

NATIVE FAUNA OF THE GREATER BLUE MOUNTAINS WORLD HERITAGE AREA

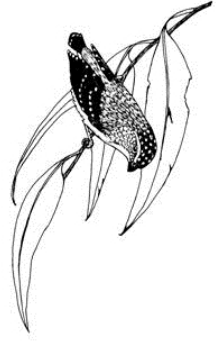


MAMMALS

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NATIVE FAUNA OF THE GREATER BLUE MOUNTAINS WORLD HERITAGE AREA

MAMMALS

Version 3

Judy Smith and Peter Smith

March 2017



Australian Government

This project was supported through funding from the Australian Government's Community Heritage and Icons Grants Programme

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Cover illustration of Greater Glider by Kate Smith katesmithart@gmail.com

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Introduction

The Greater Blue Mountains World Heritage Area comprises eight reserves: Blue Mountains, Gardens of Stone, Kanangra-Boyd, Nattai, Thirlmere Lakes, Wollemi and Yengo National Parks, and Jenolan Karst Conservation Reserve. The area was inscribed on the World Heritage List in 2000 because its natural values, including the diversity of its fauna, were considered to be outstanding at international level.

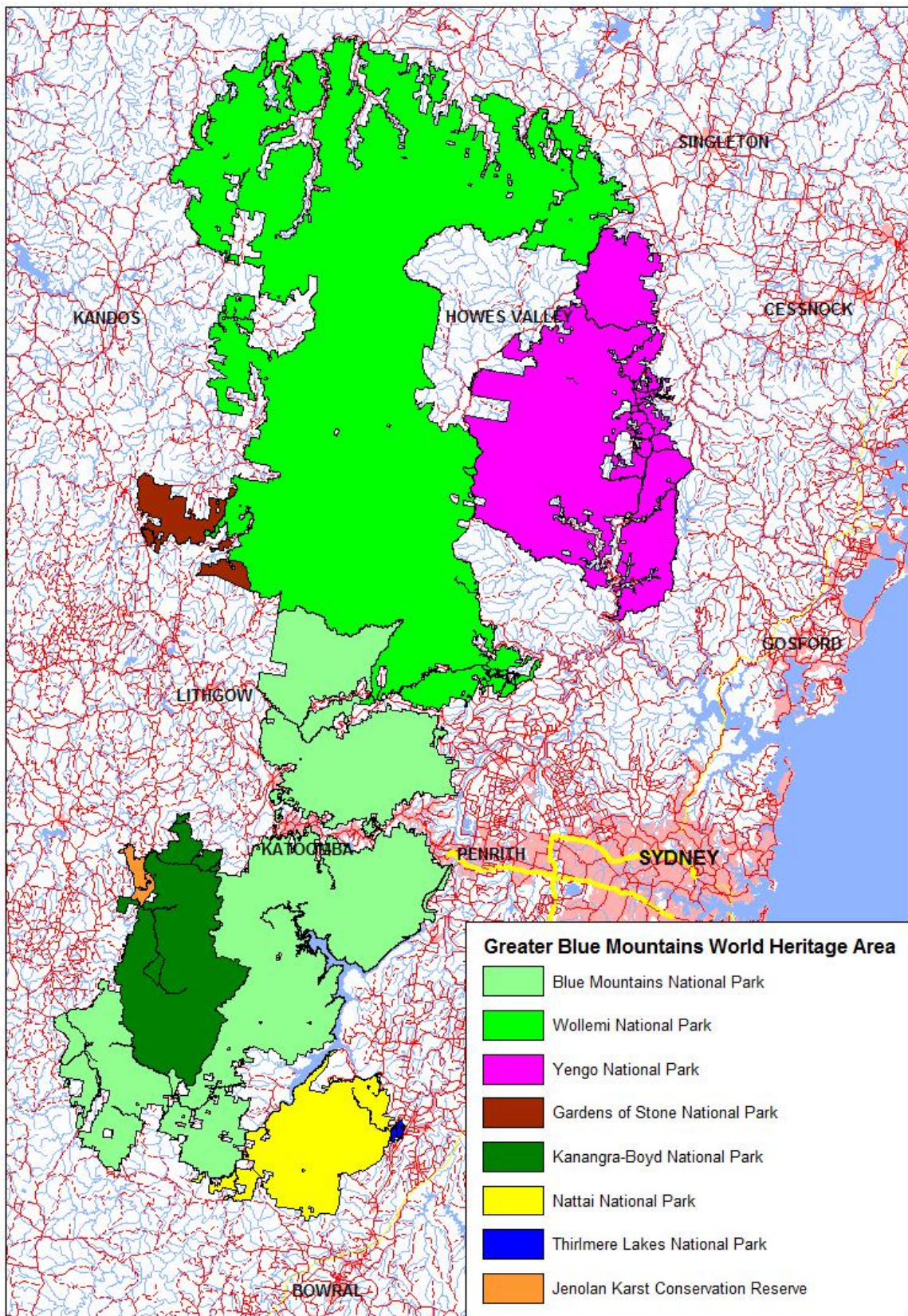
In 1998, when the nomination of the Greater Blue Mountains Area for inscription on the World Heritage List was prepared for the Australian Government, it was well known that the area provided habitat for a wide variety of mammals, birds, reptiles and amphibians. However, details of the vertebrate fauna were sketchy. The nomination indicated that about 400 native terrestrial vertebrate fauna species had been recorded in the area, including 52 mammal, 265 bird, 63 reptile and more than 30 frog species. The diverse bird fauna included 25 species of honeyeaters, about one third of the Australian total.

Over the last year, in an attempt to gain a clearer understanding of the vertebrate fauna, we have prepared four annotated checklists, one each for the native mammals, birds, reptiles and frogs in the Greater Blue Mountains World Heritage Area. The four checklists indicate the species we consider to have been reliably recorded in each of the eight constituent reserves since the time of European settlement. Details of the conservation status at national and state level, and habitat, distribution and relative abundance in the World Heritage Area are provided for each species.

The checklists indicate that at least 423 native terrestrial vertebrate fauna species have been recorded in the Greater Blue Mountains World Heritage Area. This number includes 66 mammal species, of which 28 are threatened species. The Australian mammal fauna has had an alarming history of decline and extinction since European settlement, and nine of the mammal species recorded in the past in the World Heritage Area are now probably extinct there. Protection and rehabilitation of the mammal fauna should be a management priority.

There are still many gaps in our knowledge of the fauna of the Greater Blue Mountains World Heritage Area. Updating the checklists is an on-going process. If you have additional records or other information, your feedback would be very welcome.

Judy and Peter Smith



Native mammal species recorded in the Greater Blue Mountains World Heritage Area

Status in NSW and Commonwealth legislation: C = critically endangered, E = endangered, V = vulnerable, X = extinct/presumed extinct

GBMWA reserves: BMNP = Blue Mountains National Park, GOSNP = Gardens of Stone National Park, JKCR = Jenolan Karst Conservation Reserve, KBNP = Kanangra-Boyd National Park, NNP = Nattai National Park, TLNP = Thirlmere Lakes National Park, WNP = Wollemi National Park, YNP = Yengo National Park

Species nomenclature follows Van Dyck *et al.* (2013) and, for *Mormopterus*, Reardon *et al.* (2014). Subspecies follow Burbidge *et al.* (2014). 'Recent' records are 2000 or later, otherwise the date of the last record is specified. Includes records from skeletal material in cave deposits at Jenolan Caves (Morris *et al.* 1997), but only if the material dates from after European settlement.

