GILBERT'S POTOROO
(*POTOROUS TRIDACTYLUS GILBERTII*)

Prepared by
Tony Start and Andrew Burbidge

Photo: Tanya Butler

1995

Department of Conservation and Land Management
Western Australian Threatened Species and Communities Unit (WATSCU)
PO Box 51, Wanneroo, WA 6946

INTERIM WILDLIFE MANAGEMENT GUIDELINES NO. 3
GILBERT'S POTOROO
(*POTOROUS TRIDACTYLUS GILBERTII*)

Prepared by Tony Start* and Andrew Burbidge**
*Bioconservation Group, Science & Information Division and
**Western Australian Threatened Species and Communities Unit
Department of Conservation and Land Management

First draft December 1994, revised January 1995, February 1995, approved 27 February 1995

CONTENTS

1. INTRODUCTION

1.1 Taxonomy and relationships

Gilbert's Potoroo was originally described as *Hypsiprymnus gilbertii* by John Gould in 1841. Opinion about the status of this taxon has varied. Ride (1970) synonymised it with the Long-nosed Potoroo, *Potorous tridactylus* (Kerr 1792), of south-eastern Australia, while Calaby (1971) considered it to be a subspecies of *P. tridactylus*. In the absence of modern data, subspecific status is assumed. The few adult animals from Two Peoples Bay examined in early December 1994 were smaller than Victorian ones, and the south-western Australian population is isolated by thousands of kilometres from the nearest population of *P. t. tridactylus* in Victoria.

Two other subspecies exist: the nominate subspecies occurs near the coast in eastern Australia from south-eastern Queensland to western Victoria, while *P. t. apicalis* is found in northern and eastern Tasmania. Long-nosed Potoroos occur also on several islands in Bass Strait.

1.2 Common name

The English name "Gilbert's Potoroo" has been used for this taxon. It is based on the name "Gilbert's Rat-kangaroo" that Gould published in his book *The Mammals of Austalia*.

John Gilbert recorded the Aboriginal name "Nïl-gyte", stating that it was used by the 'Aborigines of King George's Sound'. According to the *Noongar Dictionary* (Whitehurst 1992) there is no 'i' as in 'kite' vowel in Noongar. The widely used name Dalgyte for *Macrotis lagotis*, also recorded by Gilbert, is spelled Djalkat in the *Noongar Dictionary*. Thus, the name for Gilbert's Potoroo may be Nilkat ('i' as in hit, 'a' as in media). Until this is confirmed by a Noongar speaker, it should not be used widely.

CALM will attempt to clarify the Noongar name for *Potorous tridactylus gilbertii* and promote it as an alternative to Gilbert's Potoroo once it is established.

1.3 Discovery and status

The first specimens of Gilbert's Potoroo were collected by John Gilbert at "King George's Sound" in 1840. Further specimens were collected by George Masters in 1866 and 1869 between King Georges Sound and the Salt (Pallinup) River. Another collector, William Webb, obtained a single Gilbert's Potoroo, again from King George's Sound, sometime between 1874 and 1879. That was the last time Gilbert's potoroo was officially recorded and it was relegated to the lamentable list of Australian animals that are presumed to be extinct.

The subspecies was assumed to be extinct until one was captured at Two Peoples Bay Nature Reserve[1] on 30 November 1994. This animal was captured by Elizabeth Sinclair and Adrian Wayne from the Zoology Department, The University of Western Australia. They were attempting to catch Quokkas (*Setonix brachyurus*) for Elizabeth's Ph.D. study of quokka genetics.

Subsequent trapping resulted in four more animals being captured. Altogether, Elizabeth and Adrian captured three males and two females. Four (2m, 2f) are being held in captivity at Two Peoples Bay. Both the females have a single small pouch young, which were present when captured.[2]

The identity of the animals was confirmed by CALM scientists comparing their body and skull measurements with those of museum specimens and data in the literature. This confirmed that

---

[1] The draft Management Plan recommends the purpose of the reserve be changed to National Park

[2] In January 1995 about 3,500 trap nights at three other sites on Mt Gardner yielded one more potoroo

the animals were not the Broad-faced Potoroo (*Potorous platyops*), nor the Long-footed Potoroo (*Potorous longipes*).

