

REVIEW OF IMPLEMENTATION OF INTERIM RECOVERY PLANS APPROVED IN 1996 AND 1997

by Andrew A Burbidge, Andrew Brown, Val English and John Blyth



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REVIEW OF IMPLEMENTATION OF INTERIM RECOVERY PLANS APPROVED IN 1996 AND 1997

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Cover photograph: by Kim Kershaw

Leonie Monks, Robyn Phillimore and Sandra McKenzie along with other volunteers of community groups provide assistance in the translocation of the Mogumber Bell (*Darwinia carnea*)

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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.

IRPs are usually prepared for threatened species (including subspecies) and ecological communities ranked as Critically Endangered. They aim to address those threatening processes most affecting ongoing survival and begin the recovery process. IRPs are usually for three years and usually state that after the three-year period has passed, a full recovery plan will be prepared if the species or ecological community remains Critically Endangered.

Recovery Plans, including IRPs, are a fairly new method of planning for the conservation of threatened species and ecological communities. A careful review of their successes and failures is essential, partly to ensure that the prescribed recovery actions have taken place and partly to ensure that the planning methods being followed are correct.

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INTRODUCTION

In 1997, the Department of Conservation and Land Management (CALM) published Wildlife Management Program No. 29 *Interim Recovery Plan 4-16 for Western Australian critically endangered plants and animals*, edited by Jill Pryde, Andrew Brown and Andrew Burbidge. The term of the Interim Recovery Plans (IRPs) varied. Most were for 1996 – 1999, while two were for 1996 – 1998. Approval dates were between 21 March 1996 and 17 May 1997 (Table 1).

Interim Recovery Plans are prepared for a three-year period, although they continue to operate unless superceded. Although not stated in these recovery plans, more recent ones have a commitment to prepare a full recovery plan at the end of the three-year period, if the taxon is still Critically Endangered.

This review examines whether the recovery actions prescribed in IRPs 4-16 have been implemented, whether success criteria have been met, whether the taxon still meets criteria for Critically Endangered and whether a full recovery plan is required.

For each plan, the following questions are addressed:

- Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?
- Which recovery actions have been fully implemented; which have not been fully implemented and why not?
- Have criteria for success been met; if not have criteria for failure been met?
- Does a new IRP or full Recovery Plan need preparation?

IRP No. 4 NIGHT PARROT *PEZOPORUS WALLICUS*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, the Night Parrot is still ranked as CR as there are no known populations. Reports of sightings continue to be received, but none have been confirmed. Because of the sightings and the recently-dead bird found in Queensland in 1990, the species is not listed as Extinct.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Actions in IRP

No.	Action	Status
1.	Field survey	Carried out
2.	Research and monitoring	Not possible, as no populations located
3.	Management actions	Not possible, as no populations located

As a result of a publicity campaign run by CALM during the first year of implementation of the IRP a total of 41 reports of sightings of Night Parrots was received. These were combined with earlier reports in CALM records (since 1985) to give the 53 reported sightings in the table below.

Reports to CALM since 1985 of sightings of Night Parrots

Time spans In which sightings were made	Region				
	Wheatbelt	southern / central Goldfields	Pilbara / Gascoyne	East Pilbara / northern Goldfields	south Kimberley
1930-1980	6	4	4	6	3
1981-1990	1	1	3	2	1
1991-2000	3	6	5	6	2

A total of eight field trips were conducted to investigate sites of reported sightings, usually involving some reports from tens of years ago and one or more very recent ones. These trips ranged from a seventeen day expedition to the eastern Pilbara and northern Goldfields, involving six people and three four wheel drive vehicles, to a one day trip by three people to the central Goldfields where the reported birds were quickly seen and found not to be Night Parrots.

The table below lists field trips made to investigate areas of reported sightings, the length of the trips and the number of people and vehicles involved. The last trip recorded in the table also visited a verified historical site at which a Night Parrot had been collected in the Gascoyne, and a station in the Murchison from which a recent report had been received.

Field trips conducted to search for Night Parrots

Area of reported Sighting(s)	Length of trip (days)	Number of vehicles and people
Station in central Goldfields	1	One vehicle, three people
Station in southern Goldfields	2	One vehicle, two people
Lake King area, eastern wheatbelt	3	One vehicle, two people
Lake King area, eastern wheatbelt	5	Twelve vehicles, 28 people, mainly volunteers from Birds Australia

Eastern Pilbara, Canning Stock Route	17	Six people, three vehicles
Station in southern Goldfields	3	Three people, one vehicle
Yarra Yarra Lakes system, northern wheatbelt	2	Two people, one vehicle
Station in southern Goldfields	8	Two people, one vehicle
Station in north-east pilbara	15	Two people, two vehicles

3. Have criteria for success been met or have criteria for failure been met?

Criteria for success were 'On the assumption that the Night Parrot does still exist in Western Australia, the criteria for achieving the objective are:

1. the location of one or more populations in the wild;
2. the development of methods of finding, studying and monitoring birds in the wild;
3. the gathering of sufficient information to begin management actions for the conservation of the species in the wild;
4. an improvement in the status of one or more populations in the wild, as measured by increases in the number of birds being counted, and/or the expansion of the area being used;
5. the establishment of a Recovery Team and the writing of a Recovery Plan.'

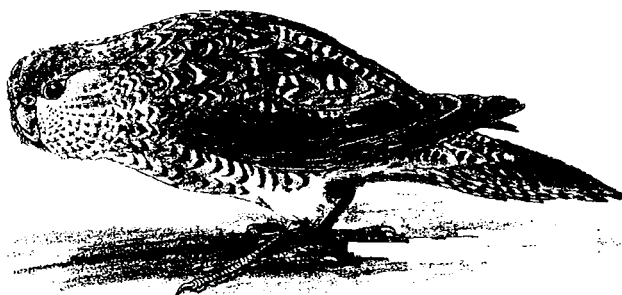
These criteria have not been met as no population has been located.

Criterion for failure was 'Initially, the sole criterion for failure in achieving the objective will be the failure to find a population of Night Parrots.'

This criterion has been met. The Objective of the IRP has not been fulfilled.

4. Does a new IRP or full Recovery Plan need preparation?

In the absence of known populations, there is no reason to prepare a full recovery plan. Instead, the current IRP should be extended for a further five years, or until such time as a population is located. IRP No. 4 covered only Western Australia. Noting that the species has been recorded in other States and in the Northern Territory, and that the most recent confirmed record (of a recently dead bird) was in Queensland, if a population is discovered any new recovery plan should be a national plan. In 1998, CALM unsuccessfully sought NHT funds to prepare such a plan.