Scientific name	Common name	Family	Status		Records in Greater Blue Mountains World Heritage Area reserves								Total WHA
			NSW	Com	BMNP	GOSNP	JKCR	KBNP	NNP	TLNP	WNP	YNP	
<i>Ornithorhynchus anatinus</i>	Platypus	Ornithorhynchidae			recent	recent	recent	recent	recent		recent		recent
<i>Tachyglossus aculeatus aculeatus</i>	Short-beaked Echidna	Tachyglossidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Antechinus agilis</i>	Agile Antechinus	Dasyuridae					recent						recent
<i>Antechinus flavipes flavipes</i>	Yellow-footed Antechinus	Dasyuridae			recent	recent	undated				recent		recent
<i>Antechinus stuartii</i>	Brown Antechinus	Dasyuridae			recent	recent	recent	recent	recent	1956	recent	recent	recent
<i>Antechinus swainsonii mimetes</i>	Dusky Antechinus	Dasyuridae			recent		1991	recent			recent	recent	recent
<i>Dasyurus maculatus maculatus</i>	Spotted-tailed Quoll	Dasyuridae	V	E	recent		recent	recent	recent		recent		recent
<i>Dasyurus viverrinus</i>	Eastern Quoll	Dasyuridae	E	C			extinct						extinct
<i>Phascogale tapoatafa tapoatafa</i>	Brush-tailed Phascogale	Dasyuridae	V				recent					undated	recent
<i>Sminthopsis murina murina</i>	Common Dunnart	Dasyuridae			recent	recent	recent	1998	recent		recent	recent	recent
<i>Isodon obesulus obesulus</i>	Southern Brown Bandicoot	Peramelidae	E	E			undated						undated
<i>Perameles nasuta</i>	Long-nosed Bandicoot	Peramelidae			recent	recent	undated				recent	recent	recent
<i>Phascolarctos cinereus</i>	Koala	Phascolarctidae	V	V	recent	recent	recent	recent	recent		recent	recent	recent
<i>Vombatus ursinus hirsutus</i>	Common Wombat	Vombatidae			recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Cercartetus nanus unicolor</i>	Eastern Pygmy-possum	Burramyidae	V		recent		undated				recent		recent
<i>Petaurus australis australis</i>	Yellow-bellied Glider	Petauridae	V		recent	recent	recent	recent	recent		recent	recent	recent
<i>Petaurus breviceps breviceps</i>	Sugar Glider	Petauridae			recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Petaurus norfolcensis</i>	Squirrel Glider	Petauridae	V		recent	recent	undated				recent	recent	recent
<i>Petauroides volans volans</i>	Greater Glider	Pseudocheiridae		V	recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Pseudocheirus peregrinus peregrinus/cookii</i>	Common Ringtail Possum	Pseudocheiridae			recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Acrobates pygmaeus/ frontalis'</i>	Narrow-toed/Broad-toed Feathertail Glider	Acrobatidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Trichosurus caninus/cunninghami</i>	Short-eared/Mountain Brushtail Possum	Phalangeridae			recent			recent			recent		recent
<i>Trichosurus vulpecula vulpecula</i>	Common Brushtail Possum	Phalangeridae			recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Bettongia</i> species	Unidentified bettong species	Potoroidae	X	X			extinct						extinct

Scientific name	Common name	Family	Status		Records in Greater Blue Mountains World Heritage Area reserves								Total WHA
			NSW	Com	BMNP	GOSNP	JKCR	KBNP	NNP	TLNP	WNP	YNP	
<i>Potorous tridactylus tridactylus/trisulcatus</i>	Long-nosed Potoroo	Potoroidae	V	V			undated						undated
<i>Macropus giganteus</i>	Eastern Grey Kangaroo	Macropodidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Macropus robustus robustus</i>	Common Wallaroo	Macropodidae			recent	recent	recent	recent	recent	recent	recent	recent	recent
<i>Macropus rufogriseus banksianus</i>	Red-necked Wallaby	Macropodidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	Macropodidae	E	V	recent		recent	1989	recent		recent	recent	recent
<i>Wallabia bicolor</i>	Swamp Wallaby	Macropodidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	Pteropodidae	V	V	recent		recent	1986			recent	recent	recent
<i>Pteropus scapulatus</i>	Little Red Flying-fox	Pteropodidae			undated						recent		recent
<i>Rhinolophus megaphyllus megaphyllus</i>	Eastern Horseshoe Bat	Rhinolophidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tailed Bat	Emballonuridae	V		recent	recent					recent		recent
<i>Austronomus australis</i>	White-striped Free-tailed Bat	Molossidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Mormopterus norfolkensis</i>	East-coast Free-tailed Bat	Molossidae	V		recent				recent		recent	recent	recent
<i>Mormopterus petersi</i>	Inland Free-tailed bat	Molossidae									recent		recent
<i>Mormopterus planiceps sens. str.</i>	South-eastern Free-tailed Bat	Molossidae				recent					recent	recent	recent
<i>Mormopterus ridei</i>	Ride's Free-tailed Bat	Molossidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Miniopterus orianae oceanensis</i>	Eastern Bent-winged Bat	Miniopteridae	V		recent	recent	recent	recent	recent		recent	recent	recent
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vespertilionidae	V	V	recent	recent	recent	recent	recent		recent	recent	recent
<i>Chalinolobus gouldii</i>	Gould's Wattled Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Chalinolobus morio</i>	Chocolate Wattled Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	Vespertilionidae	V		recent	recent	recent	recent			recent	recent	recent
<i>Myotis macropus</i>	Large-footed Myotis	Vespertilionidae	V		recent				1997		recent		recent
<i>Nyctophilus corbeni</i>	South-eastern Long-eared Bat	Vespertilionidae	V	V							recent		recent
<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Nyctophilus gouldi</i>	Gould's Long-eared Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	Vespertilionidae	V		recent	recent	recent	recent	recent		recent	recent	recent
<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat	Vespertilionidae				recent					recent		recent
<i>Scotorepens orion</i>	Eastern Broad-nosed Bat	Vespertilionidae			recent	recent		recent	recent		recent	recent	recent
<i>Vespadelus darlingtoni</i>	Large Forest Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent
<i>Vespadelus pumilus</i>	Eastern Forest Bat	Vespertilionidae									recent		recent
<i>Vespadelus regulus</i>	Southern Forest Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	1985	recent
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	Vespertilionidae	V		recent	recent					recent	recent	recent
<i>Vespadelus vulturinus</i>	Little Forest Bat	Vespertilionidae			recent	recent	recent	recent	recent		recent	recent	recent

Scientific name	Common name	Family	Status		Records in Greater Blue Mountains World Heritage Area reserves								Total WHA
			NSW	Com	BMNP	GOSNP	JKCR	KBNP	NNP	TLNP	WNP	YNP	
<i>Conilurus albipes</i>	White-footed Rabbit-rat	Muridae	X	X			extinct						extinct
<i>Hydromys chrysogaster</i>	Water Rat	Muridae			recent	recent	undated		1991		recent		recent
<i>Mastacomys fuscus mordicus</i>	Broad-toothed Rat	Muridae	V				extinct						extinct
<i>Pseudomys australis</i>	Plains Mouse	Muridae	X	V			extinct						extinct
<i>Pseudomys fumeus</i>	Smoky Mouse	Muridae	C	E			extinct						extinct
<i>Psudomys novaehollandiae</i>	New Holland Mouse	Muridae		V			undated				recent	1986	recent
<i>Pseudomys oralis</i>	Hastings River Mouse	Muridae	E	E			extinct						extinct
<i>Rattus fuscipes assimilis</i>	Bush Rat	Muridae			recent	1978	recent	recent	recent	recent	recent	recent	recent
<i>Rattus lutreolus lutreolus</i>	Swamp Rat	Muridae			recent						1997	recent	recent
<i>Canis lupus dingo</i>	Dingo	Canidae			recent	recent	recent	recent	recent		recent	recent	recent

Native Mammal Species Recorded in the Greater Blue Mountains World Heritage Area

The Greater Blue Mountains World Heritage Area comprises Blue Mountains (BM), Gardens of Stone (GOS), Kanangra-Boyd (KB), Nattai (N), Thirlmere Lakes (TL), Wollemi (W) and Yengo (Y) National Parks and Jenolan (J) Karst Conservation Reserve.