Gilbert's Potoroo is declared to be specially protected pursuant to Section 14 (2) (ba) of the Wildlife Conservation Act 1950. In the *Government Gazette* Notice of 8 April 1994, it is listed in Schedule 2 as "fauna presumed to be extinct".

1.4 Reasons for management

Gilbert's Potoroo is currently known from a single population[3] of unknown size, plus six captives (including two small pouch young). A basic tenet of threatened species conservation is to quickly expand the number of populations, especially where the species is restricted to a single area.

The population occurs in Two Peoples Bay Nature Reserve, in an area already managed for the conservation of the Noisy Scrub-bird (*Atrichornis clamosus*) and Western Bristlebird (*Dasyornis longirostris*). A Draft Management Plan has been prepared for the reserve.

The Mt Gardner area of Two Peoples Bay Nature Reserve has high fuel loads and the possibility of a wildfire occurring there and eliminating or seriously depleting the single known population must be considered. As well, management of the species' habitat may be required, but can not be considered until its habitat requirements are understood. Dieback disease caused by *Phytophthora cinnamomi* occurs in the area.

While there have been studies of the biology and ecology of the Long-nosed Potoroo in Victoria and Tasmania, the results of those studies can not necessarily be transposed to Western Australia.

2. MANAGEMENT GUIDELINES

2.1 Aim

The aim of these Interim Wildlife Management Guidelines for Gilbert's Potoroo is:

1. To investigate other areas of the south coast near Albany to attempt to locate additional Gilbert's Potoroo populations.

2. To maintain the captive population, at least until sufficient, safe populations are known that we can be sure that it is secure in the wild. If insufficient additional populations are found, the captives will be used as founders for a captive breeding colony.

3. To conduct research into the biology and ecology of Gilbert's Potoroo, concentrating on population size, habitat requirements, food requirements, breeding biology, home range and the effects of *Phytophthora*.

2.2 Management issues

2.2.1 The known population at Hakea Gully

Hakea Gully on the eastern flank of Mt Gardner, Two Peoples Bay Nature Reserve, is the site at which one independent juvenile and four adult Gilbert's Potoroos were trapped by Elizabeth Sinclair and Adrian Wayne in December 1994. The animals were caught in long un-burnt, dense, low scrub adjacent to the north side of the gully. The area is notable for numerous trails

[3] In January and early February 1995 about 3,500 trap nights at three sites also on Mt Gardner, at Two Peoples Bay, yielded one more potoroo.

and tunnels that mammals have made through the scrub. Quokka droppings are numerous on the trails and, although caught none during 12+ days trapping, they noted fresh scats most mornings. [4]

Diggings, not unlike those of Quenda (*Isoodon obesulus*), were fairly common in the same area. No Quenda were trapped by Elizabeth and Adrian (although Quenda may be present). On one occasion they found fresh potoroo scats beside fresh diggings. Mootit (Southern Bush-rats) (*Rattus fuscipes*) and Mardo (*Antechinus flavipes*) were trapped in the area.

2.2.1.2 Fire

Issues.
The site carries a heavy fuel load and was unusually dry in December 1994. It is situated on a steep slope that is exposed to east winds off the ocean. It is very vulnerable to wild fire.

"A major habitat requirement (of Long-nosed Potoroos in eastern Australia) is relatively thick ground cover" (Johnston 1983). Gilbert's notes to Gould imply habitat of potoroos that he saw was dense vegetation, albeit in swampy sites. The vegetation at the Hakea Gully site is very dense. If dense vegetation is a requirement, and it seems very likely it is, fire through the site could be disastrous.

