

# Flora & Fauna Guarantee Action Statement

#14

This Action Statement was first published in 1992 and remains current. This version has been prepared for web publication. It retains the original text of the action statement, although contact information, the distribution map and the illustration may have been updated.

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## Extinct Mammals 2

### Species presumed extinct throughout Victoria:

Brush-tailed Bettong (*Bettongia penicillata*)

Bridled Nailtail Wallaby (*Onychogalea fraenata*)

Western Barred Bandicoot (*Perameles bougainville*)

Red-tailed Phascogale (*Phascogale calura*)

Tasmanian Pademelon (*Thylogale billardierii*)

Tasmanian Bettong (*Bettongia gaimardi*)

Eastern Quoll (*Dasyurus viverrinus*)

Rufous Bettong (*Aepyprymnus rufescens*)

Plains Mouse (*Pseudomys australis*)

This Action Statement is one of two concerning mammals presumed extinct in Victoria. Action Statement No 13 deals with four species extinct throughout their range, while this Action Statement covers nine species that have extant populations elsewhere in Australia. For detailed descriptions of these species, see Strahan (1988). These nine mammal species are divided into three groups.

**Group A:** Species with small remnant populations elsewhere in Australia:

- the omnivorous Western Barred Bandicoot (*Perameles bougainville* Quoy and Gaimard 1824);
- the insectivorous Red-tailed Phascogale (*Phascogale calura* Gould 1844), and
- two small, herbivorous macropodoids—the Brush-tailed Bettong (*Bettongia penicillata* Gray 1837) and the Bridled Nailtail Wallaby (*Onychogalea fraenata* Gould 1841).

In Victoria, the ranges of these species were limited to the north-western semi-arid zone and along the Murray River. The Victorian populations of the Western Barred Bandicoot and the Brush-tailed Bettong were different subspecies from the extant populations (Strahan 1988). It is considered that the possibility of reintroducing species in Group A to Victoria is small.

**Group B:** Three species with extensive extant populations in Tasmania:

- two herbivorous macropodoids, the Tasmanian Pademelon (*Thylogale billardierii* Desmarest 1822) and the Tasmanian Bettong (*Bettongia gaimardi* Desmarest 1822); and
- the carnivorous Eastern Quoll (*Dasyurus viverrinus* Shaw 1800).

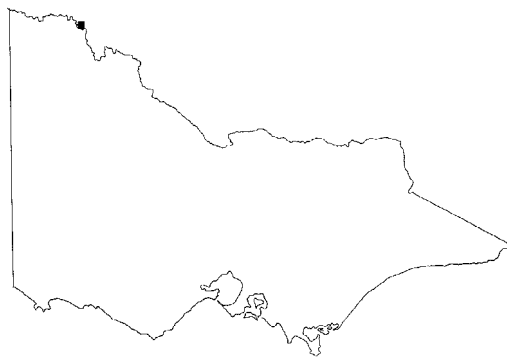
The extinct mainland form of the Tasmanian Bettong is recognised as the subspecies *B. gaimardi gaimardi*. The fourth species, the Rufous Bettong (*Aepyprymnus rufescens* Gray 1837), still occurs in partly-wooded pastoral areas in north-eastern New South Wales and central Queensland (Map 2). Reintroduction into Victoria is more feasible for species in this group than for the species in Group A.

**Group C:** One species, the Plains Mouse (*Pseudomys australis* Gray 1832), which has a restricted distribution in Australia, and for which the precise former habitat and distribution in Victoria cannot be determined. It is considered to have once inhabited the grasslands of the Western Volcanic Plains of Victoria, where it constructed large, shallow, complex burrow systems. It is still present in Central Australia, where it may be locally common (Watts & Aslin 1981). Reintroduction to Victoria is not considered possible.