Species nomenclature follows Van Dyck *et al.* (2013) and, for *Mormopterus*, Reardon *et al.* (2014). Subspecies follow Burbidge *et al.* (2014). 'Recent' records are 2000 or later. If there are no recent records for a reserve, the date of the last record is indicated. Status refers to listing of species under NSW and Commonwealth legislation. Records from skeletal material in cave deposits at Jenolan Caves (Morris *et al.* 1997) have been included in the list, but only if they date from after European settlement.

Family ORNITHORHYNCHIDAE

Platypus *Ornithorhynchus anatinus*

Reserves: BM, GOS, J, KB, N, W

Uncommon, widespread resident. Aquatic species of rivers, creeks, ponds and dams.

Recent records include Abercrombie River, Bedford Creek, Blue Gum Swamp Creek, Glenbrook Creek, Coxs River, Kedumba River (Blue Mountains NP); Carne Creek (Gardens of Stone NP); Capertee River, Colo River, Dunns Swamp (Wollemi NP); Kowmung River (Kanangra-Boyd NP); Blue Lake (Jenolan KCR); and Nattai River (Nattai NP).

Family TACHYGLOSSIDAE

Short-beaked Echidna *Tachyglossus aculeatus aculeatus*

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common, widespread resident. Found in a range of habitats but favours drier forests and woodlands. The cylindrical scats of this distinctive species smell of formic acid and are filled with the exoskeletons of ants and dirt.

Family DASYURIDAE

Agile Antechinus *Antechinus agilis*

Reserves: J

Rare resident at northern edge of range. Found in wet and dry sclerophyll forest, grassy woodland and heathland.

The only record for the WHA is three Australian Museum specimens collected from Jenolan Caves in 2010. Described as a separate species from the Brown Antechinus only in 1998 (Dickman *et al.* 1998). Records of the latter species in the WHA may include some Agile Antechinus, even records after 1998, since the two species are very similar. Bioclimatic modelling has predicted extensive overlapping distributions of the Agile Antechinus and

Brown Antechinus in the Blue Mountains region, but reliable location records indicate that the Brown Antechinus is the dominant species and the Agile Antechinus is only marginal in occurrence (Crowther 2002).

Yellow-footed Antechinus *Antechinus flavipes flavipes*

Reserves: BM, GOS, J (undated), W

Uncommon resident in more westerly and northerly parts of the WHA, where it is at the eastern edge of its range. Found in grassy woodland and sclerophyll forests.

Recent records include the vicinity of Coco and Crown Creeks, and Wolgan River (Gardens of Stone NP), Widden Valley (Wollemi NP) and Victoria Falls Road (Blue Mountains NP). The only record found for Jenolan KCR is skeletal material in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement.

Brown Antechinus *Antechinus stuartii*

Reserves: BM, GOS, J, KB, N, TL (1956), W, Y

Common, widespread resident. Found in a range of vegetation types where there is dense undergrowth.

The only record for Thirlmere Lakes NP is a specimen collected in 1956 and held in the Western Australian Museum. Records of Brown Antechinus in the southern half of the WHA may include some misidentified Agile Antechinus, since the two species are very similar. However, reliable location records indicate that the Brown Antechinus is the dominant species in the region, despite predictions from bioclimatic modelling that the distributions of the two species are likely to overlap extensively in the Blue Mountains (Crowther 2002).

Dusky Antechinus *Antechinus swainsonii mimetes*

Reserves: BM, J (1991), KB, W, Y

Uncommon resident associated with swamps and wet sclerophyll forests with dense, moist ground layer vegetation. Reaches western edge of distribution at western edge of WHA. May be declining in the region.

The few recent records include Minnehaha Falls (Blue Mountains NP), Mount Thurat Fire Trail (Kanangra-Boyd NP), Hunter Range (Wollemi NP) and the north-eastern corner of Yengo NP. Previously considered to be moderately common in the Blue Mountains, with old records in or near Blue Mountains NP at Bowen Mountain, Tobys Glen, Murphys Glen, Kirai Swamp, Mount Hay Road, Wentworth Falls, Govetts Leap Brook and Medlow Bath (Smith and Smith 1990).

Spotted-tailed Quoll *Dasyurus maculatus maculatus*

Status: vulnerable (NSW); endangered (Commonwealth)

Reserves: BM, J, KB, N, W,

Moderately common resident. Found in rainforest and wet and dry sclerophyll forest.

Common in the upper Blue Mountains in the late 1800s (Bellingham 1899). At that time, quolls were renowned for their raids on poultry and were widely shot and poisoned. Numbers have since declined, but the species is still recorded fairly frequently. Recent records include: vicinity of Bells Line of Road, Linden Ridge, Govetts Track, Blue Gum Swamp Creek, Euroka Clearing (Blue Mountains NP); Jenolan Caves tourist precinct (Jenolan KCR); Kanangra Walls Road (Kanangra-Boyd NP); Wanganderry Pass Trail (Nattai NP); and Dunns Swamp, Martindale Trail and D'Arcy Range Firetrail (Wollemi NP).

Eastern Quoll *Dasyurus viverrinus*

Status: endangered (NSW and Commonwealth).

Reserves: J (extinct)

In 1888 the Eastern Quoll was included in a list of common game species to be obtained between Katoomba and Jenolan Caves (*Horrock's Handy Guide to the Blue Mountains and Jenolan Caves of NSW*, reproduced in Jim Smith 1984). However, the species disappeared from mainland Australia between 1900 and the mid-1960s, following the introduction and spread of the Red Fox *Vulpes vulpes* (Van Dyck and Strahan 2008). The species persists in Tasmania, but until recently it had been thought to be extinct on mainland Australia, with the last confirmed mainland record at Sydney in 1963 (Woinarski *et al.* 2014). However, a roadkill specimen from Barrington Tops in 1989 has recently been confirmed as the mainland form of the species (Australian Museum 2016), suggesting that Eastern Quolls may still persist on the mainland.

At Jenolan KCR, skeletal remains of Eastern Quolls have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. A number of old Australian Museum specimens from Springwood (1886), Lawson (1898) and Woodford (1903) would have been collected in or near what is now Blue Mountains NP.

Brush-tailed Phascogale *Phascogale tapoatafa tapoatafa*

Status: vulnerable (NSW)

Reserves: J, Y (undated)

Rare resident. Highly arboreal species, typically on rough-barked trees. Present in both northern and southern NSW but now generally absent between the Hunter Valley and the Shoalhaven. Reported from Jenolan KCR near Binda Bush cottages in 2003 and an undated record in the Burmah Road area (OEH 2012b). This may be either a small, remnant, isolated population or else an introduced animal or animals. Also recorded at Jenolan KCR from skeletal remains in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement.

Skeletal remains of unknown age have also been found in Yengo NP under a Masked Owl *Tyto novaehollandiae* roost in the vicinity of Little Jimmys Creek, north of the Bala Range

(DECC 2008c). These remains may be very old and the species may no longer be present in the area.

