

# Recovery plan for the Proserpine rock-wallaby *Petrogale persephone* 2000–2004

*Prepared by Barry Nolan and Peter Johnson  
on behalf of the Proserpine rock-wallaby recovery team*



***Recovery plan for the Proserpine rock-wallaby  
Petrogale persephone 2000–2004***

© The State of Queensland, Environmental Protection Agency, 2001.

Copyright protects this publication. Except for purposes permitted by the Copyright Act, reproduction by whatever means is prohibited without the prior written knowledge of the Environmental Protection Agency. Inquiries should be addressed to PO Box 155, BRISBANE ALBERT STREET, QLD 4002.

**Prepared by:** Barry Nolan and Peter Johnson on behalf of the Proserpine rock-wallaby recovery team

Copies may be obtained from the:  
Executive Director  
Queensland Parks and Wildlife Service  
PO Box 155  
Brisbane Albert St QLD 4002

**Disclaimer:**

The Queensland Parks and Wildlife Service publishes Recovery Plans to detail the actions needed for the conservation of threatened native wildlife.

The attainment of objectives and the provision of funds may be subject to budgetary and other constraints affecting the parties involved, and may also be constrained by the need to address other conservation priorities. Approved recovery plans may be subject to modification due to changes in knowledge and changes in conservation status.

**Publication reference:**

Nolan, B. and Johnson, P., 2001. *Recovery plan for the Proserpine rock-wallaby Petrogale persephone 2000–2004*. Report to Environment Australia, Canberra. Queensland Parks and Wildlife Service, Brisbane.

Information in the plan is accurate at August 2000.

Review of this Plan will be undertaken in 2003 by the Queensland Parks and Wildlife Service.

RE396 May 2001

Recycled paper saves energy and resources.

Visit us online at [www.env.qld.gov.au](http://www.env.qld.gov.au)

---

**Recovery plan for the  
Proserpine rock-wallaby  
*Petrogale persephone*  
2000–2004**



---

## **Contents**

<b>Summary .....</b>	<b>4</b>
<b>Introduction .....</b>	<b>5</b>
Description of species .....	5
Distribution .....	5
Habitat .....	5
Life history .....	5
Reasons for listing .....	5
Existing conservation measures .....	5
<b>Threats .....</b>	<b>6</b>
Strategy for recovery .....	6
<b>Recovery objectives and performance criteria .....</b>	<b>6</b>
Overall objective .....	6
Specific objective .....	6
Performance criteria .....	6
<b>Recovery actions .....</b>	<b>8</b>
Habitat survey and population monitoring .....	8
Community awareness and participation .....	8
Establishment of new populations .....	9
Management of threats .....	10
Co-ordinate recovery program .....	11
<b>Implementation schedule .....</b>	<b>12</b>
<b>Acknowledgments .....</b>	<b>13</b>
<b>References .....</b>	<b>13</b>

---

## Summary

### Current species status

Endangered (ANZECC 1995; *Environment Protection and Biodiversity Conservation Act 1999*; *Nature Conservation Act 1992*). Endangered (IUCN 1996 Action Plan for Australian Marsupial and Monotremes) B1, 2a.

### Habitat requirements and limiting factors

The Proserpine rock-wallaby inhabits rock piles, rocky outcrops and cliffs within a preferred microphyll/notophyll semi-deciduous dry vine forest. The reduction in area of habitat is due to land clearing for grazing, farming and housing development.

### Recovery objectives

#### Overall objective

To increase the population size and area of distribution of the Proserpine rock-wallaby within five years.

#### Specific objectives

1. To maintain and protect known habitat and ensure that the species continues to exist in the wild.
2. To increase community awareness, in particular among those freehold land holders owning areas of habitat critical to the species survival.
3. To release captive bred animals to the wild within suitable and appropriate habitat and ensure the population is self-sustaining in the wild.
4. To minimise disease, incidental kills and other destructive impacts on populations.
5. To co-ordinate the implementation of the program to enable the other objectives to be met.

### Recovery criteria

1. Areas of habitat are identified, mapped and protected. All known colony sites are effectively protected, and their status is well known.
2. Private land holders actively support the program and the local community is aware of, and participates in the recovery program.
3. The captive breeding program continues and selected rock-wallabies are bred and released to successfully establish at least one additional self-sustaining population.
4. Human impact on Proserpine rock-wallaby populations is reduced to an ecologically sustainable level.
5. The recovery effort is effective and efficient.

### Actions

1. Continue systematic habitat survey and monitoring, protection of habitat and monitoring of populations.
2. Secure land holder support, involvement and commitment to the maintenance of habitat and increase public awareness of and participation in the recovery program through the actions and directions of the recovery team.
3. Assess new sites and undertake release of captive bred Proserpine rock-wallabies into the wild, monitor the newly released population, and maintain the captive colony.
4. Install effective reflectors and road signs, and promote the control and containment of domestic animals and introduced toxic plants.
5. Co-ordinate the Proserpine rock-wallaby recovery team and administer, resource and support the implementation of the recovery plan.

