INTERIM RECOVERY PLAN NO. 17

WESTERN RINGTAIL POSSUM (*PSEUDOCHEIRUS OCCIDENTALIS*) INTERIM RECOVERY PLAN

1997 - 1999

by

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for

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FOREWORD

Interim Recovery Plans (IRPs) are developed within the framework laid down in Department of Conservation and Land Management (CALM) Policy Statements Nos 44 and 50.

Where urgency and/or lack of information mean that a full Recovery Plan can not be prepared, IRPs outline the recovery actions required urgently to address those threatening processes most affecting the ongoing survival and begin the recovery process of threatened taxa or ecological communities.

Although ranked as Vulnerable, an IRP for the Western Ringtail Possum has been prepared

- because there is an urgent need to work with town planning authorities to limit habitat destruction
- because there is a need to coordinate liaison with wildlife carers, and
- because translocations will take place as a result of habitat destruction through land developments and rehabilitated possums are becoming available for release from carers. As well, opportunities exist for ringtails to be established in areas of their former range because fox control is being undertaken as part of Western Shield.

This IRP is based on unpublished draft Interim Wildlife Management Guidelines for the Western Ringtail Possum prepared in 1994 and revised in 1995 by Paul de Tores, Suzanne Rosier and Kathryn Himbeck.

This IRP was approved by the Director of Nature Conservation on 27 March 1998. Approved IRPs are subject to modification as dictated by new findings, changes in status of the taxon or ecological community and the completion of recovery actions. The provision of funds identified in this Interim Recovery Plan is dependent on budgetary and other constraints affecting CALM, as well as the need to address other priorities.

Information in this IRP was accurate at July 1997.

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SUMMARY

Species*: Pseudocheirus occidentalis* Thomas, 1888, Western Ringtail Possum or Ngwayir
Family: Pseudocheiridae.
CALM Regions and Districts: South Coast (Albany District), Southern Forest (Manjimup District), Central Forest (Busselton District, Mornington District); re-introduced to Swan Region (Dwellingup District) and proposed to be re-introduced to Wheatbelt Region (Narrogin District).
Recovery Team: Western Ringtail Possum Recovery Team.
Current status: WA *Wildlife Conservation Act* - Threatened (ranked as Vulnerable in 1995 Report of the Scientific Ranking Panel for WA's Threatened Flora and Fauna); ANZECC - Vulnerable; Commonwealth *Endangered Species Protection Act*: Vulnerable;*1996 Action Plan for Australian marsupials and monotremes:* Vulnerable.
Habitat requirements and limiting factors: Occupies or occupied a variety of vegetation types including coastal and near coastal peppermint and peppermint / tuart associations, eucalypt forest and woodland associations of jarrah / marri / wandoo. Previously inhabited casuarina woodland and presumably eucalypt woodland, mallee and mallee heath. Decline thought to be due mainly to fox predation and habitat destruction.
IRP Objectives: To conserve the species by:
(i) Conserving existing populations within public lands managed by CALM;
(ii) Improving the species conservation status, through habitat management (including fox control) and translocations so that it no longer meets criteria for Vulnerable (IUCN 1994);
(iii) Minimising the impact of land developments through *in situ* conservation and translocations as appropriate; and
(iv) Ensuring that derelict animals are rehabilitated where possible and released into the wild in places where their chances of survival are maximised
Criterion for success: The Western Ringtail Possum no longer meeting criteria for Vulnerable (IUCN 1994). This will entail halting the current decline in population size, increasing the total numbers of mature individuals to more than 10 000, ensuring that there is at least one population with more than 1 000 mature individuals and ensuring that the extent of occurrence does not drop below 20 000 km^2 or area of occupancy does not drop below 2 000 km^2.
Criterion for failure: The Western Ringtail Possum declining in area of occurrence and numbers to the extent that it meets criteria for Endangered (IUCN 1994).
Recovery Actions:
1. Conservation of Western Ringtails in public lands managed by CALM
2. Minimising impacts of land developments.
3. Management of 'derelict' ringtails.
4. Translocations.
5. Education, liaison and communication.

