

A statement for the purposes of approved conservation advice  
(s266B of the *Environment Protection and Biodiversity Conservation Act*).

**Approved Conservation Advice for**  
***Lagorchestes hirsutus bernieri* (Rufous Hare-wallaby (Bernier Island))**

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

**Description**

*Lagorchestes hirsutus bernieri*, Family Macropodidae, also known as the Rufous Hare-wallaby (Bernier Island) or Mala, is a small wallaby, grey-brown above and paler below, with a dark head and paler forearms. The tail is brownish-black above and pale rufous (reddish–reddish-brown) below. Females of the mainland species are larger than males, with an average weight of 1740 g and length of 375 mm compared to 1580 g and 330 mm in males (Strahan, 1995). Such sexual dimorphism however, is not apparent in the Bernier Island population (Richards et al., 2001). Pouch young have been recorded in all months from March to September, with a higher incidence in winter (Richards et al., 2001).

**Conservation Status**

The Rufous Hare-wallaby (Bernier Island) is listed as **vulnerable**. This subspecies is eligible for listing as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). *Lagorchestes hirsutus* is not listed under the EPBC Act. The subspecies is also listed as rare or likely to become extinct under the *Wildlife Conservation Act 1950* (Western Australia).

**Distribution and Habitat**

The Rufous Hare-wallaby (Bernier Island) is known from Bernier Island in Shark Bay, Western Australia. Another subspecies of the Rufous Hare-wallaby formerly occurred on the mainland, but is now extinct in the wild. The Rufous Hare-wallaby (Bernier Island) occurs within the Rangelands (Western Australia) Natural Resource Management Region.

On Bernier Island, the subspecies is found in dune habitat and hummock grasslands, and myrtaceous heath and spinifex on sandplains (NatureBase, 2006). Individuals shelter during the day in depressions or small burrows under spinifex hummocks or small shrubs (NatureBase, 2006). The Rufous Hare-wallaby has a diet of forbs and grasses, preferably with high water content. Seed heads are also eaten, and insects are taken in during dry periods (Strahan, 1995). The patchiness of habitat was found to be important for the captive population in the Tanami Desert, and fire is likely to be important in creating such mosaics (Lundie-Jenkins, 1993). Substantial fluctuations in numbers have been noted over the last century, presumably due to rainfall (Strahan, 1995; Short et al., 1997; Richards et al., 2001).

**Threats**

The main identified threats to the Rufous Hare-wallaby (Bernier Island) include habitat degradation; grazing; frequent and extensive wildfire; and inbreeding depression due to the small population size and restricted distribution. The Rufous Hare-wallaby (Bernier Island) is particularly susceptible to climatic events such as drought, fire and changes in rainfall.

Potential threats include stochastic events and predation by feral cats (*Felis catus*) and European red foxes (*Vulpes vulpes*) (which are implicated in the extinction in the wild of the mainland subspecies). No feral animals currently exist on Bernier Island, but the potential remains for them to become established.

### **Research Priorities**

Research priorities that would inform future regional and local priority actions include:

- Monitor the existing population.
- Investigate the fire ecology of the subspecies and develop optimal fire regime recommendations.
- Investigate captive breeding.

### **Regional and Local Priority Actions**

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of the Rufous Hare-wallaby (Bernier Island).

#### **Habitat Loss, Disturbance and Modification**

- Monitor Bernier Island to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Manage threats to areas of vegetation that contain populations/occurrences of the Rufous Hare-wallaby (Bernier Island).
- Ensure maintenance activities (or other infrastructure activities) in areas where the Rufous Hare-wallaby (Bernier Island) occurs do not adversely impact on known populations.
- Control access routes to suitably constrain public access to known sites on Bernier Island where possible.
- Minimise adverse impacts from land use at Bernier Island.

#### **Animal Predation or Competition**

- Monitor Bernier Island to ensure feral animals, such as cats, foxes and rabbits (*Oryctolagus cuniculus*), do not establish populations.
- Implement management recommendations contained in relevant threat abatement plans if feral animals establish on the island.

#### **Fire**

- Develop and implement a suitable fire management strategy for the Rufous Hare-wallaby (Bernier Island).
- Provide maps of known occurrences to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

#### **Conservation Information**

- Raise awareness of the Rufous Hare-wallaby (Bernier Island) within the local community and the tourism industry.

#### **Enable Recovery of Additional Sites and/or Populations**

- Investigate options for linking, enhancing or establishing additional populations to buffer against the effects of stochastic events.

This list does not necessarily encompass all actions that may be of benefit to the Rufous Hare-wallaby (Bernier Island), but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

### **Existing Plans/Management Prescriptions that are Relevant to the Species**

- Threat Abatement Plan for Predation by Feral Cats (EA, 1999a), and
- Threat Abatement Plan for Predation by the European Red Fox (EA, 1999b).

### **Information Sources:**

Environment Australia (EA) 1999a, *Threat Abatement Plan for Predation by Feral Cats*, Biodiversity Group, viewed 8 January 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/cats/index.html>>.

Environment Australia (EA) 1999b, *Threat Abatement Plan for Predation by the European Red Foxes*, Biodiversity Group, viewed 8 January 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/foxes/index.html>>.

Lundie-Jenkins, G 1993, 'Ecology of the rufous hare-wallaby, *Lagorchestes hirsutus* Gould (Marsupialia: Macropodidae), in the Tanami Desert, Northern Territory: I. Patterns of habitat use', *Wildlife Research*, vol. 20, pp. 457-476.

Naturebase, 2006, 'Rufous Hare-wallaby or Mala *Lagorchestes hirsutus* (Gould, 1844)', Government of Western Australia Department of Environment and Conservation, viewed 6 December 2007,

<[http://www.naturebase.net/component/option,com\\_docman/task,doc\\_download/gid,128/Itemid,1288](http://www.naturebase.net/component/option,com_docman/task,doc_download/gid,128/Itemid,1288)>

Richards, JD, Short, J, Prince, RIT, Friend, JA, & Courtenay, JM 2001, 'The biology of banded (*Lagostrophus fasciatus*) and rufous (*Lagorchestes hirsutus*) hare-wallabies (Diprotodontia: Macropodidae) on Dorre and Bernier Islands, Western Australia', *Wildlife Research*, vol. 28, pp. 311-322.

Short, J, Turner, B, Majors, C, & Leone, J 1997, 'The fluctuating abundance of endangered mammals on Bernier and Dorre Islands, Western Australia – conservation implications', *Australian Mammalogy* vol. 20, pp. 53–71.

Strahan, R 1995, *The Mammals of Australia*, Reed New Holland, Sydney.