Common Dunnart *Sminthopsis murina murina*

Reserves: BM, GOS, J, KB (1998), N, W, Y

Uncommon but widespread resident. Found in dry sclerophyll forest, grassy woodland and heath.

Recent localities include in the vicinity of Mt Werong (Blue Mountains NP), Jenolan Cottages (Jenolan KCR), Jooriland Homestead (Nattai NP), Red Rock and Crown Creeks (Gardens of Stone NP) and Tayan Peak (Wollemi NP).

Family PERAMELIDAE

Southern Brown Bandicoot *Isodon obesulus obesulus*

Status: endangered (NSW and Commonwealth)

Reserves: J (undated)

Possibly extinct in WHA, although it survives in coastal areas east of the WHA, south of the Hawkesbury River. Once common in south-eastern Australia, the species has been decimated throughout most of its former range (Van Dyck *et al.* 2013). The only confirmed record for the WHA is skeletal remains in cave deposits from owl pellet accumulation in Nettle Cave at Jenolan KCR (Morris *et al.* 1997). The remains date from after European settlement. There are unconfirmed records (hairs) from the Mount Hay area, Blue Mountains NP, in 1986 (BioNet Atlas).

Long-nosed Bandicoot *Perameles nasuta*

Reserves: BM, GOS, J (undated), W, Y

Uncommon resident, most frequently recorded in Wollemi NP and Yengo NP. Found in heath, shrubby swamps and sclerophyll forests with dense undergrowth. Only one record from Gardens of Stone NP (2010 observation; OEH 2012a). Recorded at Jenolan KCR from skeletal remains in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. There is also an old, undated specimen at the Australian Museum from Jenolan KCR.

Family PHASCOLARCTIDAE

Koala *Phascolarctos cinereus*

Status: vulnerable (NSW and Commonwealth)

Reserves: BM, GOS, J, KB, N, W, Y

Uncommon resident with a widespread but patchy distribution. Core population areas are associated with areas of more fertile soils where Grey Gums *Eucalyptus punctata* and Forest

Red Gums *E. tereticornis* are known important feed trees. Many records come from the perimeter of the WHA adjacent to more fertile agricultural lands.

Important centres for Koalas in the WHA include southern Nattai NP, between High Range and Mt Jellore (DECC 2007b), and southern Yengo NP extending into eastern Wollemi NP (DEC 2005a, DECC 2008b-c). Non-breeding males roam widely and probably account for many of the sporadic and widespread records of single animals outside the main population centres. Recent sightings have been made near the junction of Gingra Creek and Kowmung River (Blue Mountains NP), Birds Rock Trail No. 2 (Gardens of Stone NP), Binda Cottages (Jenolan KCR), Kanangra Walls Road (Kanangra-Boyd NP), Angorawa Creek, Bob Turners Track, Culoul Range, Grassy Hill Track, Hungerford Creek, Long Wheeny Creek, Mellong Creek, Mountain Lagoon, Putty Road, Wheeny Creek (Wollemi NP), and Yengo Track and Bucketty to Bala Range (Yengo NP).

Family VOMBATIDAE

Common Wombat *Vombatus ursinus hirsutus*

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common resident. Found throughout the WHA in sclerophyll forest and grassy woodland where soils are suitable for burrowing.

Family BURRAMYIDAE

Eastern Pygmy-possum *Cercartetus nanus unicolor*

Status: vulnerable (NSW)

Reserves: BM, J (undated), W

Rare resident. Often associated with stands of flowering banksias in heaths, swamps or sclerophyll forests. The species may be much more common than the records suggest - it is inconspicuous and difficult to detect and sightings are few. At Jenolan KCR, the only record is from skeletal remains in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement.

Family PETAURIDAE

Yellow-bellied Glider *Petaurus australis australis*

Status: vulnerable (NSW)

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common resident but less frequent in Gardens of Stone NP. Widespread in tall forests on sheltered slopes and in gullies, where it is detected by sightings, calls and characteristic feeding chew-marks (to obtain sap). Grey Gum *Eucalyptus punctata* is a favoured food tree. Feeding marks have also been recorded on the trunks and branches of Mountain Blue Gum *E. deanei*, Ribbon Gum *E. viminalis*, Mountain Grey Gum *E. cypellocarpa*, Red Bloodwood *Corymbia gummifera* and Rough-barked Apple *Angophora*

floribunda. Also recorded feeding at the flowers of box-type eucalypts. Appears to be more abundant in areas of higher soil fertility.

Sugar Glider *Petaurus breviceps breviceps*

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common, widespread resident. Found in sclerophyll forests and woodlands on ridges and in gullies. Detected by sightings, calls and characteristic feeding chew-marks (to obtain sap). Favoured sources of sap include the Red Bloodwood *Corymbia gummifera* and pinnate wattles such as *Acacia parramattensis* and *A. parvipinnula*.

Squirrel Glider *Petaurus norfolcensis*

Status: vulnerable (NSW)

Reserves: BM, GOS, J (undated), W, Y

Rare resident. Records are from scattered locations, often near the perimeter of the WHA adjacent to farmland on more fertile soils. More of a habitat specialist than the ubiquitous Sugar Glider, it appears to prefer grassy forests and woodlands. Recent localities include Scotts Main Range and Bindook Highlands (Blue Mountains NP), Pantoneys Crown Portion and Donkey Mountain Portion (Gardens of Stone NP), Talooby, Blackwater Creek, Hungerford Valley, Kings Creek and Martindale Valley (Wollemi NP), and Old Bulga Road (Yengo NP). The only records for Jenolan KCR are three old, undated specimens at the Australian Museum.

Family PSEUDOCHEIRIDAE

Greater Glider *Petauroides volans volans*

Status: vulnerable (Commonwealth)

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common resident. Occurs across the elevational range of the WHA, but more common at higher elevations. Has declined greatly at lower elevations in Blue Mountains NP in recent times, a decline that appears to be the result of increasing temperature and associated effects (Judy and Peter Smith, unpublished data). Typically found in tall, mature forests in areas such as alluvial flats, shale and basalt caps and volcanic diatremes, where soil fertility is high. Also sometimes found in Peppermint-Angophora forest on less fertile soils. The diet consists almost entirely of eucalypt foliage. Favoured food trees in Blue Mountains NP include Mountain Grey Gum *Eucalyptus cypellocarpa*, Mountain Blue Gum *E. deanei*, Ribbon Gum *E. viminalis* and Sydney Peppermint *E. piperita*. Two distinct colour morphs occur: dark phase and pale phase at a ratio of about 4:1, although with considerable variation within each morph.

Common Ringtail Possum *Pseudocheirus peregrinus peregrinus/cookii*

Reserves: BM, GOS, J, KB, N, TL, W, Y

Moderately common resident. Widespread in sclerophyll forest and woodland, rainforest and scrub. Favours vegetation with a dense understorey. Primarily a leaf-eater, but also feeds on flowers and fruits. Two subspecies may occur in the WHA, *peregrinus* and *cookii* (Van Dyck and Strahan 2008), but no specific records found that had been identified to subspecies, including museum specimens.