1. BACKGROUND

1.1 History, taxonomy and status

Pseudocheirus occidentalis Thomas, 1888, the Western Ringtail Possum, was first described from a specimen collected from King George Sound, Western Australia. Some subsequent taxonomic treatments synonymised *P. occidentalis* with, or listed it as a subspecies of, the Common Ringtail Possum (*P. peregrinus*) of eastern Australia. However, most mammalogists accept that it is a full species and it is treated as such by Jones (in Strahan 1995), in *The 1996 Action Plan for Australian Marsupials and Monotremes* (Maxwell *et al*. 1996) and in this Plan.

The Western Ringtail Possum is readily distinguished from the Common Brushtail Possum (*Trichosurus vulpecula*) by its smaller size, shorter (usually darker) fur, smaller rounded ears and absence of a brush tail. No other large possums occur in the south west of Western Australia.

Several Aboriginal names have been recorded. The Noongar Dictionary (Whitehurst 1992) provides 'ngwayir'. Other names compiled by Bindon and Chadwick (1992) are 'wamp', and 'wawding', plus variations of ngwayir.

1.2 Distribution and habitat

The extent of occurrence of *P. occidentalis* has contracted from what appears to have been a patchy distribution covering the south west of Western Australia from 120 km south-east of Geraldton (where it is known from surface cave deposits) to the southern edge of the Nullarbor Plain (where it is also known from surface cave deposits) with the most inland records from Tutanning Nature Reserve (Shortridge 1909, Sampson 1971, Jones *et al*. 1994a, Christensen *et al.* 1985, How *et al*. 1987, Baynes 1987, A. Baynes pers. comm.).

Its distribution encompassed a variety of vegetation types including coastal peppermint and peppermint / tuart associations (*Agonis flexuosa / Eucalyptus gomphocephala*), eucalypt associations of jarrah / marri / wandoo (*E. marginata* / *E. calophylla* / *E. wandoo*) (Christensen *et al.* 1985), wandoo / casuarina (*Allocasuarina huegeliana*) woodland in the wheatbelt (A.R. Main pers. comm., A.A. Burbidge, personal observations) and presumably eucalypt woodland, mallee and mallee heath from the Hampton Tableland (Baynes 1987) and other areas.

It is now almost exclusively restricted to coastal and near coastal peppermint woodland and coastal peppermint / tuart associations from the Australind - Eaton area to the Waychinicup National Park. The only known remaining naturally-occurring inland populations are in the lower Collie River valley, and in the proposed Perup Nature Reserve and surrounding forest blocks near Manjimup. Perup and surrounding forest blocks are the only known sites where *P. occidentalis* currently occurs in the absence of peppermint. *P. occidentalis* is thought to have become locally extinct at all other former inland locations; however, there are unconfirmed reports from inland near Pingelly, from the Darling Scarp near Jarrahdale, from the Swan coastal plain as far north as Yalgorup National Park, from the Harvey River catchment east of Harvey Weir and from Stirling Range National Park and Porongurup National Park.

1.3 Biology and ecology

Jones *et al*. (1994a, b) described the biology and ecology of the Western Ringtail Possum. It is an arboreal marsupial with a maximum body weight of up to 1 130 g for both sexes (de Tores and Rosier unpublished data). Average mature adult weights are 820 - 1 020g for both sexes.

Young have been recorded as being born throughout the year, with peaks recorded in April to July and September to November and May to June (Jones *et al.* 1994b; de Tores and Rosier unpublished data). Litter size is usually one, with litters of two not uncommon and three less common.

In coastal peppermint (*Agonis flexuosa*) habitat the Western Ringtail Possum builds dreys as nesting/resting sites and uses tree hollows where available (e.g. tuart, *Eucalyptus gomphocephala*, and marri, *E. calophylla*). Where protection from introduced predators is provided, a wide range of nest sites on or near the ground has been recorded, including low shrub thickets (e.g. *Spyridium globulosum, Acacia saligna, A. rostellifera*) and sedges and rushes (ringtails have been commonly recorded nesting on the ground under *Lepidosperma gladiatum*) (de Tores, Rosier and Payne, unpublished data). In the absence of predator control and in the absence of peppermint or other nesting/drey material, tree hollows and hollow logs are used almost exclusively. At translocation sites in the jarrah forest near Dwellingup where foxes are controlled, 20% of over 400 recorded day rest locations are at or below 1.5 m in

height. These sites include hollow logs on the ground, fallen branches and debris on the ground, coppicing jarrah stumps, in and under *Xanthorrhoea* skirts and in Bossiaea and Trymalium (de Tores and Millen, unpublished data). In jarrah forest near Manjimup, where foxes are also controlled, up to 70% of diurnal refuges can be sites other than tree hollows, including the skirts of grass trees *Xanthorrhoea*, stump hollows and hollow logs (A. Wayne, pers. comm.).