### Estimated cost of recovery: \$

Year	Action 1	Action 2	Action 3	Action 4	Action 5	Total
1	24,150	15,800	13,1174	8,100	4,000	183,224
2	25,150	50,700	69,563	7,400	4,500	157,313
3	26,750	32,750	70,475	7,400	4,500	141,875
4	27,750	31,250	11,038	6,000	5,000	81,038
5	6,000			5,000	11,000	
<b>Total</b>	<b>103,800</b>	<b>136,500</b>	<b>282,250</b>	<b>28,900</b>	<b>23,000</b>	<b>57,4450</b>

### Biodiversity benefits:

- Retention of the vine forest community occurring in rock-wallaby habitat - semi-deciduous microphyll/notophyll vine forest on slopes, including areas of regional ecosystem 8.12.11 semi-deciduous microphyll rainforest on volcanics (dry coastal ranges), listed as "of concern" in Queensland.
- Habitat benefits for other lowland providence species will include vulnerable plant species, under the *Nature Conservation (Wildlife) Regulation 1994*: *Medicosma obovata*, *Neisosperma kilneri* and rare plant species *Actephila sessilifolia*, *Atalaya rigida*, *Austromyrtus pubiflora*, *Brachychiton compactus*, *Ehretia grahamii*, *Graptophyllum excelsum*, *G. ilicifolium*, *Hernandia bivalvis*, *Heterostemma acuminatum*, *Macropteranthes fitzalanii*, *Neisosperma poweri*, *Rhodomyrtus spongiosa*, *Rhodamnia pauciovulata*, *Solanum sporadotrichum* and *Wrightia versicolor*. Two undescribed plant species also occur within Proserpine rock-wallaby habitat and are considered rare, *Capparis* sp.(Bulburin) and *Homalium* sp. (South Molle Island). Other rare and threatened fauna that will directly benefit from habitat protection include the orange-sided skink *Eulamprus amplus*, the rufous owl southern subsp., an undescribed leaf-tailed gecko *Phyllurus* sp.(Conway) and an undescribed whip snake *Demansia* sp. (Conway).

---

## Introduction

This plan is based on the previous draft recovery plan for the species. The intent of this plan is to establish and implement management activities to fulfil recovery outcomes for the Proserpine rock-wallaby.

## Description of species

The Proserpine rock-wallaby *Petrogale persephone* was discovered in 1976 and scientifically described by Maynes (1982). It is one of eleven species of rock-wallaby currently recognised in Queensland. Its larger size and preference for deciduous vine forest habitat differentiate this species from the neighbouring unadorned rock-wallaby *Petrogale inornata* which has a preference for areas of rocky habitat in open forest.

The Proserpine rock-wallaby is the third largest member of the genus *Petrogale*, with males averaging 6.9kg and females 5.1kg. The yellow footed rock-wallaby *Petrogale xanthopus*, a close relative of *Petrogale persephone*, and the Brush tailed rock-wallaby *Petrogale penicillata* are the largest of all rock-wallabies. The Proserpine rock-wallaby is marked with subdued colours which enable it to blend into its shaded habitat. The surface body colour is dark grey with a light mauve tinge. Backs of the ears are dark brown to black with a lighter pencil marking running about the edge of the ear, while the chest and belly are a light grey to dirty cream colour. The base of the wallaby's tail is a rich rufous brown and the dorsal surface of the tail is lighter. Some specimens have a light rufous-brown colouration on the forearm with dark brown to black on the wrists and forepaws. A distinctive cream tip on the brush of the tail is present in some specimens, while others may lack any lighter tail marking.

## Distribution

The Proserpine rock-wallaby occurs in Conway National Park, Gloucester Island National Park, Dryander National Park, on Clarke Range near Proserpine, on the northern, eastern and sections of the western margins of the Conway Range, and around the town of Airlie Beach. Figure 1 shows the area of known distribution.

## Habitat

On the mainland this rock-wallaby prefers rocky outcrops, rock piles and cliffs within a microphyll/notophyll semi-deciduous dry vine forest. In Gloucester Island National Park the habitat includes rocky outcrops and rock piles covered with dry vine scrub, usually associated with beach scrub. At higher elevation the habitat is rocky outcrops, rock piles and rocky creeks within an acacia open forest.

On the mainland during dry periods, the Proserpine rock-wallaby will move to the edge of the vine forest to feed on grasses. This species has not been recorded on the mainland in wet tropical rainforest and has a preference for the narrow band of dry vine forest between the wet tropical forest and the open forest. On Gloucester Island National Park during the dry latter part of the year, this species utilises beach scrub and browses plants such as young *Pandanus brookei*.

## Life history

The Proserpine rock-wallaby has a life history that includes an oestrus cycle range of 33-35 days and a gestation period of 33-34 days. Post-partum matings generally occur within hours of birth. The young have a pouch life averaging 209 days, and generally on the day that one young exits the pouch the next young is born. Young are weaned about 122 days after permanently leaving the pouch.

The diet of this rock-wallaby is presently being studied and preliminary results indicate that broad-leaf material is important. During dry periods the rock-wallabies move to the edge of the forest and graze on such grasses as Guinea grass *Panicum maximum*.

Information on movement patterns are presently being studied and early indications are that the home range of animals on an isolated hill is in the vicinity of 30 hectares.