Night Parrot

Drawing: Judy Blyth (based on an original painting by W.T. Cooper)

IRP NO. 5 ANTINA ZYZOMYS PEDUNCULATUS

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, the Antina (or Central Rock-rat) was still ranked as CR. When the IRP was written, no populations of Antina were known. Since then, populations have been located in the MacDonnell Range, Northern Territory. However, the status of these is such that the species still meets IUCN Red List Criteria for CR.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Actions in IRP

No.	Action	Status
1.	Conduct field survey	Survey of Cape Range completed, no Antina located
2.	Research and monitoring	Not possible in WA as no population located
3.	Captive Breeding	Not possible in WA as no population located
4.	Management actions	Not possible in WA as no population located
5.	Appoint recovery team	National recovery team appointed

The IRP covered only WA areas and actions. In 1996, Australian Trust for Conservation Volunteers trapped an animal that was later identified from photographs as the Central Rock-rat. Since that time sub-populations have been found at 11 other sites in the MacDonnell Ranges west of Alice Springs. The full extent of the current distribution of the species is unknown. Central Rock-rats are currently known to occur at 12 sites in the West MacDonnell Ranges. All but one site is located in the West MacDonnell National Park. Populations have not been accurately quantified.

The rediscovery of Antina in the Northern Territory has led to the formation of a national recovery team, on which CALM is represented, research into the species' ecology in the wild and the establishment of a captive-breeding colony at Desert Park in Alice Springs. Captive animals have bred and have had litters of 1 - 4 young.

3. Have criteria for success been met or have criteria for failure been met?

The Criteria for success was 'On the assumption that the Antina still exists in Western Australia, the criteria for successfully achieving the objective are:

1. the location of one or more populations in the wild;
2. the development of methods of finding, studying and monitoring Antina in the wild;
3. the gathering of sufficient information to begin management actions for the conservation of the species in the wild;
4. an improvement in the status of one or more populations in the wild, as measured by increases in the number of Antina being trapped, and/or the expansion of the area being used;
5. the establishment of a Recovery Team and the writing of a Recovery Plan.

If the Antina can not be located in the wild, the criterion for successfully achieving the objective is:

1. Conducting two field surveys, each of at least 2 000 trap-nights, for Antina in Cape Range National Park, encompassing all the major habitat types within rocky country, one in late winter or spring and one in autumn. Each survey will use pitfall and drift fence traps and Elliott traps.'

The first set of criteria was not met, as no population has been located. The criterion relating to the survey of Cape range has been met.

The criterion for failure was 'The criterion for failure to achieve the Objective is:

1. Failure to locate Antina after conducting adequate surveys in Cape Range.

This criterion has been met. Therefore the objective of the IRP has not been achieved.

4. Does a new IRP or full Recovery Plan need preparation?

A national recovery plan for the Antina has been drafted. CALM is represented on the Recovery Team.

IRP NO. 6 WESTERN GROUND PARROT *PEZOPORUS WALLICUS FLAVIVENTRIS*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, the Western Ground Parrot was ranked as Endangered under IUCN Red List Criterion C2a (estimated population of less than 2500 mature individuals, a continuing decline in number of mature individuals or population structure, the population severely fragmented with no subpopulation estimated to contain more than 250 mature individuals). In 1995 the taxon was judged to be CR on Criterion C2a (less than 250 mature individuals, continuing decline and severely fragmented with no subpopulation estimated to contain more than 50 mature individuals). It no longer meets CR because more recent surveys suggested that there are, in total, more than 250 mature individuals.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Actions in IRP

No.	Action	Status
1.	Fire management	Completed. Note that at CANP no population is known to exist, so specific fire management not carried out
2.	Predator control	Ongoing
3.	Dieback hygiene	Ongoing
4.	Vesting of land in Manypeaks area	Not completed, negotiations continuing
5.	Documentation of known populations and monitoring of trends in population size/boundaries	Ongoing at FRNP; population trend at one upwards; other sites have no or few birds due to fire. Survey at CANP failed to locate Ground Parrots. Monitoring protocol under development.
6.	Survey of areas possibly suitable for Western Ground Parrots	Completed for WNP; small but significant population located. Searched at Alexander Bay, CANP, no birds located.
7.	Assessment of need for taking birds for captive breeding or translocation	Recovery Team has kept this action under review; captive breeding not currently proposed.
8.	Recovery Plan	Not achieved

CANP – Cape Arid National Park
 FRNP – Fitzgerald River National Park
 WNP – Waychinicup National Park and proposed additions.

Coordination of the above actions is the responsibility of the South Coast Threatened Birds Recovery Team.

3. Have criteria for success been met or have criteria for failure been met?

Criteria for success and whether they have been met are as follows:

Criteria for success were (in priority order):

- production and application of fire management guidelines for each known population — fully met
- the application of an on-going predator control (fox baiting) program in populations in Fitzgerald River National Park, Waychinicup National Park and Cape Arid National Park,
- establishment of a monitoring program — considerable work carried out, final monitoring program design being developed

- a measured increase in population size or increasing area of occupancy — total area of occupancy has dropped due to fire in FRNP; positive population trend at Short Road (FRNP); WNP population probably increasing; CANP searched but no population located
- discovery of previously unknown populations — WNP population confirmed; records received from additional sites but not confirmed
- production of an approved recovery plan — recovery plan not completed.

Criteria for failure and whether they have been met are as follows:

‘The program will be considered to have failed if:

- there is a measured decrease in overall population size or decrease in area occupied by those populations being monitored — met, as decrease in area of occupancy due to fire; however, total population now known to be greater than 250 mature individuals and upwards trend at at least one site
- adequate data cannot be/have not been collected to allow a confident assessment of population trend or area occupied — not met.

In summary, while there has been considerable progress, one criterion for failure has been met due to a major fire in FRNP—a factor beyond the control of the recovery team.

4. Does a new IRP or full Recovery Plan need preparation?

Despite the current listing of Endangered, a full recovery plan is required, as the species is very close to qualifying as Critically Endangered.

IRP NO. 7 SMALL-FLOWERED CONOSTYLIS *CONOSTYLIS MICRANTHA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

Ranked as VU by TSSC October 2000, under criterion D1+2, as there are now 10 populations known, totalling 370 plants. Three populations totalling at least 144 plants are known from Burma Rd Nature Reserve, and these are not in decline and there are no immediate threats. The habitat in which *Conostylis micrantha* occurs is quite common in Burma Rd Nature Reserve, and further survey may reveal additional populations.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

Cuttings were collected from *C. micrantha* in 1993, 1994 and 1995 by staff from Botanic Garden and Parks Authority (BGPA). In August 1995 BGPA had 16 plants growing in their nursery, 10 of which were still in the propagation house. Several of these plants have since been planted out into the Rare and Endangered Garden at BGPA, while the remainder is still in pots. The rooting success rates of the cuttings taken from two populations in 1993 were 18% and 10%.