The diet of the Western Ringtail Possum is variable. When available, peppermint forms the majority of the diet. In its absence, the dominant myrtaceous species are preferred (Jones *et al.* 1994b). In urban areas, eg, Bunbury and Busselton, ringtails are known to feed on a variety of garden species, including rose bush leaves and flowers and a variety of fruits.

The ringtail's digestive system reflects adaptation to myrtaceous and other foliage of low nutritional value. Ringtails are caecum fermenters with a large caecum where fine digestive material is retained. Larger, coarse, less nutritious material is passed more rapidly. Ringtails are also caecotrophic (ie, they ingest faecal pellets containing softer finer material derived from the caecum) (Hume *et al.* 1994; Hume and Sakaguchi 1993).

1.4 Threatening processes

Pseudocheirus occidentalis is a Critical Weight Range (CWR) species (CWR species are non-flying mammals with mean adult body weights between 35g and 5.5 kg). It is this suite of fauna that has shown the most dramatic decline in range and number in Australia (Burbidge and McKenzie 1989). The pattern of decline of the Western Ringtail Possum is consistent with that recorded for other CWR mammals. Factors thought to have contributed to this decline are habitat loss and/or modification, predation by introduced predators and changing fire regimes.

Clearing of coastal peppermint woodland, particularly in the Busselton and Albany areas, is contributing to fragmentation of habitat. Predation by foxes is a threatening process as shown by successful re-introductions to Leschenault Peninsula Conservation Park and Yalgorup National Park, where fox control is in place.

Logging and prescribed burning with low intensity fires are considered not to have led to the decline of the species in State forest. Although the ecology of the species in forests has not been studied intensively, low intensity fires do not increase mortality rates of trees in jarrah forest (Abbott and Loneragan 1986), nor does logging in jarrah forest eliminate all trees of a size sufficient to develop hollows. The species is present in areas that have been logged and which have been subjected to several prescribed burns, e.g. near Perup and near Collie. Burning in coastal areas with Peppermint woodland needs to be managed to maximise population survival and enhancement. A study of response to logging and associated burning is currently underway at Kingston forest, north east of Manjimup.

Inions *et al*. (1989) found that a single high intensity fire (1 000 to 1 400 kW m^{-1}) at Perup destroyed 38% of trees previously inhabited by Western Ringtail and Common Brushtail Possums. However, the fire reduced the mean age of trees with hollows by about 100 years. As well, the total number of trees used by possums increased after the fire, with new hollows being created by the fire. Inions *et al*. (1989) stated that the low intensity fires (< 350 kW m^{-1}) used by CALM to reduce build up of forest fuels have only a slight effect on den trees. They also stated that low intensity fires, while having less direct effect on hollow formation, indirectly affect the activity of fungi and termites that lead to the formation of hollows.

1.5 Conservation status

The Western Ringtail Possum has been declared to be fauna that is 'likely to become extinct or is rare' pursuant to Section 14(2)(ba) of the Western Australian *Wildlife Conservation Act 1950*. It has been ranked as "Vulnerable" by the Scientific Ranking Panel for Western Australia's threatened flora and fauna. It is listed in 'Part 2 -species that are vulnerable' of 'Schedule 1, listed species', of the Commonwealth's *Endangered Species Protection Act 1992* and is included on the ANZECC list of threatened vertebrates as a subspecies. In *The 1996 Action Plan for Australian Marsupials and Monotremes* (Maxwell *et al*. 1996), the species is listed as Vulnerable under criterion C2a (IUCN 1994).