Management requirements.
a) Fire should continue to be excluded from the site, at least until more is known about the habitat requirements of Gilbert's potoroo. **Priority** Very High

b) Establish a captive breeding colony as insurance against the wild population being killed by fire. **Priority** Very High

Management implementation.
a) Noisy scrub-birds occur at the site. They require long unburnt, dense vegetation. Accordingly, the Draft Management Plan for Two Peoples Bay provides for continued fire exclusion from the area. All feasible precautions for fire exclusion are already in place. These include restricted public access to Mt Gardner, and hence the site. Locked boom-gates prevent all un-authorised vehicle access to the mountain.

b) The nucleus of a captive breeding colony has been established. (see section 1.1.4.)

Research implications (see also Section 2.3, Research)
Distribution and habitat characteristics.

[4] The second site is similar to the Hakea Gully site.

2.2.1.3 Dieback Disease

Issue

Dieback disease caused by *Phytophthora cinnamomi* is widespread on some parts of Mt Gardner. It is present up-slope of the Hakea Gully site but it is not known whether the area used by potoroos has been affected. Dieback disease can cause great changes to the floristic composition and structure of susceptible plant communities. Long-nosed Potoroos, like other potoroids, feed largely on subterranean fruiting bodies of fungi, many being mycorrhizal fungi. Dieback could impair habitat at the Hakea Gully site by altering the structure of the vegetation or by eliminating important (eg, food) species. It could also affect it by eliminating host plants to mycorrhizal fungi that are important in the potoroos' diet.

Management requirements.

a) Ensure that nothing is done which might accelerate the spread of dieback disease into unaffected areas. **Priority** Very High

b) If research indicates that the area being used by this population is still relatively unaffected but seriously threatened, and that the vegetation communities that comprise the habitat are likely to be significantly altered, apply phosphonate. **Priority** High

c) Establish a captive breeding colony as insurance against the habitat of the wild population being seriously impaired by dieback disease. **Priority** Very High

Management implementation.

a) Current practices and the Draft Management Plan for Two Peoples Bay provide stringent measures to minimise the risk of artificially spreading *Phytophthora* within the Nature Reserve. These include restricted public access to Mt Gardner, and hence the site. Locked boom-gates prevent all un-authorised vehicle access to the mountain and all vehicles are washed before accessing restricted areas. **Responsibility**: Albany District

b) Subject to survey of the occurrence and risk posed by dieback disease and with the advice of disease experts, apply phosphonate if appropriate. Aerial spraying will probably be necessary. **Responsibility**: Malcolm Grant, Albany District.

c) The nucleus of a captive breeding colony has been established (see section 2.2.5).

Research implications (see also Section 2.3, Research)

Need to clarify habitat requirements and diet of the Two Peoples Bay population.
Need to clarify disease distribution, risk of infection and likely future impact of disease on habitat and diet.

2.2.1.4 Feral Predators

Issues.

Gilbert's Potoroo, weighing about 1 kg, is a Critical Weight Range (CWR) (Burbidge and McKenzie 1989) mammal. Foxes and Feral Cats occur at Two Peoples Bay. Experience in the south west of Western Australia has shown that good fox control frequently results in recovery of CWR mammals. In this region it is often assumed that cats have had less impact than foxes on CWR mammals because most species remained abundant until the arrival of the fox in the 1930s, long after cats had become common feral animals.

Gilbert's Potoroo was last recorded in 1869 which may be indicative of a decline before the arrival of foxes. However, older residents of the south coast reported "miniature kangaroos" which they distinguished from "boodies" (their local name for Quenda) and Quokkas. These may have been potoroos. (Kabay and Start 1976). Fire may also have been a factor influencing the demise of potoroos.

Kabay and Start twice trapped for potoroos in Robinson's Gully, the next gully north from Hakea Gully. ANS recalls that quokka droppings were present in adjacent heath but not as abundant they are now in similar habitat at Hakea Gully. That and the present trapability of potoroos may reflect population increases in response to recent baiting.