The Shire of Irwin and Westrail have been informed of the presence of *C. micrantha* on their lands. Declared Rare Flora (DRF) markers were installed at populations 1-3 and 6 in July 1993. Westrail markers are present at population 4.

The Geraldton District Threatened Flora Recovery Team (GDTFRT) is overseeing the implementation of the IRP and will include information on progress in its annual report to CALM's Corporate Executive.

Recovery Actions in IRP

No.	Essential Actions	Status
1	Install Declared Rare Flora markers	Completed.
2	Implement weed control	Completed for 2000. Ongoing.
3	Develop fire management plan	Interim guidelines written for Burma Rd NR.
4	Monitor populations	All populations monitored in 2000. Ongoing.
No.	Desirable Actions	Status
1	Preserve genetic diversity of the species	Ongoing.
2	Fence populations 2 and 6	Not necessary*. Rabbits being baited. No stock in the area.
3	Conduct further surveys	Completed for 2000. Plan to survey more in 2001.
4	Information dissemination	Distributed posters. Ongoing liaison.
5	Conduct research	Research not conducted as the taxon was not a high priority for research.
6	Survey for translocation sites if deemed necessary	Unlikely to be necessary due to new populations discovered in Burma Road Nature Reserve.

* As the soil type is sand, rabbits would easily be able to dig underneath a fence. Therefore fence maintenance would be required continuously to ensure that rabbits stay outside. Baiting appears to be more practical at present.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

Weed and rabbit control, and the location of additional populations on secure conservation lands have resulted in the taxon being re-ranked from Critically Endangered to Vulnerable. Therefore, the success criterion has been fulfilled.

4. Does a new IRP or full Recovery Plan need preparation?

Given the ranking of Vulnerable, the taxon does not require a full Recovery Plan or a revised IRP.

IRP NO. 8 RED SNAKEBUSH *HEMIANDRA GARDNERI*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

Hemiandra gardneri is still ranked CR as at September 2000 due to all populations being located on rail and road reserves, or private land. There were 906 plants known from five extant populations (September 2000), while 745 plants occur on road and rail reserves, and 161 on private land. No plants occur in conservation reserves.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery actions undertaken prior to IRP completion

The owners of the private property containing Population 2b were notified of the presence of the species in September 1988. The population is located in remnant vegetation that is adequately fenced from stock.

Declared Rare Flora markers are place for all roadside populations. Westrail markers are in position along the railway reserve. These alert road and rail maintenance workers to the presence of each population, and enable them to take appropriate care.

Approximately 300 cuttings were taken by BGPA staff in 1987, and trialed using a variety of hormone strengths. Only five cuttings produced roots, two of which were planted out and soon died. The remaining three survived in pots. More cutting material was collected in 1994, three of which were grown on and are on display at Kings Park. No seed has been collected.

Recovery Actions in IRP

No.	Essential Actions	Status
1	Implement weed control	Not implemented. Weed invasion is not a major threat to the taxon.
2	Develop fire management plan	Too frequent fire or infrequent fire do not appear to be a major threat to the taxon. No plan yet developed.
3	Monitor populations	Most populations monitored 1999.
No.	Desirable Actions	Status
1	Collect seed and/or genetic material from populations	Over 8,080 seed collected over two trips, viability 50-100%
2	Conduct further surveys	Few surveys specifically for the taxon due to lack of likely habitat. Surveyed opportunistically during other operations.
3	Produce posters and dashboard stickers, implement a publicity campaign	A poster has been produced and distributed. DRF posters/stickers have been distributed to relevant authorities (Shires/MFP). Poster displays of DRF in the Region have been presented at relevant shows.
4	Conduct research	Research not conducted as the taxon was not a high priority due to good seed viability and reasonable numbers of plants in the wild.
6	Survey potential habitats for translocation	Translocation of taxon not a high priority at present, due to reasonable numbers of plants remaining in the wild in good quality habitat.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is “Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within a three year period.” This criterion is considered to have been met.

Due to the Westrail Threatened Flora signs along the side of the railway line for the extent of the population, the plants do not seem to be under major threat of damage from rail maintenance. The populations certainly seem self-sustaining and are probably capable of expanding.

4. Does a new IRP or full Recovery Plan need preparation?

The taxon requires a full RP that includes translocation into a secure reserve as a priority action, as threats associated with populations only occurring on private land and road and rail reserves will otherwise continue indefinitely. Further survey, in the Watheroo National Park, etc., should also be high priority actions listed in the new IRP. A possible threat not recognised in the original IRP is salinity / rising water tables. A ‘new’ wetland has arisen in the middle of the population, so translocation may, again, be one of the few remaining long term solutions.



Red Snakebush
Drawing: Susan J Patrick

IRP NO. 9 DWARF ROCK WATTLE *ACACIA PYGMAEA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Acacia pygmaea* was ranked Endangered under Criterion D (less than 250 mature plants in the wild). It is currently known from five populations and a total of 177 plants on Nature Reserves, 53 plants on private land and 5 plants on a Shire Reserve.

The species has been down-ranked from CR to EN due to their being fewer threats to the species. New populations have been found on Nature Reserves and populations on private land have been fenced from stock. Habitat is in good condition and most populations are now not under threat. No decline is evident.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. A Declared Rare Flora (DRF) marker has been placed at population 2a.
2. The owners of the private property containing populations 1a and 2a were notified in June 1991 and January 1992 respectively.
3. Staff from the Botanic Garden and Parks Authority (BGPA) collected seed, cuttings and grafts from population 1 in December 1991 and 1993. Results from cuttings gave a 0.3 % success rate and one plant has been grown on and potted. A total of 148 seeds are in storage at -20°C.
4. Staff from CALM's Threatened Flora Seed Centre (TFSC) collected 53 seeds from populations 1 and 2 in November 1995 which are currently in storage at -18°C.
5. The Merredin District Threatened Flora Recovery Team (MDTFRT) is overseeing the implementation of this IRP and reports annually to CALM's Corporate Executive.
6. Staff from CALM's Merredin District Office regularly monitor populations of this species.

Recovery actions listed in IRP

No.	Action	Status
1.	Protect from inappropriate fire	Firebreaks have been constructed on perimeter fences around all populations. Landholders have been notified of the presence of the species and have been informed of the legislative requirements prior to conducting control burns.
2.	Monitor populations annually	All populations are being monitored by staff of CALM's Merredin District. Members of the Toodyay Naturalists Club are also involved in population monitoring during field days to the Wongan Hills.
3.	Preserve genetic diversity of the species	CALM's TFSC and the BGPA have seed in storage. BGPA have plants in pots and in their Threatened Flora garden.
4.	Conduct research	The TFSC has conducted research on the viability of seed. Most research recommended in the IRP has not been implemented due to the secure nature of populations and the lower priority that is now placed on this species (now ranked as EN).