Family ACROBATIDAE

Narrow-toed/Broad-toed Feathertail Glider *Acrobates pygmaeus*/'*frontalis*'

Reserves: BM, GOS, J, KB, N, W, Y

Uncommon, widespread resident, mainly found in sclerophyll forest, feeding on nectar, pollen and insects. The species is difficult to detect and may be more common than the relatively few records indicate. Recent localities include Mt Werong, Blue Gum Swamp Creek, Kedumba Valley and Scotts Main Range (Blue Mountains NP), Wolgan Valley (Gardens of Stone NP), Jenolan River valley (Jenolan KCR and Kanangra-Boyd NP), Wanganderry (Nattai NP), Glow Worm Tunnel, Grassy Hill Firetrail and Angorawa Creek (Wollemi NP) and Wrights Creek catchment and Settlers Road (Yengo NP).

Two species of Feathertail Glider are now recognised: the Narrow-toed Feathertail Glider *Acrobates pygmaeus sens. str.* and the Broad-toed Feathertail Glider *Acrobates 'frontalis'*. The differences between the two species have recently been described in a field guide by Van Dyck *et al.* (2013), but the species *A. 'frontalis'* has not yet been formally described and published. Both species could potentially occur in the WHA, but no records from within the WHA were found that distinguish between them; all records were of *A. pygmaeus sens. lat.* The two species cannot be distinguished in the field without examination in the hand. Recent photos of Feathertail Gliders at Wentworth Falls and Bullaburra appear to be Narrow-toed Feathertail Gliders.

Family PHALANGERIDAE

Short-eared/Mountain Brushtail Possum *Trichosurus caninus/cunninghami*

Reserves: BM, KB, W

Rare resident of rainforest and wet sclerophyll forest. Recent localities include Leura Falls Creek, Jamison Creek and Kedumba Pass (Blue Mountains NP), Cronje Mt Firetrail and Kowmung River Firetrail (Kanangra-Boyd NP), and Mt Irvine (Wollemi NP). The Mountain Brushtail Possum *Trichosurus cunninghami* was only recognised as a separate species from the Short-eared Brushtail Possum *T. caninus sens. str.* in 2002 (Lindenmayer *et al.* 2002). The WHA is in the overlap zone between the distribution of the more northerly Short-eared Brushtail Possum and the more southerly Mountain Brushtail Possum. Species boundaries in the overlap zone are unclear (Viggers and Lindenmayer 2004). The two species cannot be distinguished in the field unless examined in the hand, and it is unknown whether both species occur in the WHA or, if only one species, which of the two. No records were found that reliably identify which of the two species was recorded.

Common Brushtail Possum *Trichosurus vulpecula vulpecula*

Reserves: BM, GOS, J, KB, N, TL, W, Y

Common resident. Widespread in eucalypt forest and woodland, but more common in areas of higher soil fertility including grassy woodland, creek flats and lower slopes. Also common in townships and farmland adjoining the WHA.

Family POTOROIDAE

Unidentified bettong/s *Bettongia*/*Aepyprymnus* species

Reserves: J (extinct)

Bettongs (also known as rat-kangaroos) were noted in several early writings about the Blue Mountains (Mackaness 1950-51): William Wentworth recorded seeing a few on his journey across the Blue Mountains in 1813; Elizabeth Hawkins mentioned her boys hunting one some 18 km east of Coxs Pass in 1822; and Charles Darwin, at Hassans Walls just west of the WHA, wrote in 1836 that 'the greyhounds pursued a kangaroo rat into a hollow tree, out of which we dragged it, it is an animal as big as a rabbit, but with the figure of a kangaroo'. Sid Bellingham, a local hunting guide, noted that rat-kangaroos were occasionally seen in the vicinity of Katoomba in the late 1800s (Bellingham 1899). It is unknown to which species of bettong these observations refer, and they may even refer to potoroos (see below).

Three bettong species may once have occurred in the WHA, based on records in the near vicinity. The mainland subspecies of the Tasmanian Bettong *Bettongia gaimardi gaimardi* is now extinct, but was present in the past at Wombeyan Caves (Australian National Wildlife Collection specimen). The eastern subspecies of the Brush-tailed Bettong *Bettongia penicillata penicillata* is also now extinct, but was present in the past at Lithgow (Australian Museum specimen). The Rufous Bettong *Aepyprymnus rufescens* was present in the past at Wallerawang (Australian Museum specimen) and Wombeyan Caves (Australian National Wildlife Collection specimen), but now appears to be extinct in and around the WHA, although it survives in north-eastern NSW and Queensland.

Bettongia gaimardi gaimardi and *Bettongia penicillata penicillata* are both listed as extinct/presumed extinct under Commonwealth and NSW legislation. *Aepyprymnus rufescens* is listed as vulnerable under NSW legislation.

The only specific bettong record within the WHA is skeletal remains of *Bettongia* (species uncertain) found in cave deposits from owl pellet accumulation in Nettle Cave at Jenolan KCR (Morris *et al.* 1997). The remains date from after European settlement.

Long-nosed Potoroo *Potorous tridactylus tridactylus/trisulcatus*

Status: vulnerable (NSW and Commonwealth)

Reserves; J (undated)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement.

Possibly extinct in WHA, but persists in scattered locations to the east of the WHA. The nearest recent records are from Barren Grounds NR in 2010 and Mangrove Mountain in

2004 (OEH 2012b). One or both of two subspecies may have occurred in the WHA: the northern mainland subspecies *tridactylus* and the southern mainland subspecies *trisulcatus* (Frankham *et al.* 2012).

Family MACROPODIDAE

Eastern Grey Kangaroo *Macropus giganteus*

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common resident. Widespread but no records from Thirlmere Lakes NP. Mainly in grassy areas, particularly along creeklines, in grassy forest and woodland, cleared areas and near the perimeter of the WHA adjacent to cleared agricultural land.

Common Wallaroo *Macropus robustus robustus*

Reserves: BM, GOS, J, KB, N, TL, W, Y

Moderately common resident. Widespread but most frequent in Wollemi and Yengo NPs. Typically found where there are rocky escarpments and outcrops providing daytime shelter, with adjacent grassy areas in which to graze.

Red-necked Wallaby *Macropus rufogriseus banksianus*

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common resident. Widespread but no records from Thirlmere Lakes NP. May be locally common in grassy woodland and clearings, particularly along creeklines or at higher elevations.

Brush-tailed Rock-wallaby *Petrogale penicillata*

Status: endangered (NSW), vulnerable (Commonwealth)

Reserves: BM, J, KB (1989), N, W, Y

Rare resident. At western edge of current known range, but formerly extended into inland NSW (Van Dyck and Strahan 2008). Forms small colonies in steep rocky areas, typically sheltering by day in overhangs on north-facing cliffs and rocky slopes, moving out in the afternoon and evening to feed in nearby grassy areas.

A stronghold for the species is in northern Wollemi and Yengo NPs, where there is suitable habitat across the escarpment of the southern Hunter Valley. Here, colonies are found at widely spaced locations including Myrtle Creek, Box Hole Clearing and Red Creek (north-west Wollemi NP, DEC 2007), Turnbull Creek and Appletree Creek (north-east Wollemi NP, DEC 2005a), and Drews Creek, Portion 78 and Big Yengo (Yengo NP, DEC 2005b). Other recent locations for the species include the escarpments adjacent to the Capertee and Wolgan Valleys and the Colo River in southern Wollemi NP (DECC 2008b, 2009); north of Faulconbridge Point Lookout in Blue Mountains NP (DECC 2008a); Wollondilly River catchment in Nattai NP (DEC 2004b); and Jenolan Caves KCR (OEH 2012b). It is uncertain if

the species is still present in Kanangra-Boyd NP, where a specimen was collected near Church Creek in 1987 (Australian National Wildlife Collection), and an individual was sighted at Cathedral Rocks, near Church Creek Caves, in 1989 (DEC 2004a). A 1998 record of scats from Gardens of Stone NP (BioNet Atlas) is considered unconfirmed.