CALM has been baiting foxes at Two Peoples Bay since 1988. Baits have been laid alongside tracks twice each year. Reserve staff report that fox tracks on fire trails have become much less common since baiting commenced. Also, observations suggest that Quenda (*Isoodon obesulus*) have become much more abundant in some areas, eg, near the picnic area. Nevertheless, the high potential for re-invasion of foxes because of the relatively small area of the reserve, its setting in a semi-agricultural landscape where foxes are often abundant, and the paucity of vehicle tracks in some parts of the reserve suggest that it would be wise to implement a more thorough fox control program.

Management requirements.
Implement a comprehensive fox baiting program. **Priority** High

Management implementation.
It will be necessary to design a more comprehensive baiting program. This will require two components:

a) a six monthly baiting program with chicken eggs along designated tracks (this work is already in place) and
b) a six monthly (spaced between the ground baiting) aerial dried meat baiting of the whole reserve.

Responsibility: Environmental Protection Branch, Albany District.

Research implications (See also Section 2.3, Research)
There is a requirement for monitoring density and distribution of potoroos at the Hakea Gully site and elsewhere in the reserve.

2.2.2 Captive breeding colony

Issues

At present there is only one known population[5]. We know nothing of its size or the extent of the area it inhabits. Sections 2.2.1.2 (fire) and 2.2.1.3 (dieback disease) have identified two potential threats to the population. Until we are sure there are other populations which would not be at risk from one event (eg, one wildfire) it would be prudent to establish a captive breeding colony from which new populations could be established if necessary. Seebeck (1982) has published husbandry procedures that successfully maintained captive colonies of Long-nosed Potoroos in Victoria.

Management requirements
Establish a captive breeding colony. **Priority** Very High

Management implementation
a) Two adult females (both with pouch young of unknown sex), one adult male and one independent juvenile male caught by Sinclair and Wayne have been retained as the nucleus of a captive breeding colony. These will be maintained in the short term by Two Peoples Bay Reserve staff.

b) The animals are housed, one per cage, at Two Peoples Bay. The cages were built to hold Noisy Scrub-birds in readiness for translocation programs. While the cages are well set up for the potoroos, they will be required for future Noisy Scrub-bird translocations, commencing May

---

[5] One has been caught in January 1995 at a secont site on Mt Gardner. It has replaced the Hakea Gully juvenile in the captive colony. The latter was released at Hakea gulley.

1995. Furthermore the founder number for a captive breeding colony will need to be more than four adult animals.

New cages for a captive breeding colony will have to be built.. Victorian experience shows that a male can be housed with up to three females, although advice from Healesville Sanctuary staff is that males and females should not be kept together when the females are carrying small joeys. Initially we should aim for up to 15 pairs to be maintained, assuming that a male and one or two females will be able to be kept together much of the time. Further advice will be sought from Victoria on designs

Comment [GJ1]:

c) The captive colony should be located at Two Peoples Bay or, at least, in the Albany area because it is essential that the few animals we have are exposed to as little additional, avoidable stress as possible. They have already had to adapt to captivity and an artificial diet of fruit, sunflower seeds and dog biscuits (as recommended in Seebeck 1982). Immediately prior to European settlement the species was restricted to the south coast from Two Peoples Bay westward to the Leeuwin-Naturaliste Ridge, a range with a much milder climate than Perth. Furthermore, establishment of new colonies will most probably be near the south coast in the vicinity of Albany. Travel to and acclimatisation at Perth are best avoided if possible.
Responsibility: Albany District, SID (Tony Start).

Research implications (See also Section 2.3, Research)
Need to clarify suitability of husbandry methods published for Victorian Long-nosed Potoroos to Gilbert's Potoroo. If no further populations are found, there is a need to identify translocation sites for the species. Data on habitat requirements and diet of the species will be important infor this project.

2.2.3 Search for other Populations

Issues
The research program (see Section 2.3) includes searching for other populations on Mt Gardner and elsewhere. It is particularly important that populations elsewhere are found (or established) because of the risk of wildfire burning significant parts of Mt Gardner. If other populations are located, the management issues identified here, and perhaps other issues specifically associated with the other site(s), will have to be addressed. That may need a revision of these guidelines and the budget presented with it.