5.	Conduct further surveys	E. Holland and F. Bunny (Western Australian Threatened Species & Communities Unit (WATSCU)) undertook surveys in September 1995 and April 1996, during which two new populations were found (Pops 3 and 4). N. Woolfrey (CALM Merredin) located a fifth population in 1996. <i>Acacia pygmaea</i> is currently known from a combined total of 177 plants on Nature Reserves, 53 plants on Private land and 5 plants on Shire Reserve. Members of the Toodyay Naturalists Club and CALM staff have and are continuing to carry out surveys for this taxon in other areas of possible habitat.
6.	Acquire land	Private land has not been purchased due to new populations being found on conservation reserves.
7.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". Landowners have been notified of the presence of the species on their land. Members of the Merredin District Threatened Flora Recovery Team are fully conversant with the species.
8.	Survey for possible translocation sites	Following surveys it was found that the species was more secure than previously thought and it is not now deemed necessary to implement translocation.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion is considered to have been met. The threat of inappropriate fire has diminished through the construction of firebreaks and communication with land managers. The threat of clearing has been removed as Private property owners have been informed of the presence of the species and their land cannot be legally cleared without a ministerial permit. The threat of grazing has been removed, as all Private property populations have been fenced from stock. Following survey, new populations were found on Nature Reserves where there are currently no perceivable threats. This has increased the number of individual plants known from the wild. Seed has been stored in CALM's Threatened Flora Seed Centre and at the BGPA. As a result of these actions and the more secure nature of the species *Acacia pygmaea* has been down-ranked to EN.

4. Does a new IRP or full Recovery Plan need preparation?

Unless present circumstances change, a new IRP or an RP is not considered to be necessary.

IRP NO. 10 MOGUMBER BELL *DARWINIA CARNEA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000 *Darwinia carnea* was ranked Critically Endangered under Criterion B1+2c (small area of occupancy, continuing decline in the wild and poor quality of habitat). The species is currently known from three extant populations (two at Mogumber and one near Narrogin) and two extinct populations. The extant populations have a combined total of c. 270 plants. All three populations are on Private land with only one extinct population recorded from Crown land. It was last seen in 1992 (one plant). The other extinct population was at Mogumber. A translocation took place at the site to replace the population that had died out, however, it was not successful and no plants survived.

Recovery actions in place include translocations to areas that are not under threat. However, although early evidence suggests that this recovery action appears to be working, it is too early to ascertain if it will be successful in the longer term (only in place for 18 months).

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. The owners of private property at Narrogin (Population 1) were notified of the presence of *D. carnea* in November 1992. The owners of private property at Mogumber were notified in December 1994 (Populations 5a and 5b) and in January 1995 (Population 3).
2. Fencing materials were delivered to the owners of Population 5a on 30 April 1996 and erection was completed in September that year.
3. The Narrogin population (Population 1) was fenced in 1978 by the landowner, R. Durell and several volunteers. The fence was repaired in 1994 by CALM after rabbit and sheep damage.
4. A rabbit control program was undertaken by CALM's Narrogin District at Population 1 when rabbits were reported within rabbit proof fenced area. R. Durell undertook several successful rabbit trappings during 1978. The owner of the private property shoots rabbits in the adjoining paddock.
5. Cutting material was collected prior to 1970 from the Mogumber population. This was the source material for Kings Park and Botanic Gardens (now the Botanic Gardens and Parks Authority (BGPA)) research and was later cloned by The Wildflower Society and Lullfitz Nurseries. Cutting material was again collected by BGPA in 1989 and 1990. Plants are in the nursery and on display in the Kings Park Threatened Flora garden.
6. The Threatened Flora Seed Centre (TFSC) at CALM's West Australian Herbarium has seed in storage from collections made in 1990 and 1995.
7. An attempt to reintroduce the species was made by B. Jack, a local horticulturist. However this failed due to drought and / or grazing. In July 1985, 50+ plants were planted from 12.5 cm pots in an area of private property of about 0.5 ha, which is believed to be the type locality. In 1990 J. Gathe surveyed the translocation site. No plants were found and local farmer, Mr M. Roley, believed sheep had eaten the plants.
8. Ms Rosanna Hindmarsh has been studying the genetic differences between populations of *D. carnea* at Mogumber and the populations at Narrogin.

The Moora and Narrogin district Threatened Flora Recovery Teams oversee the implementation of this IRP and report annually to CALM's Corporate Executive.

Recovery actions listed in IRP

No.	Action	Status
1.	Fencing.	All extant populations have now been fenced
2.	Develop a fire management plan.	Landowners have been informed of the need to protect plants of <i>Darwinia carnea</i>
3.	Preserve genetic diversity of the species	Both CALM's TFSC and the BGPA are holding seed collections. Cutting collections have been made by BGPA staff and plants propagated for translocation. Plants are also being held at Kings Park Nursery.
4.	Implement rabbit control	Rabbit control has been implemented for Population 1. Rabbits do not impact other populations.
5.	Monitor populations	CALM staff and members of the Moora and Narrogin Threatened Flora Recovery Teams are monitoring all populations.
6.	Conduct further surveys.	CALM staff and consultant botanists have extensively searched for <i>Darwinia carnea</i> , however, no new populations have been found.
7.	Implement weed control	Weeds are not a major threat to <i>Darwinia carnea</i> . Where they are encroaching into populations hand pulling and selective spraying has controlled them.
8.	Information dissemination.	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. Landowners have been notified of the presence of the species on their land. Members of the Merredin District Threatened Flora Recovery Team are fully conversant with the species.
9.	Conduct research.	Genetic research is ongoing. Seed viability research has been conducted by CALM's TFSC.

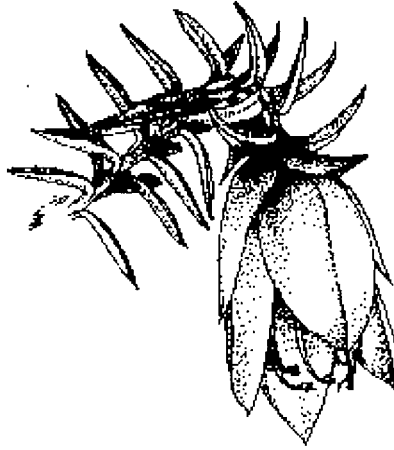
3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion is considered to have been partially met. Most threatening processes have been removed or diminished. The threat of inappropriate fire has diminished through communication with land managers. The threat of clearing has been removed as private property owners have been informed of the presence of the species and their land cannot be legally cleared. The threat of grazing has been removed, as all private property populations have been fenced from stock. Rabbit and weed control has been implemented. Seed has been stored in CALM's Threatened Flora Seed Centre and at the BGPA. Although the main continuing threat is senescence and poor recruitment, the total numbers of individuals in populations has increased. Translocation into protected areas containing suitable habitat has been undertaken and this has also increased the number of populations and individuals, however, it will be several years before success or failure can be determined.