At Jenolan Caves, the species was “at one time plentiful”, “the Grand Arch and other outside caves were simply the camping place of rock wallabies” and it “afforded good lively shooting”, but was declining by the late 1800s (Bellingham 1899). Between 1964 and 1968, 35 adult rock wallabies were captured and placed in a 2.5 ha enclosure. By the mid 1980s, the enclosed population numbered around 80 animals and additional animals were regularly sighted outside the enclosure. Between 1984 and 1988 all animals were released from the enclosure. By 1992 the population had declined dramatically, possibly as a result of predation by introduced carnivores, and the remaining seven individuals were again captured and enclosed. By 2000 the population numbered 15-20 animals (Eldridge *et al.* 2004). The population has been supplemented with translocated animals. In 1995 a single female, the last remaining animal at nearby Wombeyan Caves Karst Conservation Reserve (10 rock-wallabies had been translocated from Jenolan to Wombeyan following the local extinction of rock-wallabies at Wombeyan during the 1930s; Eldridge *et al.* 2004) was returned to Jenolan. Other translocations were a single animal from Yellow Rock in the 1990s and four animals from Waterfall Springs Sanctuary in 2008 (two males with Watagans genetics, a female with Pokolbin genetics and one of unknown origin). Following the implementation of an intensive fox control programme, the Jenolan population now disperses naturally and numbers between 50 and 70 animals, with animals regularly seen around the main tourist precinct (Michaela Jones pers. comm.).

In the early 1870s Brush-tailed Rock-wallabies were introduced to New Zealand from Australia and have since prospered. Recent molecular genetic studies indicate that these animals most likely originated from a population at Winmalee (probably from within what is now Blue Mountains NP). The naturalized New Zealand population represents a potentially valuable conservation resource for Australia (Eldridge *et al.* 2001).

Swamp Wallaby *Wallabia bicolor*

Reserves: BM, GOS, J, KB, N, W, Y

Common, widespread resident, but no records from Thirlmere Lakes NP. The most common macropod in the WHA. Found in a range of habitats. Generally keeps to denser vegetation but will feed in clearings. Browses on shrubs and low vegetation more than the other macropods, which are primarily grazers.

Family PTEROPODIDAE

Grey-headed Flying-fox *Pteropus poliocephalus*

Status: vulnerable (NSW and Commonwealth)

Reserves: BM, J, KB (1986), W, Y

Uncommon visitor. More frequent at lower elevations. The major food source is eucalypt blossom, but they also feed on a variety of other flowers and fruits, foraging up to 50 km each night from their day-time camp.

Visits to the WHA often coincide with the flowering of species such as the Red Bloodwood *Corymbia gummifera* in Blue Mountains NP, and boxes and ironbarks in Wollemi NP, as well as the ripening of orchard fruits in the Bilpin area adjacent to the WHA. Other food plants are also visited. There are no known regular camps in the WHA. Visitors to Blue Mountains NP are likely to come from camps in Western Sydney, the closest of which are at Yarramundi, Emu Plains, Ropes Creek, Camden and Picton. Visitors to Wollemi and Yengo NPs are likely to come from camps at Singleton and Cessnock. Records from elevated, more westerly parts of the WHA are rare, with a single 1986 record from Kanangra-Boyd NP and few sightings at Jenolan KCR.

Little Red Flying-fox *Pteropus scapulatus*

Reserves: W

Rare visitor. A highly nomadic species, occurring mostly west of the Great Dividing Range, most likely to occur in drought years, when numbers move through to coastal areas. Feed predominantly on blossom from a variety of tree and shrub species.

There are no records of camps in the WHA. A temporary camp containing a couple of thousand bats formed at Yarramundi Picnic Area, just east of the WHA, in March 1986 (Smith and Smith 1990). There are two recorded sightings from Wollemi NP (October 2007 and February 2009; BioNet Atlas).

Family RHINOLOPHIDAE

Eastern Horseshoe-bat *Rhinolophus megaphyllus megaphyllus*

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common, widespread resident. No known maternity sites. At western edge of range, but occurs further west in northern NSW. Roosts in natural limestone and sandstone caves and sandstone overhangs as well as in abandoned mines, sometimes in other situations. Forages in rainforest, wet and dry sclerophyll forest, and grassy woodland.

Recent records include McKeown's Valley, Paradox Cave, Devil's Coach House and Surveyors Creek Weir (Jenolan KCR); Donkey Mountain and Crown Creek (Gardens of Stone NP); and Colong Caves (Kanangra-Boyd NP). In Wollemi NP it is most frequent in the north, possibly because of the abundance of potential roost sites in mines and caves along the northern escarpment.

Family EMBALLONURIDAE

Yellow-bellied Sheath-tail-bat *Saccolaimus flaviventris*

Status: vulnerable (NSW)

Reserves: BM, GOS, W

Rare, likely to be a summer-autumn migrant to WHA from northern Australia. Recorded in WHA from November to March. Occurs in various habitats, roosting in tree hollows and usually foraging above the canopy.

Recent records (all based on calls) from Halfway Hollow (Gardens of Stone NP), Lee Creek (Wollemi NP) and Butchers Creek Camp (Blue Mountains NP).

Family MOLOSSIDAE

White-striped Free-tailed Bat *Austronomus australis*

Reserves: BM, GOS, J, KB, N, W, Y

Common, widespread resident. Found in many habitats, roosting in tree hollows in large old or dead eucalypts, and foraging above the canopy.

East-coast Free-tailed Bat *Mormopterus norfolkensis*

Status: vulnerable (NSW)

Reserves: BM, N, W, Y

Uncommon resident. At western edge of range. Typically occurs in eucalypt forest and woodland and lightly timbered rural areas to the east of the Great Dividing Range, especially on fertile alluvial flats. Roosts in tree hollows, usually hollow spouts. Forages in forest gaps and openings.

Has been trapped in vicinity of California Trail (Wollemi NP), where it is at its western limit (DEC 2005a). Occasional calls have been recorded at scattered locations including Gungalwa, Wollemi, Wheeny and Little Wheeny Creeks (Wollemi NP); Burragorang Valley (Nattai NP); Old Bulga Road (Yengo NP); and Burralow Swamp, Kedumba Valley and Scotts Main Range (Blue Mountains NP).

Ride's Free-tailed Bat *Mormopterus ridei*

Corresponds to *Mormopterus* species 2 of Adams *et al.* (1988).

Reserves: BM, GOS, J, KB, N, W, Y

Uncommon resident. Widespread but in low numbers. Found in varied forest and woodland habitats, roosting mainly in tree hollows and hunting mainly in the spaces between trees or just above the canopy.

Most records are from ultrasonic calls but it has recently been captured in Wollemi NP. Appears to be absent from the dry northern perimeter of Wollemi NP (DEC 2007).

Inland Free-tailed Bat *Mormopterus petersi*

Corresponds to *Mormopterus* species 3 of Adams *et al.* (1988).

Reserves: W

Rare resident. An inland species at the eastern edge of its range. Typically associated with dry woodlands and shrublands. Roosts in small tree hollows and forages in the open. Trapped at Hungerford Creek in north-eastern Wollemi NP in October 2004 (DEC 2005a).

South-eastern Free-tailed Bat *Mormopterus planiceps sens. str.*

Corresponds to *Mormopterus* species 4 of Adams *et al.* (1988). The name *M. planiceps* has been used more broadly in the past, but here refers to the narrower delimitation of the species by Reardon *et al.* (2014).