Management implementation
The Interim Guidelines will be revised as new information becomes available. **Responsibility**: WATSCU.

2.2.4 Captive potoroos in Western Australia

Issues
A search of CALM records shows that there is a single eastern Australian Long-nosed Potoroo in a wildlife park in WA. Until further research into the relationships of Gilbert's Potoroo is carried out, breeding or keeping Long-nosed Potoroos in wildlife parks or elsewhere in Western Australia should not be permitted because of the risk that animals will escape and establish in fox-controlled areas, and ultimately be able to interbreed with Gilbert's Potoroo.

Management implementation
No licences will be issued for the import or keeping of Long-nosed Potoroos. **Responsibility**: Wildlife Branch.

2.3 Research

Research will be coordinated by Dr A.N. Start and Dr Andrew Burbidge. They have prepared and submitted a Science Project Proposal (SPP) to the Director, Science and Information

Division. Detail of the proposed research is contained in the SPP but it is outlined here for completeness and to provide a basis for the budget requirements submitted with this guide-line.

2.3.1 Definition of the Hakea Gully population

Issues

At present we know that four adult animals and one independent juvenile have come from a small area (approximately 5 ha) adjacent to the north side of Hakea Gully. One, an adult male has been released at the capture area. It has been fitted with a radio transmitter on a collar. The transmitter battery may last about six months. The animal has been located since, within about 70 m of its release site.

It is important to determine the size of the population and the area that it occupies at this site so that it can be monitored for response to management actions or to possible, unknown adverse factors in the environment. This will also allow decisions on whether more animals can safely be taken to enlarge the genetic base of the captive breeding program. It will also be necessary to identify the range of habitats that they use. Beside providing information on the requirements of this population, knowledge of potential habitat will aid location of new populations elsewhere.

Methods

a) Observation of indicator signs. Potoroos dig, presumably to locate subterranean fungi for food. Whilst Quenda may also dig while foraging it may be possible to distinguish their diggings. We are now familiar with the scats of Gilbert's Potoroo and it may be possible to find these in areas they inhabit, particularly close to digging sites where they spend some time at the same place. We will try to define areas occupied by potoroos by searching for these signs. Gilbert (in Gould 1863) noted that potoroos appeared to occur with Quokkas, so searching will concentrate in areas that are known to be or may be quokka habitat.

b) Trapping. It will be necessary to trap extensively to confirm the presence of potoroos detected by signs, particularly if scats are hard to find and diggings can not be differentiated with certainty from those of other species. Trapping will provide information on reproduction and it will be needed for tagging of individuals so that population size can be estimated and for the fitting of transmitter collars (see section 2.3.2; home range and use of habitat).
Priority: High.

2.3.2 Home range and use of habitat

Issues

It is essential to understanding the dynamics of the population that we know how the potoroos use the array of habitat types available to them for foraging and nesting as well as how they apportion those resources between individuals. Combined with knowledge of the size of the area occupied by the colony, knowledge of home range size may also contribute to defining the size and density of the population.

Methods

Home range data will be obtained by tracking radio-collared animals. Data on social structure will not be obtained in the short term.
Priority: High.

2.3.3 Locate other populations

Issues

If Gilbert's Potoroo persists as a single population, the risk of it being exterminated by a single event or combination of factors is extreme. Captive breeding will provide some insurance in the short term and will permit the establishment of other wild populations in due course. However captive breeding and establishing new wild populations are subject to some risks and are costly as well as slow.

Locating other populations and providing management to protect them from factors such as fire, predation and habitat alteration through disease or land use decisions etc. will be much more effective, faster and cheaper in the long run than the captive-breeding, new-population route. Furthermore, locating and protecting other populations will probably preserve a greater proportion of the genetic variation present in the species and will shed light on habitats not present at Hakea Gully that are suitable for Gilbert's Potoroo.

Whilst it is important to know where else potoroos occur in Two Peoples Bay Nature Reserve it is particularly important to locate any populations that occur elsewhere because risks such as wildfire could affect the whole of Mt Gardner and other parts of the one reserve.