4. Does a new IRP or full Recovery Plan need preparation?

Although all recovery actions listed in the current IRP have been implemented or are underway the species is still ranked as CR, and it is likely to continue to be due to small population sizes and no population occurring in conservation estate. A full Recovery Plan is therefore required to address the long-term conservation of the species.



Mogumber Bell
Drawing: Margaret Pieroni

IRP NO. 11 NORSEMAN PEA *DAVIESIA MICROCARPA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000 *Daviesia microcarpa* is ranked Critically Endangered under Criteria A2c,B1+2e,C1,D (a reduction of 80% over last three generations with a decline in area of occupancy, known from a single location with a continuing decline in the number of mature individuals, less than 250 mature individuals with a decline of a least 25% over the current generation and less than 50 mature individuals in the wild). The species is currently known from one extant population with a total of 13 plants. The population is adjacent to the Eyre Highway on Main Roads WA road reserve.

Recovery actions in place include collection and storage of seed in CALM's TFSC, scarification of soil in order to encourage germination of soil-stored seed, erection of bollards to prevent access and accidental damage to the population. Although protective measures have been put in place the number of *in situ* plants has continued to drop and no recruitment has occurred. Surveys have failed to locate further populations.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. The Botanic Garden and Parks Authority (BGPA) has 300 seeds in storage.
2. CALM's TFSC has a total of approximately 4 500 seeds in storage. Tests gave a 94% germination rate.
3. Monitoring of the population has been routinely undertaken by CALM Esperance District staff. The following sites were surveyed by Matiske Consulting Pty Ltd in 1992:
 - North and south of Eyre Highway near subpopulation 1b, in recently burnt/regenerating area.
 - Numerous tracks in the Jemberlana Hill area.
 - Calcrete pits in the Jemberlana Hill area.
 - Calcrete pits c. 2.5 kilometres north east of subpopulation 1b, north of the Eyre Highway.
 - Unnamed road three kilometres north east of subpopulation, south of the Eyre Highway.
4. In late 1995 road works along the Eyre Highway commenced and subpopulation 1b was fenced and flagged. In January 1996, half of the area where subpopulation 1a had occurred (plants last seen 1985) was cleared for roadworks. This was done under Ministerial permit as plants had not been seen at the site for 11 years. The topsoil from this location was spread over a disused gravel scrape in the hope that any possible long-lived soil stored seed might germinate. No plants had appeared in the rehabilitated gravel scrape as of 1999.

Recovery actions listed in IRP

No.	Action	Status
1.	Protect from road works	Main Roads WA is aware of the population and bollards have been erected to prevent access.
2.	Develop a fire management plan	Main Roads WA and the Norseman Shire have been informed of the need to protect plants from inappropriate fire.
3.	Install DRF markers	DRF markers have been installed at either end of the population.
4.	Monitor subpopulation	Main Roads WA staff and staff from CALM's Esperance District regularly monitors the population.

5.	Preserve genetic diversity of the species	Seed collections are held at CALM's TFSC and in the BGPA seed store. Cultivated plants are held at Kings Park's nursery.
6.	Conduct further surveys	Consultants, CALM staff and volunteers have conducted numerous surveys over a wide area north and east of Norseman but no new populations have been found.
7.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. Land managers have been notified of the presence of the species. CALM staff are fully conversant with the species.
8.	Conduct research	Seed viability research has been conducted by CALM's TFSC. Due to the plants remote location it is difficult to conduct on site research.
9.	Translocation	Several disused gravel pits have had topsoil, from an area where <i>Daviesia microcarpa</i> occurred in the past, spread over them in the hope that soil-stored seed will germinate. Although many associated species have appeared, no plants of <i>Daviesia microcarpa</i> were evident as of October 1999. It is desirable that a translocation occurs some time in the near future as extant plants at the single known locality are beginning to senesce.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion has not been met. Some threatening processes have been removed or have diminished. The threat of clearing has been greatly reduced as Main Roads WA staff know of the presence of the species, Rare Flora Markers have been erected and bollards have been put in place to prevent access. Seed has been collected and stored. However, the species is still declining in the wild.

Criteria for failure are "The recovery process will have been unsuccessful if identified threats have not abated within the three year period of this IRP or there has been a substantial decrease in the number of mature plants".

These criteria have been met as there is a continuing decline in the number of mature individuals in the wild.

4. Does a new IRP or full Recovery Plan need preparation?

Most recovery actions listed in the current IRP have been implemented or are underway. Given that the species is still ranked as CR, and is likely to continue, due to the small population size and continuing decline, a full Recovery Plan is required to address the long-term conservation of the species.

IRP NO. 12 KAMBALLUP DRYANDRA *DRYANDRA IONOTHOCARPA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Dryandra ionthocarpa* was ranked Endangered under Criterion B1+2ce (area of occupancy estimated to be less than 500 km² and known to exist from no more than five populations in the wild, and a continuing decline in the quality of habitat and number of mature individuals in southern populations). The species is currently known from three populations and a total of 1 223 plants. Two populations (700 and 280 plants) are in CALM's Albany District on a Shire reserve. A third population (243 plants) is in CALM's Narrogin District on a Nature Reserve.

The species is not now considered to be CR as all recovery actions have been put place and, following surveys, a new population found on a nature reserve.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. CALM's Threatened Flora Seed Centre (TFSC) has approximately 3000 seeds stored at -18°C. As a result of germination trials of seed by A. Cochrane, 62 plants are held in BGPA nursery.
2. All relevant authorities know of the existence of *D. ionthocarpa*.
3. The Albany District Threatened Flora Recovery Team (ADTFRT) oversees the implementation of this IRP and reports annually to CALM's Corporate Executive.

The Albany and Narrogin district Threatened Flora Recovery Teams oversee the implementation of this IRP and report annually to CALM's Corporate Executive.

Recovery actions listed in IRP

No.	Action	Status
1.	Implement weed control	Weed control has been implemented at both Albany subpopulations. It is not required for the Narrogin population.
2.	Develop a fire management plan	Firebreaks have been constructed on perimeter fences around all populations. Landholders have been notified of the presence of the species and have been informed of the legislative requirements prior to conducting control burns.
3.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. Land managers have been notified of the presence of the species. CALM staff and members of relevant recovery teams are fully conversant with the species.
4.	Monitor populations	All populations are being regularly monitored.
5.	Change vesting and purpose of Reserves	The Albany District populations are on Shire Reserve that the Shire currently wishes to keep under its control.
6.	Preserve genetic diversity of the species	Seed collections are held at CALM's TFSC and in the BGPA seed store. Cultivated plants are held in Kings Park nursery.

