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Bettongia penicillata

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
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Kingdom	Phylum	Class	Order	Family
ANIMALIA	CHORDATA	MAMMALIA	DIPROTODONTIA	POTOROIDAE

Scientific Name: *Bettongia penicillata*
Species Authority: Gray, 1837

Common Name/s:

English – Woylie, Brush-tailed Bettong, Brush-tailed Rat Kangaroo
 French – Bettongie À Queue Touffue, Kangourou-rat À Queue Touffue
 Spanish – Canguro-rata Colipeludo

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Assessment Information [\[top\]](#)

Red List Category & Criteria:	Critically Endangered A4be ver 3.1
Year Assessed:	2008
Assessor/s	Wayne, A., Friend, T., Burbidge, A., Morris, K. & van Weenen, J.
Evaluator/s:	Lamoreux, J. & Hilton-Taylor, C. (Global Mammal Assessment Team)
Justification:	Listed as Critically Endangered because of a drastic, ongoing population decline, estimated to be more than 80% within a ten year period, inferred from trap rates over the last eight years and projected to continue for at least the next two years. There are a number of known threats to the species, however, the recent declines are mysterious and appear to exhibit density dependence (thus are likely to belong to at least one of the factors under criterion A4e).
History:	1996 – Lower Risk/conservation dependent 1994 – Endangered (IUCN) 1990 – Endangered (IUCN 1990) 1988 – Endangered 1986 – Endangered (IUCN Conservation Monitoring Centre 1986) 1982 – Endangered


Geographic Range [\[top\]](#)

Range Description: This species is endemic to Australia. The two subspecies, *Bettongia penicillata penicillata* and *B. p. ogilbyi*, formerly occurred in suitable habitat over much of the mainland south of the tropics. Recorded from south-west Western Australia, across southern Australia (including St. Francis Island near Ceduna) to the Great Dividing Range (Finlayson 1958). Oral history research involving Aboriginal people has confirmed that the species also ranged over much of the Great Sandy and Gibson Deserts in Western Australia and into the Tanami Desert of the Northern Territory (Burbidge and Fuller 1984; Burbidge *et al.* 1988).

The subspecies *B. p. penicillata* occurred in south-eastern Australia and is now considered to be extinct. *B. p. ogilbyi* currently occurs as natural populations at Dryandra Woodland, Perup Nature Reserve (and adjacent areas within the Upper Warren River Catchment, as far west as Kingston Forest and south near Lake Muir), and at Tutanning

	Nature Reserve. Sightings in Fitzgerald River National Park have not been confirmed, despite extensive trapping. <i>B. p. ogilbyi</i> has been translocated to 46 sites in Western Australia, notably Batalling Forest, Boyagin Nature Reserve, Julimar CP, two privately-owned sanctuaries (Karakamia and Paruna), and multiple sites in the northern jarrah forest as part of research into the effectiveness of different rates of aerial fox baiting (Operation Foxglove). There have also been three translocation sites in New South Wales (including Scotia Sanctuary) and 12 in South Australia, including Venus Bay Island A, Wedge Island, St. Peter Island, mainland Venus Bay CP, and Yookamurra Sanctuary. These translocations have met with mixed success, although some are too recent for their success to be measured.
Countries:	Native: Australia
Range Map:	(click map to view full version) 

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Population:	<p>This species suffered localized extinctions throughout its range, and by the 1970s occurred at only three locations in the wild, Dryandra Woodland, Upper Warren (Perup Nature Reserve), and Tutanning Nature Reserve (K. Morris pers. comm.). With the commencement of broad-scale fox control in 1996, the existing populations increased significantly from approximately 5-10% trap success to around 60% (K. Morris and A. Wayne pers. comm.). Populations also expanded either through natural spread as at Kingston near Perup, or via translocations such as with Batalling, Boyagin, and Tutanning (K. Morris pers. comm.). As a result the Woylie was removed from State and Commonwealth threatened species lists in 1996. However, since 2001 original and translocated populations have declined at a rate of 25-95% per annum to <10% trap success. Examples of the magnitude of population declines to date include Dryandra (93%), Upper Warren (95%), Batalling (97%) (A. Wayne pers. comm.). In some cases, such as Lake Magenta, Woylies have declined to extinction (K. Morris pers. comm.). None of the Western Australia forest populations are increasing (K. Morris pers. comm.). Venus Bay CP (South Australia) has also underwent >90% decline between 2005 and 2007. South Australian Island populations remain apparently stable. Between 2001 and 2006 it is estimated that the species had declined by 70-80% (approximately 8,000-15,000 individuals). The declines have continued and there are no clear signs of population recovery.</p> <p>The population of this species at the following locations is currently estimated as: Wedge Island - 1,500; St. Peter Island - 2,000; Venus Bay Peninsula - 1,500; Dryandra - low hundreds; Peron - 100; Upper Warren - low thousands; Tutanning Nature Reserve - 100; Julimar - 200; Boyagin - 100. There are now fewer than 50 in Lincoln National Park, and fewer than 50 in Venus Bay Island A.</p>
Population Trend:	 Decreasing

Habitat and Ecology [\[top\]](#)

Habitat and Ecology:	This species formerly inhabited a wide range of habitats from desert spinifex grasslands to forests. It is now restricted to forests and open woodlands in Western Australia and mallee shrublands in South Australia with clumped low understorey of tussock grasses or low woody scrub (Maxwell <i>et al.</i> 1996).
Systems:	Terrestrial

Threats [\[top\]](#)

Major Threat(s):	<p>The species is believed to have historically declined through fox and cat predation and habitat destruction and alteration, including changes to fire regimes, competition with domestic and feral introduced herbivores. Disease is also possibly responsible for historical declines (Abbott 2006). Relict populations survived where shrubs of <i>Gastrolobium</i> containing fluoroacetate (1080 poison) provide suitable shelter, presumably reducing the impact of foxes, and possibly also reducing competition from rabbits and stock.</p> <p>The cause of the dramatic population decline since 2001 is a mystery. Although some small populations have declined or even disappeared, large declines have occurred in all large populations, and the declines appear to exhibit density dependence (A. Wayne pers. comm.). For this reason, there is some hope that in a couple of years declines will stabilize allowing the species to persist at lower densities. However, within a year or two there may only be about 1,000 individuals left in the three most important (original) populations combined (A. Wayne pers. comm.).</p> <p>Some of the smaller, translocated populations have failed, some appear to have met with success, and for others it is too early to know whether they have succeeded. Because the translocated populations are small they are subject to stochastic events. In addition, many of these populations were started with few individuals and there are likely to be issues of genetic viability. For example, the population on Wedge Island (1,500 individuals) was founded with as few as four individuals (A. Wayne pers. comm.).</p>
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Conservation Actions:	<p>Since 2005 the Woylie Conservation Research Project has been intensively investigating the causes of the recent rapid and substantial declines with a focus in the Upper Warren region. Led by DEC (Department of Environment and Conservation, Western Australia) in collaboration with Murdoch University, Perth Zoo, and Australian Wildlife Conservancy, the project is investigating the roles of predation, food resources, and disease (A. Wayne pers. comm.). There is also a DEC research program focused on the predators and Woylie populations at Dryandra and Tutanning. Possible new translocation sites are being investigated. Ongoing fox control is important for the management of the species. There is a need to understand role of cats in population declines.</p> <p>This species is listed on Appendix I of CITES.</p>
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Citation: Wayne, A., Friend, T., Burbidge, A., Morris, K. & van Weenen, J. 2008. *Bettongia penicillata*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.2. <www.iucnredlist.org>. Downloaded on **23 August 2010**.

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