## Reasons for listing

Ground surveys, that have been conducted from 1989 to the present, covering an area between Mackay and Bowen and up to 75km inland from the coast, have located 24 sites where the Proserpine rock-wallaby has been positively identified. These sites all occur within approximately 14,000ha of habitat (Figure 1). Although population size is unknown, the small area of distribution indicates that it is relatively small. It is estimated that approximately 40 percent of Proserpine rock-wallaby habitat is found on freehold and leasehold land. With the considerable amount of development occurring in the Whitsunday area the habitat of this species is considered to be under threat. In addition, wallabies are subject to mortality from vehicle impact and attack by domestic dogs. These problems and the small population size have prompted the listing of this species.

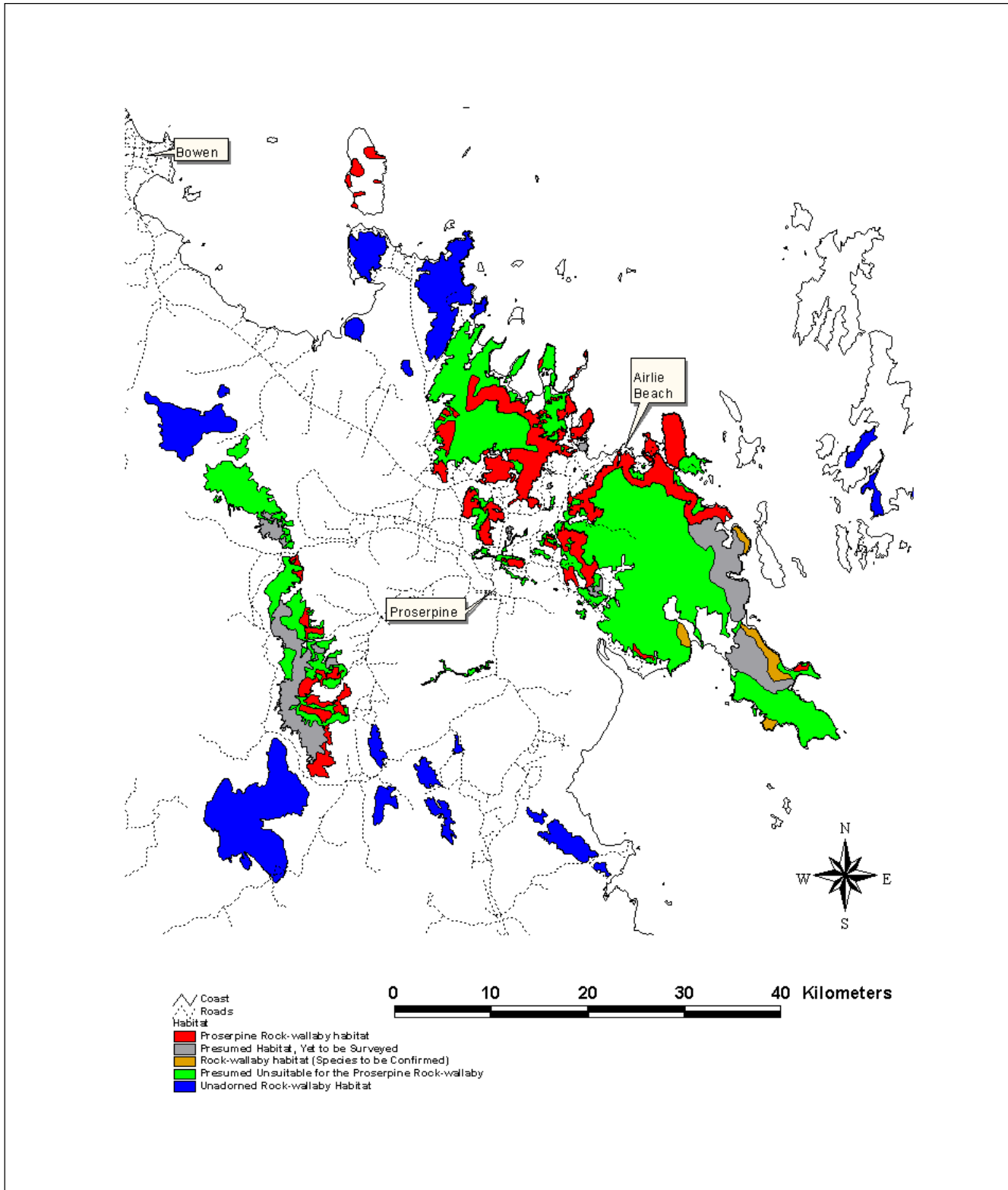
## Existing conservation measures

The installation of roadside wildlife reflectors in areas where road deaths have occurred has seen a marked reduction in numbers of road deaths. Acquisition of 1100ha adjoining Dryander National Park occurred in 1996 and of this 850ha had been identified as habitat for the species, and is contiguous with habitat within Dryander National Park.

With the identification of further habitat on the Clarke Range negotiations with the Department of Natural Resources and lessees have resulted in the securing of a further 650ha as an Environmental Reserve. The Department of Natural Resources recognises that significant areas of habitat occur on Conway and Dryander State Forests and State Forest 387 on the Clarke Range. This recognition resulted from habitat mapping supplied by the Queensland Parks and Wildlife Service (QPWS). Management of these identified areas has been largely directed at the on-going protection of habitat for the rock-wallaby.