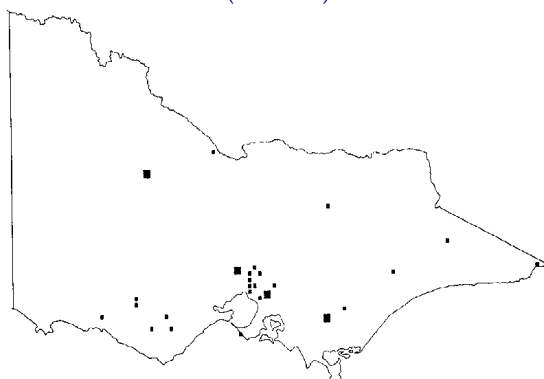
Although discovery of Victorian populations of these species is not considered likely, it is important to remember that two mammals, the Mountain Pygmy-possum (*Burramys parvus*) and Leadbeaters Possum (*Gymnobelideus leadbeateri*), were both considered extinct until populations were discovered in the 1960s. For this reason it is appropriate to have contingency plans for these nine species although they are presumed extinct in Victoria.



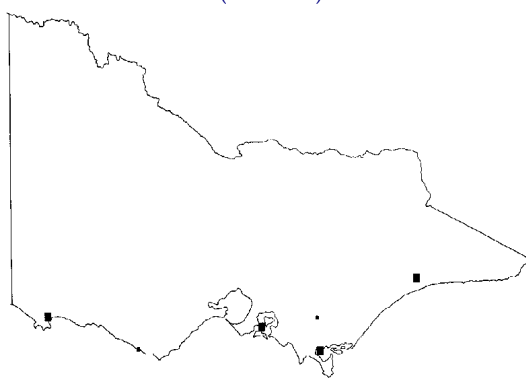
Previous known distribution of Brush-tailed Bettong in Victoria (DSE 2003)



Previous known distribution of Bridled Nailtail Wallaby in Victoria (DSE 2003)



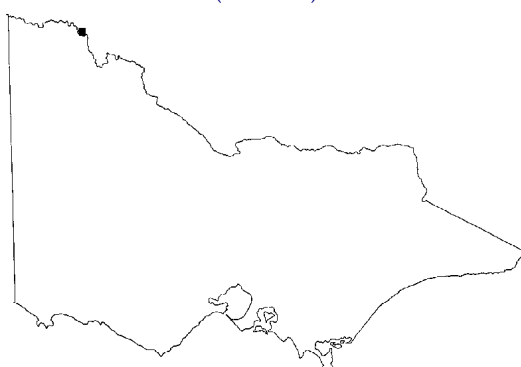
Previous known distribution of Western Barred Bandicoot in Victoria (DSE 2003)



Previous known distribution of Red-tailed Phascogale in Victoria (DSE 2003)



Previous known distribution of Tasmanian Pademelon in Victoria (DSE 2003)



Previous known distribution of Eastern Quoll in Victoria (DSE 2003)

## Conservation Status

### Current Status

#### Groups A, B and C

Baker-Gabb 1990 Presumed extinct in Victoria

#### Groups A and B

Listed on Schedule 2 of the *Flora and Fauna Guarantee Act* 1988 Threatened

### Reasons for Conservation Status

The species in Group A have each suffered a range reduction of between 80 and 90% throughout Australia and the most recent Victorian records are over 100 years old (e.g. Kreff 1866). The 'Tasmanian' species in Group B are now reasonably plentiful in Tasmania (Strahan 1988), although the Eastern Quoll suffered a dramatic decline in numbers in the early decades of this century. The Tasmanian Pademelon was plentiful around the Gippsland Lakes until about 1900 (Norris *et al.* 1983), but the most recent Victorian record is from over 70 years ago. The Tasmanian Bettong was probably extinct on the mainland by about 1900 (Johnson & Rose 1983).

The most likely 'Tasmanian' species in Group B to still exist on the mainland is the Eastern Quoll. Remnant populations survived in Studley Park, Melbourne, until the 1950s, and there were unconfirmed anecdotal records from the rainshadow woodlands of the Upper Snowy River until the 1960s.