1.6 Strategy for recovery

Until recently, apart from general habitat protection in conservation reserves and State forest, Ringtail Possum management in Western Australia was directed mainly towards the welfare of individual derelict animals. (The term derelict is used to describe injured, orphaned or nuisance animals, in this case particularly to *P. occidentalis* in the Busselton and Albany areas, where the

species is locally common.) In Busselton, in particular, animals are often retrieved in a distressed state, apparently suffering from heat stress. These derelict animals have usually been passed to wildlife carers for rehabilitation and release. Western Ringtail Possums have also been passed to carers following attacks by domestic animals and injuries from other sources. CALM staff and wildlife carers have been called on to remove nuisance possums from roof spaces in suburban areas.

Before the commencement of a translocation project at Leschenault Peninsula Conservation Park, rehabilitated derelict *P. occidentalis* from the Busselton area were released locally. The fate of these possums was unknown. A pilot study to assess the fate of released possums was undertaken in 1990-91 by the Western Australian Museum. Six rehabilitated possums, fitted with radio-transmitters, were released at Locke Estate Nature Reserve, near Busselton. All were dead within 6 weeks of release. The condition of retrieved carcasses indicated predation as the cause of death (B. Jones pers. comm.).

In eastern Australia, predation by exotic predators has been reported on wild populations of *P. peregrinus* (How *et al.* 1984; Pahl 1987; Seebeck *et al.* 1991; Rose *et al.* 1993; Smith *et al.* 1993) and on released rehabilitated ringtails (Augee *et al.* 1996). Fox predation was considered responsible for low survival rate to sexual maturity for a *P. peregrinus* population in southern Victoria (Pahl 1987).

In September 1991 a release program for rehabilitated *P. occidentalis*, with a concurrent fox control program, commenced at Leschenault Peninsula Conservation Park. Monitoring of released animals was initially on an opportunistic basis and was later formalised as part of a research project. The results have shown that rehabilitated *P. occidentalis* can be released in the presence of fox control and that released animals survive, disperse and produce young (de Tores and Rosier, in prep.). The population at Leschenault is now known to be increasing.

Release into peppermint woodland habitat, in the presence of predator control, is now seen as a viable management strategy for rehabilitated derelict ringtails. Further research is being undertaken to determine the suitability of release into other (non-peppermint dominated) habitats, such as jarrah forest.

Leschenault Peninsula was also the release site for eleven *P. occidentalis* translocated from a development site near Busselton in May 1994. The translocation was carried out as a condition of development approval. Many areas subject to similar development proposals and rezoning applications are occupied by populations of *P. occidentalis* and the species' abundance and distribution will continue to decline if no action is taken to minimise the impact of developments resulting in habitat loss, fragmentation and/or modification.

The preferred management option for existing populations is to conserve them *in situ*. In the case of clearing and development applications that have the potential to result in ringtail habitat loss and/or modification, *in situ* conservation provisions may be incorporated as conditions of development approval. For example, conditions of development approval may include retaining stands of peppermint within the development site, retaining links/corridors of peppermint stands within and outside development areas and strategic plantings.

In all cases, prior to granting clearing and development approval, it is important that the potential impact of development proposals on Western Ringtail Possums is assessed. CALM will attempt to ensure that approval only be given to development and/or rezoning proposals where conservation can be achieved *in situ* and/or the impact on *P. occidentalis* populations is minimal and/or developments incorporate appropriate *P. occidentalis* conservation strategies.

Translocation is one mechanism whereby conservation can be achieved other than *in situ*. Recently, proposals have advocated translocation of resident *P. occidentalis* populations from areas subject to development applications. The results from releases at Leschenault Peninsula show that translocation has the potential to establish or re-establish *P. occidentalis* in peppermint habitat within its former range, provided fox control occurs. In some circumstances it may be appropriate to translocate populations displaced as a result of approved developments. However, translocations should only be undertaken where conservation cannot be achieved *in situ* and translocations should only be to sites where predator control exists or can be initiated and maintained. Research is currently being undertaken (through translocations to Yalgorup National Park, the northern jarrah forest south-east of Dwellingup, and Karakamia Sanctuary near Gidgegannup) to determine the success of release into non peppermint habitat.

All translocations are subject to approval under revised CALM Policy Statement No. 29

Translocation of Threatened Flora and Fauna (CALM 1995).