As much of the Proserpine rock-wallabies habitat falls on freehold/ leasehold land a Public Contact Plan was developed. The aim of this plan is to protect this habitat, and by involving the community and other organisations, develop a sense of ownership and support for the conservation of the species.

Figure 1. Known habitat and distribution of the Proserpine rock wallaby (September 2000).





---

## Threats

Reduction of habitat through clearing has resulted in a reduction in population size. Land clearing has also led to habitat fragmentation and isolation of rock wallaby colonies. Continued land clearing within the coastal areas is still occurring due to residential development. Residential development has led to an increase in domestic dogs and cats within and adjacent to habitat areas. This has led to an increase in the number of dog attacks on rock-wallabies and rock-wallaby deaths. Domestic and feral cats spread *Toxoplasmosis gondii* which has been known to cause blindness and death in these rock-wallabies. There are few data available on predation or the effects of toxoplasmosis on the mortality rate in *Petrogale persephone* populations. However, given the extensive areas of development adjacent to *P. persephone* habitat and the recorded incidents of death due to toxoplasmosis it is believed they form a serious threat. Development has also led to roads being constructed through areas of Proserpine rock-wallaby habitat which has resulted in road kills.

The propagation of introduced toxic plants also poses a threat as *P. persephone* is known to graze in household gardens, especially during the drier months. Invasion of some species, such as pink periwinkle (*Catharanthus roseus*) into habitat areas on Gloucester Island may also pose a considerable poisoning threat (Batianoff and Dillewaard 1994).

## Strategy for recovery

The protection of the identified habitat is of major importance in the prevention of extinction of the species. Habitat protection, together with reduction of road mortality, research into management and the maintenance of a captive colony are considered necessary to conserve the species.

Other strategies that need to be put in place to effect recovery include:

1. identification and protection (by conservation agreement and other means) of other habitat;
2. Community Nature Conservation initiatives to boost available habitat; and
3. release of Proserpine rock-wallabies to other areas within the district.

## Recovery objectives

### Overall objective

To increase the population size and area of distribution of the Proserpine rock-wallaby within five years.

### Specific objectives

1. To maintain and protect known habitat and ensure that the species continues to exist in the wild.
2. To increase community awareness and involvement, in particular among those freehold land holders owning habitat critical to the survival of the species.
3. To release captive bred animals into the wild within suitable and appropriate habitat and ensure the population is self-sustaining in the wild.
4. To minimise disease, incidental kills and other destructive impacts on populations.
5. To co-ordinate the implementation of the program to enable the other objectives to be met.

### Performance criteria

1. Areas of habitat are identified, mapped and protected. No known colonies become extinct. All known colony sites are protected effectively and their status is well known.
2. Private land holders actively support the program and the local community is aware of, and participates in, the recovery program.
3. The captive breeding program is completed according to schedule, release sites are selected and rock-wallabies are bred and released into the wild. At least one additional self-sustaining population is successfully established.
4. Human impact on Proserpine rock-wallaby populations is reduced to an ecologically sustainable level.

## Recovery plan summary

Objective	Criteria	Actions
To maintain and protect known habitat and ensure that the species continues to exist in the wild.	Areas of habitat are identified, mapped and protected. All known colony sites are protected effectively and their status is well known.	1.1 Monitor continued existence of known colonies. Search for new colonies. 1.2 Continue mapping of habitat. Regular monitoring of habitat. 1.3 Protect known colonies through reservation or Nature Conservation Agreements. Implement other habitat protection strategies.
To increase community awareness, in particular among those freehold land holders owning areas of habitat, critical to the species survival.	Private Land holders actively support the program and the local community is aware of and participates in the recovery program.	2.1 Relevant extension officer communicates with land holders. 2.2 Protect known colonies on private land through Nature Conservation Agreements/ Nature Refuges. 2.3 Review and implement the public contact plan. Target regional media outlets for circulation of information. Circulate information to wildlife care groups and fauna sanctuaries/ zoos.
To release captive bred animals into the wild within suitable and appropriate habitat and ensure the population is self sustaining in the wild.	A successful captive breeding and release program results in at least one new population being successfully established in the wild.	3.1 Preparation of further translocation proposals. Release animals. Monitor translocated population. 3.2 Maintain captive colony.
To minimise disease, incidental kills and other destructive impacts on populations.	Human impact on Proserpine rock-wallaby populations is reduced to a sustainable level.	4.1 Research the effectiveness of reflectors. Implement reflector program based on research. Negotiate the installation of speed reduction signs at appropriate locations. 4.2 Encourage councils to introduce laws relating to domestic animal (dog and cat) control and containment. 4.3 Carry out toxoplasmosis survey. 4.4 Discourage the use of toxic plants in garden and urban development landscapes.
To co-ordinate the implementation of the program to enable the other objectives to be met.	The recovery effort is effective and efficient.	5.1 Administer the Proserpine rock-wallaby program. 5.2 Resource and support the implementation of the recovery plan. 5.3 Co-ordinate the Proserpine rock-wallaby recovery team.