According to Seebeck (1984), the Plains Mouse became extinct in Victoria soon after settlement. No specimens were collected. The Scientific Advisory Committee determined in its final recommendations that these taxa (except the Eastern Quoll and the Plains Mouse) were:

- known to have occurred in Victoria after European settlement but have not been sighted for over 40 years.

For the Eastern Quoll, the Committee determined that it may not be extinct in Victoria but:

- is in a demonstrable state of decline which is likely to result in extinction,
- is very rare in terms of abundance and distribution.

For the Plains Mouse, the Committee determined that:

- there was no reliable evidence that the species occurred in Victoria at the time of European settlement.

### Major Conservation Objective

To protect and enhance any populations rediscovered in Victoria. The secondary objective is to examine the long-term feasibility of reintroducing species in Groups A and B to Victoria.

### Management Issues

Because these species are presumed extinct in Victoria, there are no current management issues. Information on the distribution and abundance of remnant populations of these species outside Victoria will be monitored.

Recent experience in Western Australia in the reintroduction of Numbats (*Myrmecobius fasciatus*) and in the recovery of Black-footed Wallaby (*Petrogale lateralis*) and Brush-tailed Bettong has implicated the Red Fox (*Vulpes vulpes*) as a major cause of population depression. The draft *Australian National Strategy for the Conservation of Species and Habitats Threatened with Extinction* (Endangered Species Advisory Committee 1989) viewed predation by the Red Fox as a major threat. Predation of native species by the Red Fox has also been listed as a threatening process under the *Flora and Fauna Guarantee Act*. A national research effort has begun to investigate biological and other measures that may be used to control foxes.

Of these nine mammals, only two—the Rufous Bettong and the Plains Mouse—have extant populations that persist in areas where there are active populations of Red Foxes. Unless controlled, Red Foxes would very likely pose a significant threat to any populations that were reintroduced into Victoria.

Species for which reintroduction is technically possible would require substantial fox-free areas, the precise extent of which for each species would depend on densities per habitat type. Any program would have to maintain areas that would potentially support a self-sustaining population. Before any introduction is considered, the selected area should have the potential to support around 1000 breeding animals, and preferably several thousand in the long term (see Schonewald-Cox 1983). In Victoria areas kept free of Red Foxes (fenced) are generally too small to support a population of sufficient size for long-term viability.

If a substantial fox and rabbit-free area was established in the arid zone this might prove suitable for introduction of the arid zone species in Group A. However, no such area is planned and it would take several years to ascertain whether foxes and rabbits can be permanently removed. Introduction of Group A species might then be considered appropriate. Such a project would probably require a major sponsor.

The Brush-tailed Bettong has been successfully introduced to several islands off the South Australian coast, with a population on St Peter Island (off Ceduna, approx. 20 km<sup>2</sup>) having the best prospects for a long-term viable population (A.C. Robinson, SANPWS, *pers. comm.*) Such experiments provide valuable information for the introduction of similar species.

The feasibility of reintroducing species in Group B should be examined. The absence of the Red Fox in Tasmania suggests that this predator may be a critical factor in population survival. Any reintroduction to Victoria would have to be into a fox-free area in the south of the state.

There are no Red Foxes on French Island and the population on Phillip Island is very small. DCE is endeavouring to eliminate foxes from Phillip Island but, for long term success, foxes' access via the San Remo-Newhaven bridge would have to be eliminated. Given the need for fox-free areas, French and Phillip Islands may be the best sites for initial investigations.

There are no plans to reintroduce any of these species at present.

## Ecological Issues Specific to the Taxon

Many species disappeared before their habitats were known in detail, thus the precise causes of extinction remain unclear. In Victoria their extinction probably resulted from a combination of habitat destruction, predation by the Red Fox and feral Cat (*Felis catus*), competition from introduced grazers (rabbits, cattle and sheep) and to a lesser extent hunting or persecution. Tasmanian Pademelons were actively hunted for sport and food and early settlers destroyed Eastern Quolls as pest animals.

