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# Fact Sheet



## Woylie Conservation Research

### About the woylie

The woylie or brush-tailed bettong (*Bettongia penicillata*), is a small native kangaroo-like marsupial that stands about 30 cm tall and weighs around a kilogram.

The woylie plays a very important role in promoting the health of the forests, woodlands and other habitats in which it lives. Each woylie digs around five tonnes of soil per year in search of underground fungi, bulbs, tubers and seeds on which it feeds. Their earthmoving skills make them important 'ecosystem engineers', by recycling nutrients, promoting water absorption into the soil, dispersing and caching seeds and providing seed beds for many native plants to germinate. Perhaps their most important role is as 'matchmaker' by dispersing the spores of the underground mycorrhizal fungi that have a symbiotic relationship with most plants by providing them access to rare nutrients necessary for plant and ecosystem health.

### Brief history of the woylie:

- 1800's Distribution across much of southern and central Australia (about two thirds of the continent)
- 1960's Three remnant indigenous populations left (Upper Warren, Dryandra and Tutanning)
- 1970's Population increases start in response to fox control and translocations
- 1996 Western Shield conservation program starts
- 1996 Delisted from endangered/threatened species lists - State and Federal
- 2001 Dryandra population starts to decline
- 2002 Upper Warren and Batalling populations start to decline
- 2006 Woylie Conservation Research Project begins with support from the WA Government biodiversity conservation initiative, 'Saving Our Species'
- 2008 Relisted by WA Government as "fauna that is rare or is likely to become extinct" (Wildlife Conservation Act 1950), IUCN Red List revised the woylie as Critically Endangered. A Woylie Recovery Team is established by DEC. South Coast NRM contribute funds to woylie conservation genetics study
- 2009 Relisted as endangered by the Australian Government (EPBC Act 1999). WA Government pledge \$600,000 toward a Woylie Emergency Conservation Action Plan to establish insurance populations

### Project Partners & Sponsors

Department of Environment and Conservation, South Coast NRM, Murdoch University, Perth Zoo, Australian Wildlife Conservancy, South West Catchments Council, South Australian Government Department of Environment and

Heritage, University of Western Australia, Manjimup Aero Club, Data Analysis Australia, University of Adelaide, WA Government, Wildlife Conservation Action Trust and Australian Academy of Science.

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## Woylie Conservation Research

*Understanding the causes of the woylie decline and the factors limiting population recovery will directly instruct conservation and management efforts and assist the sustained recovery of the species.*

### The Threats

The woylie has declined by about 80% since 2001. The largest and most important populations have generally been the most affected, each experiencing greater than 93% losses within two to five years with few or no signs of a subsequent recovery. There is now less than 2,000 individuals estimated to remain within the last three indigenous populations, which despite the low numbers still support high levels of genetic diversity.

About 8,000 woylies also persist in the many translocated populations across Australia. While some of these are now especially important to the long-term conservation of the species, some have also declined. Many are very small and have limited genetic diversity. All have an uncertain future.

Current evidence indicates the population decline is driven primarily by mortality. Predation/scavenging by feral cats and foxes have been associated with most mortalities but it is likely that other factors are making them more vulnerable to predation, notably disease. Determining the possible role of disease is made especially difficult by predators eating the woylies and destroying the evidence used to confirm what diseases may be involved.

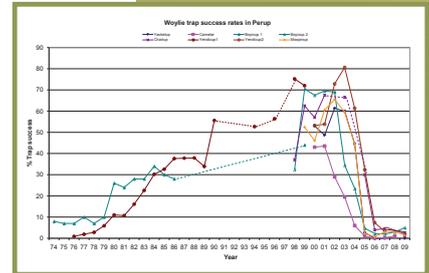
### Project Aims and Goals

The aim of the Woylie Conservation Research Project (WCRP) is to identify the causes of recent woylie declines. It is critically important that conservationists and managers are informed as to how best to prevent the species from becoming extinct. Between 2006 and 2009 the focus was on understanding the characteristics of the declines and collecting the evidence necessary to identify the key suspects.

- Scientific tests are now needed to prove that the key suspected causes are correct. The current priorities include securing funds to determine the role of predation and disease in the decline and recovery of woylie populations. This includes demonstrating that effectively removing predators entirely from a declining population can enable a full recovery.
- Monitoring the health and identifying the causes of death of woylies in key wild populations and in the predator-free insurance populations is also an important part of the ongoing disease investigations.

Several university student projects are also involved with this work including the development of forensic predator profiles to identify the predators/scavengers of carcasses; woylie conservation genetics; food resources and ecology; viruses and epidemiology; *Toxoplasma*; the association of the haemoparasite *Theileria* with woylie declines; endoparasites; ectoparasites and their potential role as vectors of disease; and bacteriology.

This work has broad biodiversity benefits beyond the woylie decline, including capacity-building to better respond to other species and ecosystems declines, identifying possible emerging wildlife disease threats and reducing the impact of introduced predators on native wildlife.



The 30-year recovery and decline in the Upper Warren between Manjimup and Mount Barker



Health and disease screening of a wild woylie by field staff, collaborators and volunteers in the jarrah forest between Manjimup and Mount Barker



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*Connecting the south coast*



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