Reserves: GOS, W, Y

Uncommon resident. More typical of western New South Wales, it is found in low rainfall areas in the northern half of the WHA, where it is at the eastern edge of its range. Roosts in tree hollows in forests and woodlands. Usually forages at or above canopy height, but also sometimes forages on the ground.

Recorded by call and trapped in Gardens of Stone NP (in open forest and woodland along creek flats in the Capertee and Wolgan River catchments; OEH 2012a), Wollemi NP (along Putty Road near Angorawa Creek, through Mellong Plateau and across to Wollemi Creek; DECC 2008b) and in Yengo NP (along Settlers Road; DEC 2005b).

Family MINIOPTERIDAE

Eastern Bent-winged Bat *Miniopterus orianae oceanensis*

Status: vulnerable (NSW)

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common and widespread. Present all year. A cave-dwelling bat found in a variety of habitats from rainforest to grassland, foraging above the vegetation canopy. As yet, no maternity caves have been confirmed in the WHA, and at least part of the population is likely to move away from the WHA to breed in maternity caves such as Bungonia. However, the capture of pregnant and lactating females in northern Wollemi NP suggests the presence of a maternity colony in that area, most likely in the old oil shale mines in the Baerami Valley (DEC 2005a, DEC 2007).

Large, regionally important roosts are found in Jenolan KCR (including Paradox Cave and Mammoth Cave; OEH 2012b), Kanangra-Boyd NP (Colong Caves; DEC 2004a) and Wollemi NP (Starlight Canyon; DECC 2009). Smaller roosts have been recorded in Gardens of Stone NP (disused mine east of Ben Bullen; OEH 2012a), Wollemi NP (old oil shale mines along Ruebens Creek; DEC 2005a), Blue Mountains NP (abandoned coal mines in Jamison Valley; Brad Law) and in sandstone overhangs in Yengo NP (DECC 2008c).

Family VESPERTILIONIDAE

Large-eared Pied Bat *Chalinolobus dwyeri*

Status: vulnerable (NSW and Commonwealth)

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common, widespread resident. A largely cave-dependent bat that typically forages in areas of higher soil fertility such as river valleys and basalt plateaus. They roost in the twilight areas of limestone and sandstone caves as well as sandstone overhangs.

There are abundant potential roosts in the WHA and they have been recorded roosting in Devil's Coach House (Jenolan KCR; OEH 2012b) and in sandstone overhangs in Doyles Range and disused oil shale mines in Baerami Valley (Wollemi NP; DEC 2005a). No maternity sites have been recorded in the WHA, but young animals have been trapped in the Glow Worm Tunnel – Galah Mountain area (Wollemi NP), suggesting a maternity site in the vicinity (DECC 2009). Reserves between the Hunter Valley and Colo River appear to be a stronghold for the species.

Gould's Wattled Bat *Chalinolobus gouldii*

Reserves: BM, GOS, J, KB, N, W, Y

Common and widespread resident. Generally roosts in tree hollows and forages within or just below the tree canopy in a wide range of habitats, including urban areas.

Chocolate Wattled Bat *Chalinolobus morio*

Reserves: BM, GOS, J, KB, N, W, Y

Common and widespread resident. Found in rainforest, wet and dry sclerophyll forest, grassy woodland and shrubland. Generally roosts in tree hollows. Forages mostly in the open zone between understorey and canopy.

Eastern False Pipistrelle *Falsistrellus tasmaniensis*

Status: vulnerable (NSW)

Reserves: BM, GOS, J, KB, W, Y

Moderately common resident. Widespread but more frequent in upland areas above 600 m. Near western limit of range. Usually roosts in tree hollows but has been found roosting in caves at Jenolan KCR (OEH 2012b). Appears to favour tall wet sclerophyll forests with a dense understorey, foraging within or just below the tree canopy.

Many records are derived from calls but calls of this species are difficult to distinguish from those of a number of co-occurring species. Recent, more reliable records have come from trapping in Blue Mountains NP (DECC 2007b), Jenolan KCR (OEH 2012b), Kanangra-Boyd NP (DEC 2004a) and Wollemi NP (DEC 2005a, DEC 2007, DECC 2009).

Southern Myotis *Myotis macropus*

Status: vulnerable (NSW)

Reserves: BM, N (1997), W

Uncommon resident. Likely to be restricted to the vicinity of major watercourses. Forages over water, mainly over large, still pools rather than flowing streams. Roosts in various sites close to water. Prey is taken from the water surface or just below.

Trapped on Wollondilly and Nattai Rivers in Nattai NP in 1997 (DEC 2004b), near the junction of Wollemi and Putty Creeks in Wollemi NP in 1998 (DECC 2008b), and on Cedar Creek and Kedumba and Coxs Rivers in Blue Mountains NP in 2003-04 (DECC 2007b).

South-eastern Long-eared Bat *Nyctophilus corbeni*

Status: vulnerable (NSW and Commonwealth)

Reserves: W

Rare resident. Only recorded from the north of Wollemi NP, where it is at the eastern edge of its range. Found in various inland woodlands and shrublands, roosting in tree hollows and foraging in or below the canopy. A favoured habitat is box-ironbark-cypress pine woodland. In the Hunter Valley, often recorded adjacent to watercourses.

Trapped at Doyles Creek and Ruebens Creek valleys in north-east Wollemi NP in 2004 (DEC 2005a). Trapped at Myrtle Creek in north-west Wollemi NP in 2005 (DEC 2007).

Lesser Long-eared Bat *Nyctophilus geoffroyi*

Reserves: BM, GOS, J, KB, N, W, Y

Moderately common, widespread resident. Found mainly in dry sclerophyll forest and grassy woodland. Roosts in crevices, tree hollows, under bark and in buildings. Forages below the tree canopy and in the understorey.

Gould's Long-eared Bat *Nyctophilus gouldi*

Reserves: BM, J, GOS, KB, N, W, Y

Common, widespread resident. Found in rainforest, wet and dry sclerophyll forest and grassy woodland. Usually roosts in tree hollows, but occasionally recorded in caves at Jenolan KCR. Forages below the tree canopy and in the understorey.

Greater Broad-nosed Bat *Scoteanax rueppellii*

Status: vulnerable (NSW)

Reserves: BM, GOS, J, KB, N, W, Y

Uncommon resident. Widespread but sparse. At the western and elevational limit of its range on Boyd Plateau (Kanangra-Boyd NP). May be found in various habitats but appears to favour moist gully forest. Sandstone plateaus may provide only marginal habitat. Roosts mainly in tree hollows. Beetles are the main prey but they also take other bats.

Some old trapping records may have confused it with *Falsistrellus tasmaniensis*. Recent, more reliable trapping records include Kedumba Valley in Blue Mountains NP (DECC 2007b); Carne, Red Rock and Crown Creeks in Gardens of Stone NP (OEH 2012a); Jenolan River in

Jenolan KCR (OEH 2012b); Boyd Plateau in Kanangra-Boyd NP (DEC 2004a); various sites in northern Wollemi NP (DEC 2005a, DEC 2007); and Howes Valley Trail in Yengo NP (DEC 2005b). Records from Nattai NP are based on calls (NPWS 1998, DEC 2004b) and should be treated with caution as calls are not a reliable means of identification for this species.

Inland Broad-nosed Bat *Scotorepens balstoni*

Reserves: GOS, W

Uncommon resident. Recorded from the northern half of the WHA, where it is at the eastern edge of its range. Occurs mainly in dry sclerophyll forest and grassy woodland, roosting in tree hollows and foraging mostly between trees.