It is accepted that there will be continuing loss of Western Ringtail Possum habitat in areas subject to development, particularly between Busselton and Augusta and near Albany. Anecdotal evidence suggests that as housing developments age and trees and gardens are established, Western Ringtail Possums may recolonise and increase in number. However, these urban possum populations are unlikely ever to reach the densities of those in natural habitat.

Recovery of the Western Ringtail will not be achieved solely through management of existing populations in urban and semi-urban areas. It can, however, be achieved in native vegetation in conservation reserves and State forest following fox control and translocations.

Strategies for the recovery of the Western Ringtail Possum will therefore include:

- promoting the conservation of the Western Ringtail Possum on CALM-managed public lands through habitat management, including feral predator control, and translocations;
- minimising the impact of land developments that may cause Western Ringtail Possum habitat destruction by habitat retention and translocations;
- managing 'derelict' Western Ringtail Possums through liaison with, and education of, people living in areas inhabited by ringtails, liaison with wildlife carers and by ensuring that rehabilitated ringtails are released in areas where their survival is maximised.

2. RECOVERY OBJECTIVE AND CRITERIA

2.1 Objective

The objective of this Interim Recovery Plan for the Western Ringtail Possum is to conserve the species by:

(i) Conserving existing populations within public lands managed by CALM;
(ii) Improving the species conservation status, through habitat management (including fox control) and translocations so that it no longer meets criteria for Vulnerable (IUCN 1994);
(iii) Minimising the impact of land developments through *in situ* conservation and translocations as appropriate; and
(iv) Ensuring that derelict animals are rehabilitated where possible and released into the wild in places where their chances of survival are maximised, according to established protocols.

2.2 Criterion for success

The criterion for successfully achieving the objective is:

The Western Ringtail Possum no longer meeting criteria for Vulnerable (IUCN 1994). This will entail halting the current decline in population size, increasing the total numbers of mature individuals to more than 10 000, ensuring that there is at least one population with more than 1 000 mature individuals and ensuring that the extent of occurrence does not drop below 20 000 km^2 or area of occupancy does not drop below 2 000 km^2.

2.3 Criterion for failure

The criterion for failure to achieve the objective is:

The Western Ringtail Possum declining in area of occurrence and numbers to the extent that it meets criteria for Endangered (IUCN 1994).

3. RECOVERY ACTIONS

This Interim Recovery Plan will remain in force until the criteria for success have been met, or for three years when it will be reviewed if the objective has not been achieved by that time. It will remain in force indefinitely if not reviewed.

The following Recovery Actions will be coordinated by the Western Ringtail Possum Recovery Team. At September 1997 members were from CALM WATSCU, CALM Science and Information Division, CALM Central Forest, Southern Forest and South Coast Regions and the Western Australian Museum.

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

3.1 Conservation of Western Ringtails in public lands managed by CALM

Western Ringtail populations on CALM-managed public lands will be conserved by appropriate habitat management, including fox control, and selected populations will be monitored.

P. occidentalis occurs in several areas managed by CALM including Yalgorup National Park (translocated population), Leschenault Peninsula Conservation Park (translocated population), Tuart Forest National Park, Leeuwin-Naturaliste National Park, State forest in the lower Collie River valley, Locke Estate Nature Reserve, the proposed Perup Nature Reserve, Kingston and adjacent State forest blocks, Torndirrup National Park, Two Peoples Bay Nature Reserve and Waychinicup National Park. Formal Management Plans have been approved for Yalgorup National Park, Leeuwin-Naturaliste National Park and Two Peoples Bay Nature Reserve and these take account of the presence of Western Ringtails. A draft Plan for Leschenault Peninsula Conservation Park also takes account of Western Ringtails.

Monitoring protocols for Western Ringtails are currently available and will be integrated into other mammal monitoring already underway. The methods will be taught to appropriate staff at the CALM Fauna Conservation Training Courses and other courses as required.

Responsibility: CALM Regions and Districts.
Cost: $1,000 per annum CALM staff time.
Priority: High.
Completion date: Ongoing.

Western Ringtails occur in State forest that has been subject to timber harvesting.

