



MAMMAL

Isoodon obesulus ssp. obesulus

Southern Brown Bandicoot

AUS	SA	AMLR	Endemism	Residency
E	V	V	-	Resident



Photo: © Kirstin Long

Conservation Significance

The AMLR distribution is disjunct, isolated from other extant occurrences within SA. Within the AMLR the species' relative area of occupancy is classified as 'Extremely Restricted'. Relative to all AMLR extant species, the species' taxonomic uniqueness is classified as 'Very High'.²

Description

Medium-sized robust and compact marsupial with small, round ears and a short, pointed snout (relative to other Bandicoots) (Jones 1924). Short, spiny brown and straw coloured hairs cover the head and back resulting in the coat having a grizzled brown appearance while its underside is a creamy white colour (Jones 1924).³

Distribution and abundance

Of the eight species of Bilby and Bandicoot that originally occurred in SA, only the Southern Brown Bandicoot can still be found in the State (Kemper 1990).³

Five subspecies are recognised according to the classification of Seebeck et al. (1990). Two of these, *Isoodon obesulus ssp. nauticus* and *Isoodon obesulus ssp. obesulus*, occur within SA.³

In the AMLR, known to occur from immediately north of the River Torrens, through the Adelaide Hills, and in the northern and southern Fleurieu Peninsula regions

(Paull 1995). There are also subfossil records from the Yorke and Eyre Peninsulas along with several modern museum records from the Eyre Peninsula (Kemper 1990) but the species is no longer considered to occur in these areas (Paull 1995). Previously, Bandicoots had not been sighted north of the River Torrens since the 1960s, despite the Field Naturalists Society (Mammal Club) and the DEH biological survey group having undertaken surveys in this area. However, in early 2008, Bandicoot hairs were detected in 2 fox scats from Warren CP (E. DeSmit *pers. comm.*).

In the Adelaide Hills, the distribution appears to have changed little in 15 years, with populations persisting in and around Cleland CP, Belair NP, Mark Oliphant CP, Kenneth Stirling CP, Scott Creek CP and east of Montacute CP. In the northern Fleurieu, they appear to be restricted to the area around Cox Scrub CP. The 1983 Ash Wednesday fires in this area seem to have caused the extinction of populations at Kyeema CP and Kuitpo Forest (Thompson et al. 1989). In the southern Fleurieu, the species is present in the vicinity of Myponga, Mount Billy CP and Deep Creek CP.

Pre-1983 AMLR filtered records follow the vegetated spine of the MLR, with clustered records between Mylor, Basket Range, Cleland and Belair; Scott Creek CP; Kyeema CP and surrounds; Mount Magnificent CP and Cox Scrub CP; Hindmarsh Tiers area and Deep Creek CP area. Also a single record from Hale CP in the Barossa.²

Biology and Ecology

Annual duration of reproduction varies across Australia, but peak breeding tends to occur from winter through to summer (Lobert and Lee 1990; Paull 1992; Stoddart and Braithwaite 1979). Pouch young have been recorded throughout the year in Belair NP in the MLR although the primary breeding season in this region occurs from June to December (Kovac 2002; Paull 1992; Reese 2000).³

In SA, produce an average of three young per litter and are capable of producing between two and five litters annually but high fecundity is offset by relatively low juvenile survival found at some sites (Paull 1992). Recorded as living for 3.5 to five years (Gooch and Haby 2003; Lobert and Lee 1990).³

Omnivorous. Dietary items identified from studies in SA and TAS (*Isoodon obesulus ssp. affinis*) have included a wide range of invertebrates (spiders, mites, slaters,

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centipedes, bugs, beetles, earthworms, bees, wasps, ants, crickets, earwigs, millipedes, fleas, flies, moths and butterflies) as well as small vertebrates (skinks and tree frogs). Plant matter including grasses, fungi, moss, clover root nodules, and various fruits and seeds from plants such as Pink Ground-berry (*Acrotiche fasciculiflora*), Blackberry (*Rubus fruticosus*), Boneseed (*Chrysanthemoides monilifera*), Flame Heath (*Astroloma conostephioides*), and African Boxthorn (*Lycium ferocissimum*) are also consumed (Heinsohn 1966; Quin 1985; Paull 1992; T. Herbert unpubl. data).³