## Recovery actions

### Action 1 Habitat survey and population monitoring

#### 1.1 Monitoring

A Monitoring Plan for Proserpine rock-wallabies throughout their range will include systematic ground truthing of known and predicted habitat. During this ground truthing the evaluation of the condition of the habitat at known sites and the assessment of habitat in predicted sites will also be undertaken. These visits will be carried out during September, October and November to maximise the opportunities to observe animals and the condition of habitat. Presence or absence of Proserpine rock-wallabies will be determined by live trapping (using treadle traps), video surveillance, visual observations and the presence of scats.

Any injured or diseased wallabies will be collected for the purpose of injury/disease analysis or treatment. Successfully treated rock-wallabies will be returned to the site of collection and released. Night vision and radio telemetry technology will be used to increase survey team capacity for observation etc.

#### Action 1.1 Cost: \$

2000	2001	2002	2003	TOTAL
20,150	20,150	21,750	21,750	83,800

#### 1.2 Mapping

Using Geographic Information System (G.I.S.), habitat mapping will continue. Data compiled from surveys will be digitised into a G.I.S. system. Upgrading of mapping will occur at biannual intervals or at intervals triggered by the acquisition of relevant data. Mapping will include cadastral, habitat classification and topographical data of relevance, at a scale of approximately 1:150 000.

The purpose of the mapping is to provide accurate habitat classification for interpretation and orientation by various stakeholders and interest groups principally Whitsunday Shire Council and Bowen Shire Council, Queensland Department of Transport, Queensland Forestry Service, Queensland Department of Communication and Information, Local Government, Planning and Sport (Development Approvals section), land holders and land developers.

Labour associated with data input will be provided by QPWS.

**Action 1.2 Cost:** Included as component of Action 1.1

#### 1.3 Implement Habitat Protection Strategies

Residential, farming and commercial development have resulted in significant loss of this species' habitat. The implementation of the Public Contact Plan has not effectively addressed the impacts that previously approved commercial and residential development have on habitat. Processes which would affect habitat retention will be addressed as follows:

- Councils will be encouraged to develop terms of reference for any commercial developments that include:
  - minimum loss to existing habitat; and
  - revegetation with approved species of those areas altered for landscaping.
- Meet pro-actively with each proponent to ensure the profile of the species is well understood and investigate securing "community title" type sub-division.

- Through local government development notification processes, updates on development guidelines and habitat maps will be provided to the Whitsunday Shire Council and the Department of Communication and Information, Local Government and Planning.
- Encourage Whitsunday Shire Council to impose further restrictions on keeping domestic dogs and cats and toxic plants in residential areas in, and adjacent to, Proserpine rock-wallaby habitat.
- Through face to face contact encourage individual farmers and graziers to minimise impacts on and maintain remnant traversing corridors and seasonal feeding grounds.
- Ensure the protected area management and visitor activities do not have any negative impact on the species.
- Actively pursue voluntary conservation agreements or voluntary acquisition of habitat through state and national acquisition funding priorities. The recovery team does not support the compulsory acquisition of any leasehold or freehold land.

#### Action 1.3 Cost: \$

2000	2001	2002	2003	TOTAL
4,000	5,000	5,000	6,000	20,000

The actions outlined in this sub-section will provide management activity to fulfil specific objective No.1 of the plan through:

- survey results and upgraded GIS mapping;
- approval conditions for developers;
- management intent obligation for reserved state land;
- QPWS habitat acquisition priority program; and
- land holder support.

#### Total Cost Action 1: \$

2000	2001	2002	2003	TOTAL
24,150	25,150	26,750	27,750	103,800

### Action 2 Community Awareness And Participation

Community awareness and participation is facilitated by a recovery team comprising two representatives from the Whitsunday Shire Council, one representative from the Wildlife Preservation Society of Queensland, two representatives from QPWS, and up to two representatives from the community. Expressions of interest are also being sought for a local representative from educational institutions. This recovery team will be chaired by a representative who will maintain operation of the team.

Recovery team community representatives indicate that the general public, in particular rural land holders, are unaware of the issues affecting the survival of the Proserpine rock-wallaby. Concern has been expressed over the following issues:

- Identification and distribution of species. Due to the more widespread distribution of the unadorned rock-wallaby *Petrogale inornata* and other species with which the Proserpine rock-wallaby is confused there is a community perception that the Proserpine rock-wallaby is found in Mackay, Mirani, Nebo and Broadsound shires. This leads to a belief in the rural sector that the species is common.
- Habitat classification. Land holders are unfamiliar with maps classifying habitat, and many believe such maps show the presence of the Proserpine rock-wallaby.

There is a perception in the Whitsunday Shire that the presence of an endangered species will have an impact on development proposals in or adjoining mapped habitat areas. Pro-active discussion between recovery team members and developers has diminished the perception, however, further action is planned. Habitat is known to exist on privately owned and leasehold land. Public contact will be upgraded with the implementation of the Public Contact Plan for the species.

## 2.1 Extension and Land holder Participation

Implementation of the public contact plan for this species will address the range of concerns community residents have raised with Whitsunday Shire councillors. These concerns are detailed in the introduction to this sub-section. An experienced extension officer needs to be allocated to deal with these concerns.