Research into the impact of logging and associated activities on Western Ringtail Possums commenced in February 1997 in the Kingston forest block, north east of Manjimup. Information is being collected on abundance before and after logging, mortality, reproduction, refuge use and movement patterns. Once this research is completed, CALM will, if necessary, revise its timber harvesting prescriptions to take account of recommendations arising from the study.

Responsibility: CALM Science and Information Division
Cost: 1997: $100 000; 1998: $95 000; 1999: $90 000
Priority: Very high
Completion date: 1999.

Note: Impact of logging research is carried out on several species, costs above are for the whole project.

Past research into availability of tree hollows in relation to fire (Inions *et al*. 1989) is discussed in 1.4 above. Western Ringtails occur in areas that have been subject to several rotations of routine prescribed burning. No change in current practice is proposed unless new research results indicate that changes are necessary.

3.2 Minimising impacts of land developments

Land developments, particularly in coastal areas between Bunbury and Augusta, and near Albany, have the potential to degrade or destroy Western Ringtail habitat, leading to the fragmentation or elimination of populations.

Land development and re-zoning applications are subject to the *Town Planning and Development Act 1928* and are administered by local Government authorities and the Western Australian Planning Commission. Some local authorities currently seek CALM's help and advice in assessing applications for re-zoning or development that may affect Western Ringtail Possum habitat. Impacts of developments may be assessed under the *Environmental Protection Act 1986*.

Large developments affecting significant areas of Western Ringtail habitat are often manageable via habitat (particularly corridor) retention. Small developments, including the clearing of individual private blocks of land, are not readily amenable to the application of conservation conditions.

As a guide, CALM will usually not become significantly involved in development projects where less than 10 ringtail possums are involved.

Under this Interim Recovery Plan CALM will:

1. Recommend that the City of Bunbury, the Town of Albany, the Shires of Busselton,

Augusta-Margaret River and Albany and the Ministry for Planning refer to CALM all re-zoning and development applications that may detrimentally affect populations of or habitat of Western Ringtails. These referrals will be handled by CALM Region or District staff with advice from other CALM staff as needed.

2. Seek conditions to be placed on re-zoning or developments judged by CALM to significantly affect populations of or habitat of Western Ringtails to ensure the conservation of Ringtails *in situ*. Conditions may include retention of habitat within the development, setting aside corridors between habitat areas, and ceding land to the Crown for declaration as conservation reserve. CALM will encourage improvements to building design that minimise the risk of ringtails entering roof spaces.
3. Where a development may be approved that does not include conditions judged by CALM as sufficient to conserve Western Ringtails *in situ*, seek conditions on the development that allow translocation of Western Ringtails, at the developer's cost, to an area of suitable, protected and managed habitat and monitoring of translocation success at the developer's cost. All translocations will be subject to approval by the Director of Nature Conservation according to CALM Policy Statement No. 29 *Translocation of Threatened Flora and Fauna*.

Responsibility: CALM Regions and Districts, CALM WATSCU (Policy 29).
Cost: $35,000 per annum (CALM staff time)
Priority: High.
Completion date: Ongoing.

3.3 Management of 'derelict' ringtails

Derelict animals originate mostly from populations within urban and semi-urban areas at Busselton and Albany, where many animals are becoming derelict as a result of habitat destruction. As Ringtails become more abundant and urban areas spread, the number of derelict animals will increase. Release of rehabilitated ringtails at Leschenault Peninsula Conservation Park has involved extensive liaison with wildlife carers in Australind, Bunbury and Busselton and release of Ringtails from the Albany area has involved liaison with carers in that area. There will be a continued requirement for care of derelict ringtail possums by wildlife carers. The efforts undertaken by wildlife carers provides them with the opportunity to be involved in wildlife management projects with positive conservation benefits. Wildlife carers are important if derelict ringtails are to be rehabilitated, since this work is labour-intensive and CALM is unable to carry out this function.