Predominantly solitary (Braithwaite 1995). Known to be aggressive towards other individuals, often having a shortened or scarred tail and rump as a result of confrontations (Claridge 1988 cited in Claridge et al. 2001; Heinsohn 1966; Reese 2000; Thomas 1990). Recorded as predominantly nocturnal or crepuscular with some diurnal activity (Braithwaite 1995; Jones 1924). However, a study in VIC found individuals to be predominantly diurnal (Lobert 1992). At Scott Creek CP, Petersen (2002) captured older animals (> 1.5 years of age) predominantly overnight and younger animals (< 1.5 years of age) during the day.³

During the day Bandicoots shelter in nests which consist of leaf litter and soil mounded into a shallow depression in the ground, sometimes with a hollow nesting chamber (Braithwaite 1995; Claridge et al. 2001; Lobert 1990; Paull 1992). Also recorded sheltering in rabbit burrows (Paull 1992; Haby 2000).³ In addition to sheltering in burrows constructed by other species recent observations in the AMLR suggest Bandicoots can construct their own burrows in which they shelter.⁴

Home range estimates are limited, varying from 0.5 to 5.3 ha, with the exception being a single study reporting ranges as high as 20 ha. On mainland SA no accurate home range estimates have been reported. Paull (1992) collected some home range data by radiotracking four males (home range size 0.5 to 5.7 ha), but only over a two week period. Home range size is thought to be influenced by the availability of food resources (Broughton and Dickman 1991; Lobert and Lee 1990; Moloney 1982 cited in Paull 1992).³

Habitat

Occupy a range of sclerophyllous forest, woodland, scrubland and heathland communities and some grassland sites (Claridge et al. 1991 cited in Claridge 1993; Friend 1990; Gordon et al. 1990; Hocking 1990; Laidlaw and Wilson 1989; Menkhorst and Seebeck 1990; Opie et al. 1990). In SA, Paull (1992) recorded

Bandicoots predominantly within open forests, woodlands and tall shrublands containing the following key species: Messmate (*Eucalyptus obliqua*), Pink Gum (*E. fasciculosa*), Prickly Tea-tree (*Leptospermum juniperinum*), Heath Tea-tree (*L. myrsinoides*), Silver Banksia (*Banksia marginata*), Large-leaf Bush-pea (*Pultenaea daphnoides*), Bracken (*Pteridium esculentum*), Common Flat-pea (*Platylobium obtusangulum*), Yacca (*Xanthorrhoea semiplana*), Wire Rapiersedge (*Lepidosperma semiteres*) and Golden Wattle (*Acacia pycnantha*).³

Pivotal to habitat choice is the presence of areas with dense ground cover (e.g. Copley et al. 1990; Heinsohn 1966; Paull 1992). In the AMLR Bandicoots were found to be less common in vegetation with less than 50 % ground cover and more abundant in vegetation with between 60 and 70 % ground cover (Paull 1992). A microhabitat investigation in Cox Scrub CP identified that different fine scale vegetation associations were preferred for different activities (Haby 2000).³

In the AMLR and SE SA, Paull (1992) found most nests under mature Yaccas (*Xanthorrhoea* spp.). In cleared areas, they may utilise vegetation along roadsides, watercourses and Blackberry infested drainage lines (Paull 1992). In accordance with known habitat preferences, the presence of dense vegetation, native or exotic, has been found to be a common attribute of corridors utilised by bandicoots (Paull 1995).³

Braithwaite (1995) suggested that in order for a locality to support a stable population, parts of it must regularly be subject to fire, however this has not been supported by all studies (K. Long *pers. comm.*). Areas subjected to fire too frequently will not support the species (Maxwell et al. 1996). Areas regenerating after fire support abundant insects and may be very favourable habitat.⁵