## Wider Conservation Implications

Reintroducing any of these species (particularly the macropodoids, and the Eastern Quoll) could have substantial conservation and educational benefits to other conservation/habitat rehabilitation programs. For example, reintroducing the Brush-tailed Bettong to Hattah-Kulkyn National Park could provide a perspective of total habitat management to the park's vegetation management program. However, it will probably take over a decade for the ground stratum to be restored close enough to natural conditions before such an introduction could be justified. If reintroduction were integrated with existing or proposed habitat management programs the costs could be reduced and other conservation efforts enhanced.

At present, the three Tasmanian species have relatively large and secure populations in Tasmania. However, drastic declines in Eastern Quoll numbers were observed in the early decades of this century (Green 1973). Similar declines were reported on the mainland, but this population never recovered and became extinct (Seebeck 1984).

If viable populations could be established on the mainland it would make the national conservation status of the species more secure. On the other hand, if re-introduced populations did *not* survive, the reasons for the failure could provide additional knowledge to aid in conserving the Tasmanian stock.

Any large-scale Red Fox control program will have to consider the effects of relaxing predator pressure on prey species. Increasing the abundance and distribution of medium-size native carnivores, such as quolls, may help counteract these effects.

## Social and Economic Issues

At present there are no social or economic issues of concern. A major part of the diet of the Eastern Quoll is agricultural pest insects and thus it may have a potential to provide some economic benefits. If populations were established some of the species would enhance the tourist potential of some areas.

Reintroduction programs are expensive but some may be attractive to sponsors outside DCE, who could assist habitat enhancement programs. A successful reintroduction program would take a minimum of approximately four person-years and, more than likely, many more human resources.

## Management Action

### Previous Management Action

There have been some efforts by Victorian wildlife agencies to reintroduce two of these species. In 1979, an attempt was made to reintroduce Tasmanian Pademelons to Tower Hill in western Victoria from zoo stock. The animals did not survive, being taken by foxes. A draft proposal for the reintroduction of the Eastern Quoll has been prepared but the project has not been given a high priority within the objectives of the Department.

### Intended Management Action

- All reported sightings of any of these species will be investigated.
- If extant populations are located, their critical habitat will be determined and declared. The population will be investigated to determine its abundance and the measures required for its conservation.
- There are no current plans to reintroduce any of these species into Victoria and reintroductions are not a priority. A major prerequisite will be areas of sufficient size that are either fox-free or have adequate long-term fox control. Within the next five years the Flora and Fauna Division will progressively examine the feasibility of reintroducing species in Group B. If a fox-free area is established in the semi-arid zone the Flora and Fauna Division and DCE's Mildura Region will examine the feasibility of reintroducing species in Group A. As part of this study an inventory of fox-free areas on public land in Victoria will be established.
- The status of the species outside Victoria will be monitored by DCE.
- Any remains of these species found in Victoria will be lodged with the Museum of Victoria.

### Legislative Powers Operating

Under the *Wildlife Act 1975*, the Brush-tailed Bettong, Bridled Nailtail Wallaby and Western Barred Bandicoot are declared Endangered Wildlife (by Regulation, 1980). None of the other species are gazetted as either endangered or notable, although all are protected under the Act.

If any extant populations are found they will be protected under the *Flora and Fauna Guarantee Act* by the declaration of critical habitat.

### Licence/Permit Conditions: Guidelines and instructions

Any reintroduction programs will require a permit under the *Wildlife Act 1975*.

### Implementation, Evaluation and Review

Reintroduction of any of these species is not a DCE priority at present. This Action Statement will be reviewed in five years or when an extant population is discovered if that should happen before the set review date.

### Contacts

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## Further information

Further information can be obtained from Department of Sustainability and Environment Customer Service Centre on 136 186.

Flora and Fauna Guarantee Action Statements are available from the Department of Sustainability and Environment website: <http://www.dse.vic.gov.au>

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