A consultative and coordinated management approach is required to continue to achieve positive conservation benefits for the Western Ringtail Possum and to ensure continued enthusiasm from wildlife carers. The following management actions are required:

- Establish a set of guidelines for carers involved in rehabilitation of derelict ringtails. These guidelines will detail circumstances under which carers are permitted to take ringtails into care, circumstances and conditions under which ringtails can be held, care requirements, reporting requirements, and release requirements.
- Establish a system to record all ringtails taken into care. The system is to detail:
  i) the date the animal was received by the carer;
  ii) the name of the person presenting the ringtail to the carer;
  iii) the reason why it was taken to the carer;
  iv) the source (location) of each animal and the circumstances under which each ringtail was received;
  v) each animal's general condition, including weight and description of any injury or illness;
  vi) estimated release date.
- Each CALM office dealing with ringtails will maintain a list of suitable sites for the release of rehabilitated derelict ringtails (see Recovery Action 3.4). Coordination of sites will be a responsibility of Wildlife Branch.

Responsibility: CALM Regions and Districts, CALM Wildlife Branch, CALM WATSCU (Policy 29).
Cost: $5000 per annum (CALM staff time)
Priority: High.
Completion date: Ongoing.

3.4 Translocations

Translocations have and will be carried out to sites within the former range of the species and where fox control is in place.

a. Existing translocations

Translocations have been successfully carried out to Leschenault Peninsula Conservation Park and Yalgorup National Park and are currently underway at Karakamia Sanctuary near Gidgegannup, and the northern jarrah forest south east of Dwellingup. Monitoring of these translocation is essential to ensure that the species can establish in new sites and to ensure that fox control is adequate.

Responsibility: CALM Science and Information Division.
Cost: $53,300 per annum.
Priority: High.
Completion date: Ongoing.

b. Proposed translocations

Sites for translocations are now available within areas currently subject to fox control via Western Shield. CALM's Wildlife Branch will keep a register of sites available for Western Ringtail Possum translocations. All translocations will be subject to searches demonstrating beyond reasonable doubt the species is locally extinct.

All translocations will be subject to approval pursuant to CALM Policy Statement No. 29.

Responsibility: CALM Regions and Districts, CALM Wildlife Branch, CALM WATSCU (Policy 29).
Cost: Depends on number of translocations, probably about $10,000 per year (salaries and overheads); to be determined as proposals are developed.
Priority: High.
Completion date: Ongoing.

3.5 Education, liaison and communication

The Western Ringtail Possum is a high profile species and its conservation is of interest to many people. As well, residents in some towns, especially Busselton, Augusta and Albany, come into contact with ringtails, which may inhabit roof spaces and trees in gardens.

The number of derelict ringtails can be decreased if building owners and occupiers take some simple steps to prevent problems arising. Ringtails can be maintained in urban areas by providing suitable shelter, eg, nest boxes.

The Recovery Team will prepare a pamphlet that provides suitable advice to people living in areas with ringtail possums. This will include information on preventing access to roof spaces, providing nest boxes and who to contact if an animal is found in a distressed condition.

Regular media releases will be provided for release in country areas about this Interim Recovery Plan and its implementation.

Responsibility: Recovery Team, CALM Corporate Relations Division
Cost: $1,000 in 1998 (pamphlet), $500 per annum thereafter (CALM staff time)
Priority: Moderate.
Completion date: June 1998.

Summary of Recovery Actions and (costs shown are for three years)

Recovery Action	Responsibility	Cost	Source of funds
3.1 Conservation of Western Ringtails in public lands managed by CALM (a) Conduct courses on monitoring protocols	CALM Wildlife Branch	$3,000	Course fees
3.1 Conservation of Western Ringtails in public lands managed by CALM (b) Research into impacts of logging	CALM SID	$285,000	CALM Forest Resources, CALM Science and Information
3.2 Minimising impacts of land developments	CALM Regions and Districts, CALM WATSCU	$105,000	CALM Regional Services Division, CALM WATSCU (salaries)
3.3 Management of 'derelict' ringtails	CALM Regions and Districts, Wildlife Branch, WATSCU	$15,000	CALM Regions and Districts, Wildlife Branch, WATSCU (salaries)
3.4 Translocations a. Existing	CALM SID	$159,900	CALM SID
3.4 Translocations b. Proposed	CALM Regions and Districts, CALM Wildlife Branch, CALM WATSCU	$30,000	CALM Regions and Districts, CALM Wildlife Branch, CALM WATSCU
3.5 Education, liaison and communication	Recovery Team, CALM Corporate Relations Division	$1500	Recovery Team, CALM Corporate Relations
TOTAL		$599,400	

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