Some places that will be trapped are remote and subject to dieback access restrictions, for example Waychinicup National Park. Helicopter access to these areas may be required.

It is not unusual for potoroos not to enter traps for seven or more nights after traps are set (John Seebeck, personal communication). The first two animals at Two Peoples Bay were not captured until trapping night 8. Trapping a single site will, therefore, require 15 days, with traps open for 10 nights, plus four days off. This demonstrates the necessity of a person being allocated full time for the first six months. [6]

Methods
Knowledge developed in section 2.3.1(a) will be used to survey other areas in Two Peoples Bay Nature Reserve and elsewhere. If possible, Mt Manypeaks and its surrounds in Waychinicup National Park will be the first location surveyed outside Two Peoples Bay Nature Reserve.

Sites at which there are indications that potoroos may exist will be trapped to confirm their presence or absence.
Priority: Very high.

2.3.4 Diet

Issues
Knowledge of the diet is important to understanding which elements of its environment an animal requires. In the case of potoroos it may be particularly important to assessing the potential impact of dieback disease.

[6] In January and early February 1995 about 3,500 trap nights at three sites also on Mt Gardner yielded one more potoroo.

Methods
Scats from wild-caught potoroos will be examined microscopically to ascertain whether they feed on fungi and/or other items. **Priority** Moderate.
More detailed food studies are desirable. **Priority** Low.

2.3.5 Dieback disease

Issues
The issues were discussed in section 2.2.1.3.

Methods
a) Map the occurrence of dieback disease expression on portion of the east slope of Mt Gardner centred on Hakea and Robinson's Gullies and including the ridge crests above these features. This will be by a combination of remote sensing application (Ray Wills) and ground truthing (Ray Wills and Malcom Grant). This can be carried out as part of an existing study. **Priority** High.

b) Identify the susceptible species in the potoroo habitats and determine their significance to the structure of the potoroo habitat. **Priority** dependant on (a).

c) Identify susceptible species in the potoroo habitats and assess their significance to potoroo diets. **Priority** dependant on (a).

2.3.6 Husbandry of captive colony.

Issue
It has been established that a captive colony is a precautionary action of very high priority. Seebeck (1982) has published husbandry methods that have been found to suit Victorian Long-nosed Potoroos' needs well. They will be the basis of initial husbandry methods applied to the captive colony of Gilbert's Potoroo. To date captive animals have gained weight (3/4) or remained at the same weight (1/4) in the first two weeks of captivity on a diet similar to that recommended by Seebeck.

Methods
Each individual in the captive colony will be monitored for health and weighed regularly. Adjustments will be made to husbandry methods as required. If the Victorian methods are found wanting, adjustments will have to be decided by observed factors, intuition or veterinary advice, as is appropriate. **Priority**: Very high.

3. RESPONSIBILITY

3.1 Recovery actions

Initially it will be CALM's responsibility to resource and implement the IWMG. However CALM will apply to ANCA for assistance through the Endangered Species Program for the research needed to be able to write and implement a Recovery Plan (see section 4, Resources)**.**

3.2 Change in status

CALM will seek the Minister's approval to amend the status of Gilbert's Potoroo in the list of declared threatened fauna from Schedule 2 "Fauna presumed to extinct" to Schedule 1 "Fauna which is rare or likely to become extinct", by *Government Gazette* Notice pursuant to the Wildlife Conservation Act. Also, CALM will recommend to ANZECC, via the Endangered Fauna Network, that the status be changed nationally. At this stage it seems that "Endangered" would be the appropriate category. **Priority** High

CALM will also formally notify the Director of National Parks and Wildlife (Commonwealth) that the taxon is extant and that its status under the Commonwealth Endangered Species Protection

Act will have to be altered from Presumed Extinct to one of the extant categories. At this stage Endangered would seem the most appropriate category to recommend. Formal notification to the Commonwealth will be effected by submitting a copy of this IWMG, with a suitable covering letter, after it has been endorsed by the Director of Nature Conservation. It will be followed up by an application for financial support from the Endangered Species Program (see Section **3.1** and **4.2**). **Priority**: High.