### Action 2.1 Cost: \$

2000	2001	2002	2003	TOTAL
0	37,200	21,750	21,750	80,700

## 2.2 Establishment of Nature Refuges

The QPWS will facilitate voluntary nature conservation agreements with land holders owning habitat.

This officer works within the four shires of Whitsunday, Mackay, Mirani and Sarina.

Initial focus has been in the Whitsunday Shire and four land holders with populations of Proserpine rock-wallaby on their land have committed to enter into voluntary nature conservation agreements.

During the next two years, QPWS will investigate the development of additional nature conservation agreements with land holders owning land containing Proserpine rock-wallaby habitat.

### Action 2.2 Cost<sup>1</sup>: \$

2000	2001	2002	2003	TOTAL
15,800	7,500	5,000	3,500	31,800

<sup>1</sup>Costs for this project are being met by QPWS

## 2.3 Circulation and promotion of key information and measures

A Public Contact Plan was initially prepared in 1995. Preparation included a survey of the public in the Whitsunday Shire to determine the level of public awareness of the Proserpine rock-wallaby.

The plan included the following actions:

- establish an annual schools program;
- establish a volunteer group to promote community understanding and support for the Proserpine rock-wallaby;
- talk and meet with key target audiences and the general community;
- promote and maintain a regular media campaign; and
- prepare and distribute publications.

It is now considered necessary to review this draft plan, and the following actions will be taken:

- regional media outlets will be targeted with key information;
- specific industry groups, including canegrower and developer groups, will be targeted through newsletters and/or magazines; and

- wildlife care groups and fauna sanctuaries and zoos will be presented with key information for distribution.

The static display will be upgraded as necessary.

### Action 2.3 Cost: \$

2000	2001	2002	2003	TOTAL
6,000	6,000	6,000	6,000	24,000

### Total Costs Action 2: \$

2000	2001	2002	2003	2004	TOTAL
15,800	50,700	32,750	31,250	6,000	136,500

## Action 3

### Establishment of new populations

#### 3.1 Release project

While there are only three small discreet populations of Proserpine rock-wallabies present within a small geographic range the endangered status of the species will remain unchanged. Captive bred animals must be released into the wild to increase the number of geographically separate populations. The recovery criteria require that at least one additional population is successfully established in the wild. Any additional sites should be located within this species' preferred habitat i.e. microphyll/notophyll semi-deciduous vine forest with associated rock outcrops or rock piles. Hayman Island has been chosen as a site after critical review. Eight radio collared animals released on the Island are presently being monitored. A former population of approximately 350 feral goats on Hayman Island has now been reduced to a very low level. Eradication of goats is likely to occur in the near future.

The identification of other sites for release will involve inspection and assessment. All release sites will need to be prepared prior to the introduction of rock-wallabies, i.e. by control of predators and removal of competitors. A release proposal, as per the (draft) ANZECC Policy for Translocations of Threatened Animals in Australia, will be prepared. This proposal will include the effects of the proposed release and establishment of a new wallaby colony on the conservation values of the target area.

The release of captive-bred Proserpine rock-wallabies into areas of suitable habitat will include the four following integrated elements:

- site inspection and preparation;
- predator and competitor control;
- release; and
- monitoring.

Proserpine rock-wallabies bred during the course of reproduction studies are currently being held at the QPWS captive fauna centre at Pallarenda. Animals from this group will be released at approved sites. Animals will be transported from Townsville to Airlie Beach and held overnight before being transported to release sites, radio collared and released. These animals will be tracked on a three weekly basis for a six month period and then once a month over the remaining 30 months. This will require the employment of two staff during the first six months to establish a monitoring program and address other issues such as feral animal/competitor control and fire management to ensure Proserpine rock-wallaby habitat is maintained. One staff member requires funding for the duration of the project to continue monitoring and co-ordinate further releases of captive bred animals.

Monitoring will include:

- tracking individuals' movements
- scat collection for dietary information
- observations for sheltering sites
- trapping to determine presence of pouch young
- movement sensor tracking to determine times when *P. persephone* are active

**Action 3.1 Cost: \$**

2000	2001	2002	2003	TOTAL
122,880	60,440	60,440		243,760

**3.2 Captive colony**

The captive colony of approximately twenty individuals will be maintained as breeding stock for the establishment of future colonies in the wild. Breeding will follow stud book procedures to ensure pedigrees are maintained and genetically unrelated animals only are used in release programs. Prior to release animals will be screened by a veterinarian and the health of the colony will be regularly monitored.

**Action 3.2 Cost: \$**

2000	2001	2002	2003	TOTAL
8,294	9,123	10,035	11,038	38,490

**Total Costs Action 3: \$**

2000	2001	2002	2003	TOTAL
131,174	69,563	70,475	11,038	282,250

**Action 4  
Management of threats**

The following destructive impacts are identified in order of priority.

- Destruction or modification of habitat resulting in restriction of species and home range (addressed in section 1).
- Road mortality.
- Predation by introduced species namely feral and domestic dogs.
- Transmission of the disease toxoplasmosis by feral and domestic cats.
- *Ad hoc* destruction/injury by recreational hunters.
- Consumption of introduced toxic plants.