7.	Conduct further surveys	Surveys conducted in the Albany District failed to locate further populations in that area, however, surveys carried out in the Narrogin District have located a new population on a Nature reserve.
8.	Conduct research	Seed viability research has been conducted by CALM's TFSC. L. Monks (CALMScience) has carried out research on the species that included estimating the size of the potential seed bank and the age of plants at each subpopulation. It also involved conducting prescribed burns on some plants to determine their fire response. Transplant studies have been undertaken to determine other suitable substrates and habitats for the species. The effect of granivores on the seeds of <i>D. ionthocarpa</i> was also determined.
9.	Translocation	An experimental translocation has taken place in the Albany District.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion has been met. Most threatening processes have been removed or have diminished. There is still a small decline in plant numbers in southern populations, but given that there are over 900 plants this is not significant and the northern population of 243 plants is stable.

4. Does a new IRP or full Recovery Plan need preparation?

Due to its current lower ranking (EN) it is not thought necessary to prepare a new IRP or full RP.

IRP NO. 13 STIRLING RANGE DRYANDRA *DRYANDRA MONTANA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Dryandra montana* was ranked Critically Endangered under Criteria A1ce,B1+2c,C1 (an estimated decline in plant numbers of 80% over the last three generations with a decline in area of occupancy and quality of habitat, all populations affected by the pathogen *Phytophthora*, populations severely fragmented and a continuing decline in the number plants and the quality of habitat, and an estimated continuing decline of at least 25% during the current generation). The species is currently known from four populations and a total of 118 plants. All populations are in the Stirling Range National Park.

The species is still considered to be CR due to the small number of populations (four) and low number of plants (118) and the continuing threat of dieback disease.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. Cutting material and seeds have been collected with the establishment of two plants in good health at Kings Park nursery.
2. A. Cochrane from the TFSC has collected seed. This seed had a germination rate of 18.75%.
3. All relevant authorities know of the existence of *D. montana*.

The Albany District Threatened Flora Recovery Team oversees the implementation of this IRP and reports annually to CALM's Corporate Executive.

Recovery actions listed in IRP

No.	Action	Status
1.	Phosphite spraying	All populations have been sprayed with phosphite and this action is continuing on an annual basis.
2.	Preserve genetic diversity of the species	Seed collections are held at CALM's TFSC and in the BGPA seed store. Cultivated plants are held in Kings Park's nursery.
3.	Develop a fire management plan	CALM staff is aware of the species and the legislative requirements prior to conducting control burns. The SRNP has a fire management plan in place.
4.	Monitor populations	All populations are being regularly monitored.
5.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. Land managers have been notified of the presence of the species. CALM staff and members of relevant recovery teams are fully conversant with the species.
6.	Conduct further surveys	Surveys conducted in the Albany District resulted in the discovery of a new population (population 4).

7.	Conduct research	Seed viability research has been conducted by CALM's TFSC.
8.	Translocation	This action is not currently thought feasible due to the lack of suitable sites that are free of dieback.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion has only been partially met. The most significant threatening process (dieback) has been brought under control through spraying with phosphite but continues to be a threat in the future. Plant numbers are in continuing decline through disease and senescence and recruitment is poor.

Criterion for failure is "The recovery process will have been unsuccessful if identified threats have not abated within the three year period of this IRP or there has been a substantial decrease in the number of mature plants".

The criterion is considered to be met, as there is a continuing decline in the number of mature individuals in the wild.

4. Does a new IRP or full Recovery Plan need preparation?

Due to the low number of populations and plants and the continuing threat of dieback this species requires the preparation of a full RP.



Stirling Range Dryandra
Drawing: Susan J. Patrick

IRP NO. 14 METALLIC-FLOWERED EREMOPHILA *EREMOPHILA VENETA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Eremophila veneta* was ranked Vulnerable under Criterion C2a. (The species does not technically meet criteria for threatened, however, the TSSC (November 2000) made the recommendation to leave it listed with the qualification that further surveys be carried out.) The species is currently known from fifteen populations and a total of 2 829 plants. Five populations are on conservation reserve and the largest of 1 906 plants is on a Shire reserve in which there are no observable threats.

The species is now considered to be VU due to the number of populations (15) the number of plants (2829) and low threats to the largest populations.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. Declared Rare Flora (DRF) markers have been erected for all populations.
2. CALMScience has undertaken research into weed control.
3. BGPA staff collected cutting material in 1991, which resulted in the propagation of plants held in their nursery. Staff of CALM's Threatened Flora Seed Centre (TFSC) collected a small amount of seed in February, 1996.

The Katanning and Narrogin District Threatened Flora Recovery Teams oversee the implementation of this IRP and reports annually to CALM's Corporate Executive.

Recovery actions listed in IRP

No.	Action	Status
1.	Install DRF markers	DRF markers have been installed for all road reserve populations.
2.	Implement weed control	Weed control has been implemented for some populations found on narrow road reserves. Weeds are not thought to be a threat to populations on Shire reserves.
3.	Develop a fire management plan	Land managers aware of the species and the legislative requirements prior to conducting control burns.
4.	Monitor populations	Populations are being regularly monitored.
5.	Conduct further surveys	Several new large populations have been discovered on reserves following surveys carried out in the Narrogin and Katanning districts.
6.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. Land managers have been notified of the presence of the species. CALM staff and members of relevant recovery teams are fully conversant with the species.

7.	Preserve genetic diversity of the species	Seed collections are held at CALM's TFSC and in the BGPA seed store. Cultivated plants are held in the Kings Park nursery.
8.	Conduct research	Weed control research has been undertaken. Seed viability research has been conducted by CALM's TFSC.
9.	Habitat rehabilitation	Some habitat rehabilitation has been undertaken for nature reserve populations.
10.	Translocation	This action is not currently thought necessary due to discovery of large populations on reserves.

3. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion has been met. Some 15 populations totaling 2 829 plants are now known. The largest population of 1 906 plants is on a Shire reserve and is not subject to any current threats. The species does not currently meet any of the IUCN criteria for threatened.

4. Does a new IRP or full Recovery Plan need preparation?

The development of a new IRP or full RP is not thought to be necessary at this time.

IRP NO 15 MAJESTIC SPIDER ORCHID *CALADENIA WINFIELDII*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Caladenia winfieldii* was ranked Endangered under Criterion D (Population estimated to consist of less than 250 mature individuals). The species is currently known from two populations and a total of 133 plants. Both populations are in State Forest.