4. RESOURCES

4.1 Human Resources

Drs Start and Burbidge have committed to providing professional management of the preliminary phases of the implementation of the interim guide-lines and to the preparation of an application to ANCA's Endangered Species Program, for financial assistance in the development and implementation of a Recovery Plan.

Mr Adrian Wayne, under-graduate of The University of Western Australia, has committed to work during January and February 1995 and in a voluntary capacity thereafter as time permits. Ms Liz Sinclair has expressed a strong desire to contribute to the project but she has heavy commitment to a Ph.D. research program on quokkas. However she is a geneticist and could usefully contribute to the study of the taxonomic status of Gilbert's potoroo. From March 1995 onward another person will need to be found.

Staff at Two Peoples Bay have committed to assist as far as their other obligations permit, and the Regional Manager has agreed to support the project to the limited extent that his disposable resources permit.

Assistance will be sought from CALM Scientists with expertise in management of feral predators and dieback disease.

Despite the above there will be a requirement to provide support for assistance at least until an externally funded research project or recovery plan is in place.
Priority: Very High.

4.2 Financial Resources

CALM has allocated a provisional budget of $30 000 for this project for the latter half of 1994/95. A further budget submission will be made for the coming financial year. The findings of the first six months will strongly influence the amount needed in future.

CALM will include an application for funding support in its application for 1995/96 assistance from the Australian Nature Conservation Agency's Endangered Species Program (and thereafter as prescribed in a Recovery Plan, hopefully to be developed with ANCA, ESP support). This support, if forthcoming, will not be available until 1 January 1996. A special submission to ANCA for bridging funds will be made in early 1995.
Priority: Very High.

4.3 Budget: Jan 1995 - June 1995

Research	
Consultant Biologist 26 weeks.	$15000
4WD Vehicle 12 X standing charge @ $156 per fortnight	$ 2050
4WD vehicle 8000 km @ 0.28/km	$ 2250
Travelling allowances CALM staff 2 x 17 days @ $35 (average)	$ 1200
Radio transmitters, 10 @ $200	$ 2000 (6 weeks)
Radio receiver, one $1650	$ 1650 (4 weeks)
Traps 25 Sheffield @ $28.50	$ 750
Traps, 25 folding Mascot @ $76	$ 1900
Sundry consumables, fares, etc.	$ 1000

Sub-total	$27800
Captive breeding (current colony)	
food @ $10/week (current colony)	$ 250
Set up breeding cages	
capital cost (money to be sought separately)	$ to be costed
Dieback	
No funds required in first six months	$ 0
Fox baiting	
signs, public relations	$1300
six-monthly by air (in addition to current ground-based baiting already paid for by District)	$ 650

Sub-total	$2200
TOTAL	**$30 000**

* Consultant biologist duties:

1. Feeding captive colony (will be relieved by TPB staff when away trapping)
2. Keeping records on captive colony, weight, breeding condition, etc.
3. Foot searches for potoroo sign at Waychinicup, Torndirrup, West Cape Howe, Nuyts Wilderness, Mt Lindesay, Gull Rock, Mt Gardner.
4. Trapping at sites selected after foot search.
5. Radio-tracking collared animals.
6. Assist reserve staff with fox baiting (can only drive vehicle unless trained in 1080 handling).

5. RECOVERY TEAM

CALM will set up a Recovery Team to coordinate work on Gilbert's Potoroo. Initially this will be an informal group of CALM staff to coordinate the searching and trapping during early 1995. Later a formal Recovery Team will be set up. Initial membership of the Recovery Team will be:

Kelly Gillen (CALM, South Coast Region) (Chair)
Andrew Burbidge (CALM, WATSCU)
Alan Danks (CALM, Reserve Management Officer, Two Peoples Bay)
Liz Sinclair (UWA Zoology)
Tony Start (CALM, Science & Information Division)
Vic Smith (veterinarian, Goode Beach)

The Recovery Team will report annually to CALM's Corporate Executive.