Recorded from various locations in both Gardens of Stone NP (OEH 2012a) and Wollemi NP (DEC 2005a, DEC 2007). An inland species, it overlaps with its coastal congener, *S. orion*, in eastern Wollemi NP, where the two species were trapped in the same harp trap on Hungerford Creek in 2004 (DEC 2005a).

Eastern Broad-nosed Bat *Scotorepens orion*

Reserves: BM, GOS, KB, N, W, Y

Moderately common, widespread resident. At western limit of its distribution. Found in rainforest and wet sclerophyll forest, less often in dry sclerophyll forest and grassy woodland. Roosts in tree hollows.

Large Forest Bat *Vespadelus darlingtoni*

Reserves: BM, GOS, J, KB, N, W, Y

Common, widespread resident. Roosts in tree hollows and forages within rainforest and wet and dry sclerophyll forests. Appears to be better adapted to cooler, higher rainfall areas. More common at elevations above 600 m. Very common in Jenolan KCR and Kanangra-Boyd NP, but only a single record from Yengo NP.

Eastern Forest Bat *Vespadelus pumilus*

Reserves: W

Uncommon resident at southern and western limits of distribution. Typically found in rainforest and wet sclerophyll forest, roosting mainly in tree hollows and foraging in and below the canopy.

Recorded in Wollemi NP at Wollemi Creek in 1998 (NPWS 1998) and Wheeny Creek in 2007 (DECC 2008b).

Southern Forest Bat *Vespadelus regulus*

Reserves: BM, GOS, J, KB, N, W, Y (1985)

Common resident. Widespread but far more frequent in upland areas above 600 m. Found in rainforest, wet and dry sclerophyll forest and grassy woodland, roosting in tree hollows and usually foraging below the tree canopy.

The most common bat in Kanangra-Boyd NP, where it is particularly common on Boyd Plateau, but very few records from Gardens of Stone NP and only one old (1985) record from Yengo NP.

Eastern Cave Bat *Vespadelus troughtoni*

Status: vulnerable (NSW)

Reserves: BM, GOS, W, Y

Uncommon resident at the southern limit of its distribution. Restricted to northern half of the WHA. A cave-roosting bat that inhabits wet and dry sclerophyll forest and grassy woodland near sandstone and other escarpments. Roosts in reasonably well lit areas near the cave entrance or in large overhangs and crevices. The northern WHA reserves and other reserves in the upper Hunter and Goulburn River valleys appear to be a stronghold.

Recently recorded roosting in sandstone overhangs, caves and honeycomb weathering along sandstone escarpments in Wollemi NP (DEC 2005a, DEC 2007, DECC 2008b), Gardens of Stone NP (OEH 2012a) and Yengo NP (DEC 2005b). Maternity sites have not been confirmed in the WHA, but a pregnant female has been trapped at Carne Creek in Gardens of Stone NP in 2011 (OEH 2012a), and a post-lactating female has been trapped at California Trail in Wollemi NP in 2005 (DEC 2005a). The southernmost records in the WHA are call records from Bungleboori and Dumbano Creeks in the Wollangambe section of Blue Mountains NP in 2012 (BioNet Atlas), and four bats roosting in a sandstone overhang near the Colo River in Wollemi NP in 2007 (DECC 2009).

Little Forest Bat *Vespadelus vulturnus*

Reserves: BM, GOS, J, KB, N, W, Y

Common, widespread resident. Appears to be more common at lower altitudes (below 600 m). By far the most frequently recorded bat species in the WHA. Inhabits wet and dry sclerophyll forest and grassy woodland, foraging in or below the tree canopy. Roosts in tree hollows, typically in dead trees or dead branches of live trees.

Family MURIDAE

White-footed Rabbit-rat *Conilurus albipes*

Status: presumed extinct (NSW), extinct (Commonwealth)

Reserves: J (extinct)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. The species is now extinct throughout its

range. Once considered common in south-eastern Australia, it has not been recorded anywhere since the early 1860s (Van Dyck and Strahan 2008).

Water Rat *Hydromys chrysogaster*

Reserves: BM, GOS, J (undated), N (1991), W

Rare resident. An aquatic species of rivers, creeks and dams. There are recent records from Wollangambe River (Blue Mountains NP), Coco Creek (Gardens of Stone NP), and Wolgan River, Dunns Swamp and Ovens Creek (Wollemi NP). The only record for Jenolan KCR is an old, undated specimen at the Australian Museum.

Broad-toothed Rat *Mastacomys fuscus mordicus*

Status: vulnerable (NSW)

Reserves: J (extinct)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. The species is now regionally extinct, but there are populations to the south in the Snowy Mountains and to the north at Barrington Tops (Van Dyck and Strahan 2008).

Plains Mouse *Pseudomys australis*

Status: presumed extinct (NSW), vulnerable (Commonwealth)

Reserves: J (extinct)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. The species is now extinct in NSW, but survives in the Lake Eyre Basin (Van Dyck and Strahan 2008).

Smoky Mouse *Pseudomys fumeus*

Status: critically endangered (NSW), endangered (Commonwealth)

Reserves: J (extinct)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. The species is now regionally extinct, but persists in the far south-eastern corner of NSW and in Victoria (Van Dyck and Strahan 2008).

New Holland Mouse *Pseudomys novaehollandiae*

Status: vulnerable (Commonwealth)

Reserves: J (undated), W, Y (1986)

Rare resident with a patchy distribution. Often colonises disturbed areas such as early post-fire regeneration where soils are suitable for burrowing. Recent records in Wollemi NP are from Hungerford Valley and Baerami Valley in 2004 (BioNet Atlas, DEC 2005a). The only record for Yengo NP is an Australian Museum specimen collected in 1986. The only record for Jenolan KCR is skeletal remains found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement.

Hastings River Mouse *Pseudomys oralis*

Status: endangered (NSW and Commonwealth)

Reserves: J (extinct)

The only record for the WHA is from Jenolan KCR, where skeletal remains have been found in cave deposits from owl pellet accumulation in Nettle Cave (Morris *et al.* 1997). The remains date from after European settlement. The species is now extinct in southern NSW and Victoria, but persists in upland forests in north-eastern NSW and south-eastern Queensland, north from Barrington Tops (Van Dyck and Strahan 2008).

Bush Rat *Rattus fuscipes assimilis*

Reserves: BM, GOS (1978), J, KB, N, TL, W, Y

Common, widespread resident. Found in a variety of vegetation types, favouring areas of friable soil with a dense undergrowth of shrubs and ferns. The only records for Gardens of Stone NP are two specimens in the Australian Museum collected in 1978.

Swamp Rat *Rattus lutreolus lutreolus*

Reserves: BM, W (1997), Y

Uncommon resident that reaches western edge of its range. The species has a patchy distribution in swamps and other moist sites with a dense layer of sedges, grasses and other ground vegetation. Recent localities include Burralow Swamp (Blue Mountains NP) and Mellong/Pierces area (Yengo NP).

Family CANIDAE

Dingo *Canis lupus dingo*

Reserves: BM, GOS, J, KB, N, W, Y

Uncommon but widespread resident.

In 1813, as Gregory Blaxland crossed the Blue Mountains he 'heard a most tremendous howling of Native Dogs [Dingos], which appeared to have been watching us the whole of the night' (Mackaness 1950-51). Since that time, as Dingos have come into contact with Domestic Dogs *Canis lupus familiaris*, the two subspecies have interbred, resulting in increasing numbers of hybrids. In the southern Blue Mountains, about half of the wild dogs

have the appearance of Dingos. Recent genetic testing has shown that while fewer than one in ten is of pure Dingo ancestry, most are at least 75% Dingo (DECC 2007b).

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