The species is now considered to be EN due to the recovery actions that have been put in place (fencing, pig control), the discovery of a new population and the low threats to the species. Both populations have increasing numbers of flowering plants.

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

1. Feral pig activity was reported in the area in 1994. Six pigs were shot in the area in March 1996 by CALM Pemberton District staff. The area has been fenced to exclude pigs. Monitoring of pig pellet and grain feeding stations is ongoing.
2. Further timber extraction within the catchment has been deferred until potential impacts on *C. winfieldii* ms have been identified and addressed.
3. The population was excluded from the 1995/1996 spring burn of the surrounding area and will be excluded from future prescribed burns, apart from approved research burns.
4. A fence was erected around population 1 in 1996 to exclude feral pigs and kangaroos. Inspection during subsequent flowering seasons has revealed that this action is most effective with the number of flowering plants increasing substantially.
5. Individual plants are now marked in the field, each with an assigned number for long term monitoring.
6. Seed of *Caladenia winfieldii* was collected and sent to the BGPA. Associated mycorrhizal soil fungi has also been collected and is now in culture at BGPA.

The Southern Forest Region Threatened Flora Recovery Team is overseeing the implementation of this IRP and will include information about it in its annual report to CALM's Corporate Executive.

Recovery actions listed in IRP

No.	Action	Status
1.	Control feral pigs	This has been done and is ongoing.
2.	Exclude the population from prescribed burns	All populations have been excluded from prescribed burns.
3.	Monitor population	Populations are being regularly monitored.
4.	Extend the exclusion fencing	This has been done to include flowering plants found outside the original enclosure. The new population has also been fenced.
5.	Defer further timber extraction catchment	Further timber extraction within the catchment has been deferred.

6.	Implement disease control	Control of <i>Phytophthora</i> is not currently required, as the disease does not appear to be impacting the species.
7.	Preserve genetic diversity of the species	Seed collections are held by BGPA.
8.	Conduct further surveys	Further surveys have and are continuing to be conducted. These have resulted in the discovery of a new population to the north of the existing one.
9.	Information dissemination	An IRP has been prepared and published and the species is included in "Western Australia's Threatened Flora". An A4 poster has been produced, which illustrates the species and provides information on its biology and ecology. CALM staff and members of the Southern Forest Threatened Flora Recovery Team are fully conversant with the species. The species is included in "Orchids of South West Australia".
10.	Research	Staff of the BGPA is conducting ongoing research on soil fungi and are developing methods for <i>ex situ</i> seed germination.
11.	Survey for translocation sites	This action is not currently thought necessary due to discovery of a new population and the good health of both known populations.

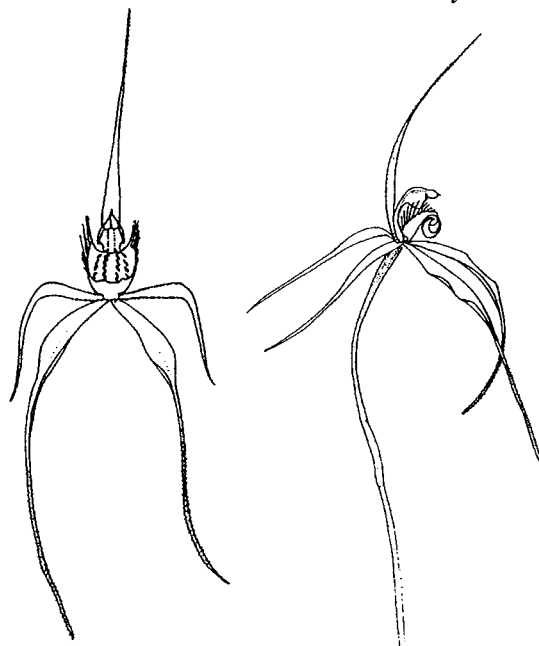
4. Have criteria for success been met; if not have criteria for failure been met?

Criterion for success is 'Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within the three year period.'

This criterion has been met. The number of mature individuals is increasing and most threats have been removed or reduced. A new population has been found.

5. Does a new IRP or full Recovery Plan need preparation?

The development of a new IRP or full RP is not considered necessary at this time.



Majestic Spider Orchid
Drawings: Catherine Vasiliu

IRP NO. 16 SWAMP STARFLOWER *CALYTRIX BREVISETA* SUBSP. *BREVISETA*

1. Is the species still ranked as CR and if so why, or has it been moved to a lower category of threat and if so why?

As at November 2000, *Calytrix breviseta* subsp. *breviseta* was ranked Critically Endangered due to its extremely restricted distribution and being known from only two populations (comprising four subpopulations), totalling 621 adult plants, and 320 seedlings (last detailed count 1997). One population of 100+ seedlings (in 1997) was located on Ministry for Planning land (proposed Nature Reserve).

2. Which recovery actions have been fully implemented; which have not been fully implemented and why not?

Recovery Actions implemented prior to completion of IRP

Declared Rare Flora (DRF) markers are in place.

All relevant authorities and land managers know of the location of *C. breviseta* subsp. *breviseta*.

CALM's Science and Information Division (SID) is conducting weed control research on subpopulation 1a.

BGPA collected seed and cuttings in 1995.

Staff from CALM's Threatened Flora Seed Centre (TFSC) collected seed in 1994 and 1995. Some seed collected in 1994 was given to BGPA and seed material collected in 1995 was infertile. Due to the fire that occurred in the area of subpopulation 1a, and the subsequent poor flowering and seed set of juvenile plants, little seed was collected in 1996. Staff from the TFSC collected more seed in 1997.

The Swan Region Threatened Flora and Communities Recovery Team (SRTFCRT) is overseeing the implementation of the IRP and reports annually to CALM's Corporate Executive.

No.	Essential Actions	Status
1	Install Declared Rare Flora markers	Completed
2	Implement weed control	Spraying with fusilade to control grasses has occurred last two summers. Ongoing.
3	Develop fire management plan, ensure dieback hygiene	Draft Fire Management strategy for greater Brixton St area complete. Final draft likely prior to 2000 fire season. Firebreaks adjacent to populations maintained by slashing. Taxon apparently unaffected by dieback (F. Podger pers comm.).
4	Produce posters and dashboard stickers, implement a publicity campaign	DRF posters/stickers have been distributed to relevant authorities (Shires/MFP).
5	Monitor populations	Populations monitored for weed invasion etc. during weed control planning/ firebreak planning; health of habitat monitored. As at September 2000, numbers of adult plants had not been counted since 1997.
No.	Desirable Actions	Status
1	Collect seed and/or genetic material from both populations, determine the size and viability of soil seed banks	Seed collected on two occasions (1261 seeds), 100% viability. Determination of soil seed bank status not a high priority.