**4.1 Road mortality**

The trial placement of wildlife reflectors in co-operation with the Whitsunday Shire Council and Queensland Department of Transport (QDOT) appears to have been effective, but requires further evaluation. If proven successful, the reflector installation program may need to be expanded into other areas with road mortality. Further evaluation of the success of reflectors will occur.

Liaison will be undertaken with the Whitsunday Shire Council and the QDOT to ensure speed reduction signs are placed in appropriate locations to reduce the potential for vehicle/wallaby collisions. Approval will be sought from QDOT for the installation of traffic counters to monitor vehicle numbers on roads where wildlife reflectors have been installed.

**Action 4.1 Costs: \$**

2000	2001	2002	2003	TOTAL
2,100	1,400	1,400		4,900

**4.2 Predation**

Observations by survey team members suggest that individual wallabies are hunted by either solitary feral dogs or packs of dogs and the result is wallaby injury or death. It has been concluded that unrestrained hunting and working breeds of dog in particular may contribute to the impact. The problem is compounded where chain wire or similar fences form a barrier and impede wallaby escape.

The Recovery team will continue to promote the introduction of local council regulations concerning conditions of domestic animal (dog and cat) ownership and containment and the use of development approval guidelines for areas with Proserpine rock-wallaby habitat that include restrictions on dogs as well as suggested fencing designs.

**Action 4.2 Cost: nil costs**

**4.3 Disease transmission – toxoplasmosis survey**

*Toxoplasma gondii*, a sporozoan parasite, occurs in many mammals and some birds, and can be frequently transmitted from an infected mother to an infant in utero or at birth. The congenital form is characterised by central nervous system lesions which may lead to blindness, brain defects and death.

Two types of disease occur. One resembles mononucleosis, with the associated changes in blood leucocytes. The other form, disseminated toxoplasmosis, produces lesions in the lungs, liver, heart, brain muscle and skin. Inflammation of the retina or choreoretinitis invariably occurs in the congenital form.

This disease can be spread by both feral and domestic cats and the geographic distribution of this disease within the known range of the Proserpine rock-wallaby needs to be mapped. This will enable management strategies to be incorporated into development plans.

As part of on-going distribution monitoring, a blood sample will be taken from the caudal vein of the tail of any Proserpine rock-wallabies trapped or collected opportunistically within the district. This sample will be forwarded to a veterinary pathology laboratory for examination and confirmation of either the animal's recent contact with the disease or a current active infection.

A global positioning system fix will be recorded for each collected animal and this data will assist in the development of a distribution map of the disease.

**Action 4.3 Costs: \$**

2000	2001	2002	2003	TOTAL
6,000	6,000	6,000	6,000	24,000

**4.4 Toxic plants**

Some of the species nominated in the publication, *Toxic Plants and Animals - A guide for Australia* (Covacevich, Davie and Pearn 1987), have been observed in garden cultivation adjacent to wallaby habitat.

Whitsunday Shire Council has adopted development approval guidelines to restrict the introduction into garden and urban development landscapes of plants toxic to the Proserpine rock-wallaby.

---

The recovery team will arrange media releases on this issue, and will encourage the removal of such plants through direct interaction with landholders.

**Action 4.4 Cost: Extension program incorporates budget costs for this action.**

**Total Costs Action 4: \$**

2000	2001	2002	2003	TOTAL
8,100	7,400	7,400	6,000	28,900

## **Action 5 Co-ordinate the implementation of the program to meet objectives**

### **5.1 Administration of recovery program**

The recovery program will be administered by the Proserpine rock-wallaby recovery team. The recovery team will prepare progress and annual reports on recovery actions which detail expenditure and performance against aims and objectives.

### **5.2 Provision of resources and support for implementation of recovery program**

The team and QPWS will develop and submit applications through state and federal agencies for funding to implement identified actions within the recovery plan; seek corporate sponsorship to assist in implementation of recovery actions and highlight the recovery program through media exposure; and develop community understanding of recovery requirements and successful recovery actions to gain ongoing support for the implementation of this plan.

### **5.3 Co-ordinate recovery team**

QPWS will provide a chairperson to facilitate and co-ordinate the recovery team. Membership of the recovery team will be voluntary with an emphasis on continuing community representation on the team. The Recovery Team will include members from the Whitsunday Shire Council, Wildlife Preservation Society of Queensland and QPWS. A reference group comprising interested community organisations, individuals, a state government forestry representative and representatives of the local aboriginal community will also be maintained to foster community participation in the recovery process.

Recovery team meetings will be held a minimum of three times per year to review recovery action progress and develop strategies and applications to continue actions identified in the recovery plan.

