	V			x
Petauridae	<i>Petaurus breviceps</i>	Sugar Glider	P	x	x	x
Pseudocheiridae	<i>Petauroides volans</i>	Greater Glider	P	x		
Pseudocheiridae	<i>Pseudocheirus peregrinus</i>	Common Ringtail Possum	P	x		x
Phalangeridae	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	P	x		x
Macropodidae	<i>Wallabia bicolor</i>	Swamp Wallaby	P	x		x
Pteropodidae	<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	x	x	x
Pteropodidae	<i>Pteropus scapulatus</i>	Little Red Flying-fox	P			x
Molossidae	<i>Mormopterus</i> sp 1	undescribed mastiff-bat	P	x		
Molossidae	<i>Nyctinomus australis</i>	White-striped Freetail-bat	P	x	x	
Vespertilionidae	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	P	x		x
Vespertilionidae	<i>Chalinolobus morio</i>	Chocolate Wattled Bat	P	x		
Vespertilionidae	<i>Miniopterus schreibersii oceanensis</i>	Eastern Bent-wing Bat	V	x		
Vespertilionidae	<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	P			x
Vespertilionidae	<i>Vespadelus vulturnus</i>	Little Forest Bat	P	x		
Muridae	<i>Mus musculus</i>	House Mouse ¹	U	x		
Muridae	<i>Rattus fuscipes</i>	Bush Rat	P	x		
Muridae	<i>Rattus rattus</i>	Black Rat ¹	U	x		x
Leporidae	<i>Oryctolagus cuniculus</i>	Rabbit ¹	U	x		x
Canidae	<i>Canis lupus familiaris</i>	Dog ¹	U	x		x
Canidae	<i>Vulpes vulpes</i>	Fox ¹	U	x		x
Felidae	<i>Felis catus</i>	Cat ¹	U	x		



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