6. PUBLIC LIAISON

The Recovery Team will ensure that information about the research into the status of Gilbert's Potoroo is provided to the news media and interested people as appropriate.

7. TERM OF THESE INTERIM MANAGEMENT GUIDELINES

These Interim Wildlife Management Guidelines will be in effect from January 1995 to December 1995, unless superseded by a revised version before the end of 1995.

8. REFERENCES

Burbidge, A.A. and McKenzie, N.L. (1989). Patterns in the modern decline of Western Australia's vertebrate fauna: causes and conservation implications. *Biological Conservation* **50**, 143-198.

Calaby, J. (1971). The current status of the Australian Macropodidae. *Australian Zoologist* **16**, 17-29.

Gould, J. (1863). *The mammals of Australia*. The author, London.

Guiler, E.R. (1971). The food of the potoroo (Marsupalia: Macropodidae). *J. Mammal*. **52**(1), 232-34.

Guiler, E.R. and Kitchener, D.J. (1967). Further observations on longevity in the wild potoroo, *Potorous tridactylus*. *Aust. J. Sci*. 30, 105-6.

Heinsohn, G.E. (1968). Habitat requirements and reproductive potential of the macropod marsupial *Potorous tridactylus* in Tasmania. *Mammalia* **32**(1), 32-43.

Johnston, P.G. (1973). Variation in island and mainland populations of *Potorous tridactylus* and *Macropus rufogriseus* (Marsupalia). Ph.D. thesis, University of NSW.

Johnston, P.G. (1983). Long-nosed Potoroo *Potorous tridactylus.* In: Strahan, R. (Editor) *The Australian Museum Complete Book of Australian Mammals.* Angus and Robertson.

Johnston, P.G. and Sharman, G.B. (1976). Studies on populations of *Potorus* Desmarest (Marsupalia). I. Morhological variation. *Aust. J. Zool*. **24**, 573-88.

Kabay, E.D. and Start, A.N. (1976). Results of the search for the potoroo in Western Australia. Unpublished Report to the Department of Fisheries and Wildlife.

Kitchener, D.J. (1973). Notes on the home range and movement in two small macropods, the Potoroo (*Potorous apicalis*) and the Quokka (*Setonix brachyurus*). *Mammalia* **37**, 231-40.

Ride, W.D.L. (1970). *A guide to the native mammals of Australia*. Oxford University Press, Melbourne.

Rose, R.W. (1989). Reproductive biology of rat-kangaroos. Pp 307-15 in *Kangaroos, wallabies and rat-kangaroos*, ed by G. Grigg, P. Jarman and I. Hume. Surrey Beatty and Sons, Chipping Norton.

Seebeck, J.H. (1981) *Potorous tridactylus* (Kerr) (Marsupalia: Macropodidae): its distribution, status and habitat preferences in Victoria. *Aust. Wildl. Res*. **8**, 285-306.
Seebeck, J.H. (1982) Long-nosed Potoroo *Potorous tridactylus*: husbandry and management of a captive colony. Pp. 111-116 in *The management of Australian animals in captivity.* Proceedings of the scientific meeting of the Australia Mammal Socirty, Healesville, Victoria, February 1979, ed by D.D. Evans. Zoological Board of Victoria, Melbourne.
Seebeck, J.H., Bennett, A.F. and Scotts, D.J. (1989). Ecology of the Potoridae - A review. pp. 67-88 in *Kangaroos, wallabies and rat-kangaroos*, ed by G. Grigg, P. Jarman and I. Hume. Surrey Beatty and Sons, Chipping Norton.
Seebeck, J.H. and Rose, R.W. (1988). Potoridae. Ch. 30 in *Fauna of Australia*, Vol 1B, ed by G.R. Dyne and D.W. Walton. AGPS, Canberra.
Whitehurst, R. (compiler) (1992). *Noongar Dictionary*. First Edition. Noongar Language and Culture Centre (Aboriginal Corporation), Carey Park.