**Total costs for Action 5: \$**

2000	2001	2002	2003	2004	TOTAL
4,000	4,500	4,500	5,000	5,000	23,000

## Implementation schedule

Action No.	Action Description	P	Feasibility	Year	Cost Estimate	Total Cost
1.1	Continue systematic surveys with QPWS Survey Project Team	1	100	1999-2002	83,800	
1.2	Map habitat to scale of 1: 150,000	1	100	1999-2001		
1.3	Implement habitat protection strategies with respect to developments and land holders	1	70	1999-2003	20,000	
						\$103,800
2.1	Implement extension program to urban and rural land holders and developers	2	60	1999-2003	80,700	
2.2	Establish nature refuges on relevant private lands	1	90	1999-2003	31,800	
2.3	Upgrade public contact in community generally	1	90	2000-2003	24,000	
						\$136,500
3.1	Identify island or mainland release sites and select individuals for translocation	1	75	1999-2000		
3.1	Release population & establish monitoring program	1	50	1999-2003	243,760	
3.2	Maintain captive colony	1	90	1999-2003	38,490	
						\$282,250
4.1	Implement expanded "reflector" program.		90	1999-2000	4,900	
4.2	Promote the introduction of laws on domestic animal control		90	1999-2001	x	
4.3	Toxoplasmosis survey.		90	1999-2002	24,000	
4.4	Minimise the use of toxic plants in gardening and landscaping.		90	1999-2003	x	
						\$28,900
5.1	Administer the Proserpine Rock-wallaby program.		90	1999-2003	5,000	
5.2	Resource and support the implementation of the recovery plan.		50	1999-2003	15,000	
5.3	Co-ordinate the Proserpine rock-wallaby recovery team.		90	1999-2003	3,000	
						\$23,000
<b>TOTAL</b>						<b>\$574,450</b>

---

## Acknowledgments

- The 1992 draft Recovery Plan by Colleen Davidson was extensively used to prepare this plan.
- The plan was written as a result of funding from the Commonwealth Government through the Natural Heritage Trust.
- The Management Research Project Team has provided extensive information. The team includes the following Peter Johnson (QPWS), Barry Nolan (QPWS), Paula Winkle (JCU), Dan Schaper (QPWS) and Gavin Blackman (Environmental Protection Agency).
- The Public Contact Project Team of Paul Minton (QPWS) and Margaret Card (EPA) provided the extension information for the plan.
- Individual and collective Recovery Team members are thanked for their involvement in the previous plan and recovery actions.
- The support of the Whitsunday Shire Council including representatives Councillors Gail Walsh and Jeff Law 1995-1997, and Councillors Gail Walsh and Kieran McCarthy from 1997 is also recognised.

## References

- Batianoff, G.N. and Dillewaard, H.A. (1994) *Draft Botanical Summary Report of Gloucester Island National Park Whitsunday Region, Queensland*. Queensland Herbarium, Department of Environment and Heritage, Brisbane.
- Covacevich, J., Davie, J. and Pearn, J. (eds) (1987) *Toxic plants and animals: a guide for Australia*. Queensland Museum, Brisbane. pp 504.
- Davidson, C. (1991) *Recovery Plan for the Proserpine Rock-wallaby*. Report to Department of Environment, Brisbane.
- Johnson, P.M. (1992) *Distribution of the Proserpine Rock-wallaby Petrogale persephone (Marsupialia: Macropodidae)*. Report to Australian National Parks and Wildlife Service, Canberra.
- Johnson, P.M. Delean J.S.C. (1999) Reproduction in the Proserpine Rock-wallaby Petrogale persephone Maynes (Marsupialia: Macropodidae) in captivity, with age estimation and development of pouch young. *Wildlife Research* 26: 631-639.
- Johnson, P.M., Nolan, B. and Moore, B. (1993) *The use of Wildlife Reflectors as a means of reducing Kangaroo road deaths – the Proserpine Rock-wallaby experience*. Internal Report Queensland Department of Environment and Heritage, Brisbane.
- Johnson, P.M. and Nolan, B. (1994) *Annual report on Proserpine Rock-wallaby Recovery Plan*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1995) *Habitat utilisation of the Proserpine Rock-wallaby Petrogale persephone on Gloucester Island National Park*. Internal Report to Queensland Department of Environment and Heritage, Brisbane.
- Johnson, P.M. and Nolan, B. (1995) *Annual report on Proserpine Rock-wallaby Recovery Plan*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1996) *Review Report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1996) *Progress report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1997) *Progress report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1997) *Review of the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Australian Nature Conservation Agency, Canberra.
- Johnson, P.M. and Nolan, B. (1998, March) *Progress report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Environment Australia, Canberra.
- Johnson, P.M. and Nolan, B. (1998, August) *Progress report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Environment Australia, Canberra.



---

Johnson, P. M., Speare, R., and Beveridge I. (1998) Mortality in wild and captive Rock-wallabies and Nailtail wallabies due to Hydatid Disease caused by *Echinococcus granulosus*. *Australian Mammalogy* 20: 419-423.

Maynes, G.M. (1982) A new species of Rock-wallaby, *Petrogale persephone*, (Marsupialia: Macropodidae) from Proserpine Central Queensland. *Australian Mammalogy* 5: 47-58.

Maynes, G.M. and Sharman, G.B. (1983) Proserpine Rock-wallaby, p220 in *The Australian Museum Complete Book of Australian Mammals* (R. Strahan ed). Angus and Robertson, London.

Nolan, B. and Johnson, P.M. (1999) *Annual report on the Recovery Plan for the Proserpine Rock-wallaby Petrogale persephone*. Internal Report to Environment Australia, Canberra.