Within the AMLR the preferred broad vegetation group is Heathy Woodland.²

Aboriginal Significance

Also known by the indigenous names Bung and Marti (by the local Kaurna indigenous people) (Braithwaite 1995).³

Post-1983 records indicate the AMLR distribution occurs in Ngarrindjeri, Kaurna and Peramangk Nations.²

Threats

A number of species are known to prey on Bandicoots including; owls, tiger snakes, diurnal birds of prey, dogs, foxes and probably cats (Coates and Wright 2003; Copley et al. 1990; Dickman 1996; Heinsohn 1966;

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ADELAIDE AND MOUNT LOFTY RANGES SOUTH AUSTRALIA

Threatened Species Profile

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Lobert 1990; Rees and Paull 2000).

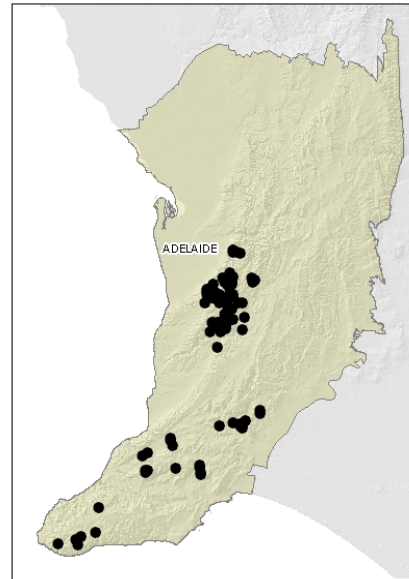
Threats within the AMLR are exacerbated by their peri-urban distribution and by conflicts between biodiversity conservation and human land-use requirements.³

Reasons for decline and continuing threats are probably a combination of factors, including:

- loss or degradation of woodland habitat (especially the undergrowth) from overgrazing by livestock and residential development, resulting in loss of shelter and food sources¹
- broad scale removal of non-native habitat: known to use areas invaded by Blackberry so removal of large areas in known habitat over a short period of time should be avoided; staged removal and promotion of natural bushland regeneration or revegetation should be employed⁵
- predation: from introduced carnivores, such as foxes and feral cats (Maxwell et al. 1996)
- fire: in fragmented habitat widespread bushfire increases the risk of local extinctions³
- post-fire exposure to predators: recent research in the AMLR indicates that Bandicoots are more vulnerable to post-fire predation due to the removal of understorey cover (K. Long *pers. comm.*)
- disease: Toxoplasmosis is believed to have contributed to declines of Eastern Barred Bandicoots (Lenghaus et al. 1989); the prevalence of Toxoplasmosis in Southern Brown Bandicoot populations hasn't been investigated however peri-urban populations that occupy areas with high numbers of cats (the vector of the disease) are likely to be exposed (K. Long *pers. comm.*)
- high populations of kangaroos can 'open up' habitat, creating pathways that facilitate the movement of foxes through otherwise dense vegetation and also reduces habitat quality (D. Armstrong and K. Long *pers. comm.*).

Additional current direct threats have been identified and rated for this species. Refer to the main plan accompanying these profiles.

Regional Distribution



Map based on filtered post-1983 records.² Note, this map does not necessarily represent the actual species' distribution within the AMLR.

References

Note: In some cases original reference sources are not included in this list, however they can be obtained from the reference from which the information has been sourced (the reference cited in superscript).

- 1 Cogger, H. G., Cameron, E. E., Sadlier, R. A. and Egglar, P. (1993). *The Action Plan for Australian Reptiles*. Australian Nature Conservation Agency, Canberra.
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- 4 Long, K. (2009). Burrowing bandicoots – an adaptation to life in a fire-prone environment? *Australian Mammalogy* 31: 57-59.
- 5 Turner, M. S. (2001). *Conserving Adelaide's Biodiversity: Resources*. Urban Forest Biodiversity Program, Adelaide.

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