2	Maintain buffers and implement weed control along track if necessary	Track is regenerating well. Weed control on track not necessary.
3	Land title transfer (Ministry for Planning land to be vested with the NPNCA and managed by CALM)	Land on which populations occurs is a Bushplan site and part of Planning Control Area. Is being progressively acquired, as land becomes available etc
4	Conduct further surveys	Very little suitable habitat remains. Surveys for new populations are done opportunistically as part of other surveys
5	Conduct research	Research not conducted as the taxon was not a high priority due to good seed viability, and location of taxon on land that is considered secure from threat of clearing
6	Survey potential habitat for translocation	Survey for possible translocation sites is done opportunistically, but very little suitable habitat remains.

3. Have criteria for success been met; if not have criteria for failure been met?

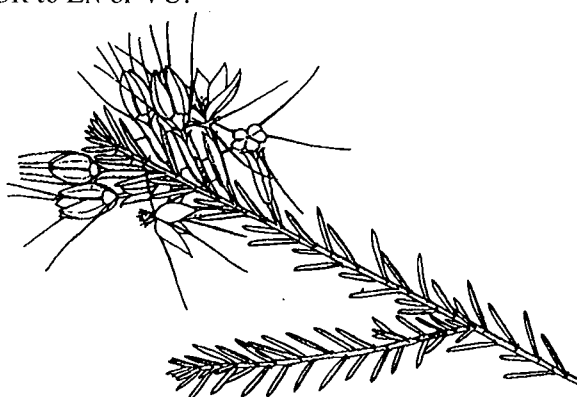
Criterion for success is “Recovery will be deemed a success if threatening processes identified within this IRP have been reduced or removed within a three year period.”

This criterion is considered to have been met, as the threats of weeds and fire have declined. The threat of clearing is greatly reduced as all land on which the taxon occurs is part of the Planning Control Area, and can not be legally cleared. Although only population 1 is now located on land acquired by the Ministry for Planning, other areas will be progressively acquired.

5. Does a new IRP or full Recovery Plan need preparation?

A full Recovery Plan does not seem warranted, as the species is very close to being moved to a category of lower threat. A new IRP should be developed that includes continued acquisition of land on which the taxon occurs, and translocation into an additional secure area as high priority actions. Translocation will overcome the threat of too frequent fire destroying both wild populations, as this is possible given their close proximity.

There will be about 1000 plants on Nature Reserves when the process of reservation of land containing the wild populations is completed, and the combination of the two actions will probably allow the taxon’s status to be changed from CR to EN or VU.



Swamp Starflower
Drawing: Donna Terrington

CONCLUSIONS

A summary of the current IUCN Red List Category, implementation of recovery actions, achievement of success criteria and the need for a full recovery plan is provided in Table 2.

The implementation of the 13 IRPs published in 1997 has progressed well. Of the 13 taxa, seven still meet criteria for ranking as Critically Endangered, four have been moved to Endangered and two have been moved to Vulnerable. No species covered by these IRPs has become extinct, although the status of the Night Parrot is still unknown. None of the taxa has been delisted.

Success Criteria were met for eight of the IRPs and these can be judged a success.

Success criteria were not met for five of the plans:

Night Parrot	No populations discovered
Antina	No populations discovered in WA; however, the species was rediscovered in the Northern Territory
Western Ground Parrot	Loss of area of occupancy due to wildfire
Norseman Pea	The species has continued to decline despite most recovery actions being completed
Stirling Range Dryandra	The species has continued to decline and is threatened by <i>Phytophthora</i> .

Full Recovery Plans are required for five of the taxa: Western Ground Parrot, Red Snakebush, Mogumber Bell, Norseman Pea and Stirling Range Dryandra. The Swamp Starflower requires a new IRP. The Night Parrot will require a full recovery plan if a population is discovered.

ACKNOWLEDGEMENTS

We thank Allan Burbidge for providing information on the implementation of the Western Ground Parrot IRP.

Table 1. Interim Recovery Plans published in 1997

IRP No.	Taxon	Authors	Term	Date approved
4	Night Parrot <i>Pezoporus occidentalis</i>	John Blyth	1996-1998	21 March 1996
5	Antina <i>Zyomys pedunculatus</i>	Andrew Burbidge	1996-1998	1 May 1996
6	Western Ground Parrot <i>Pezoporus wallicus flaviventris</i>	Allan H Burbidge, John Blyth, Alan Danks, Kelly Gillen and Brenda Newbey for the South Coast Threatened Birds Recovery Team	1996-1999	7 May 1997
7	Small-flowered Conostylis <i>Conostylis micrantha</i>	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
8	Red Snakebush <i>Hemiandra gardneri</i>	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
9	Dwarf Rock Wattle <i>Acacia pygmaea</i>	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
10	Mogumber Bell <i>Darwinia carnea</i>	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
11	Norseman Pea <i>Daviesia microcarpa</i>	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
12	Kamballup Dryandra <i>Dryandra ionothocarpa</i>	Kim Kershaw, Emma Holland and Andrew Brown	1996-1999	7 May 1997
13	Stirling Range Dryandra <i>Dryandra montana</i>	Kim Kershaw, Emma Holland and Andrew Brown	1996-1999	7 May 1997
14	Metallic-flowered Eremophila <i>Eremophila veneta</i> ms	Kim Kershaw, Emma Holland and Andrew Brown	1996-1999	7 May 1997
15	Majestic Spider Orchid <i>Caladenia winfieldii</i> ms	Emma Holland, Kim Kershaw and Andrew Brown	1996-1999	7 May 1997
16	Swamp Starflower <i>Calytrix breviseta</i> subsp. <i>breviseta</i>	Kim Kershaw, Emma Holland and Andrew Brown	1996-1999	17 May 1997

Table 2. Summary of status of recovery actions, whether success criteria have been met and need for full recovery plan

IRP No.	Taxon	Status in 1996/97	Status in 2000	Recovery actions implemented?	Recovery actions not implemented	Success criteria met?	Need full RP?
4	<i>Pezoporus occidentalis</i> , Night Parrot	CR	CR	Yes		No, species not located	Only if species is located
5	<i>Zyzomys pedunculatus</i> , Antina (Central Rock-rat)	CR	CR	Yes	Captive breeding (in WA) (captive breeding underway in NT, being considered for WA)	No, however, criteria were based on rediscovery in WA; rediscovery did happen in NT	No. Draft RP prepared by NT, WA on recovery team
6	<i>Pezoporus wallicus flaviventris</i> , Western Ground Parrot	CR	EN	Most high priority actions	Preparation of full Recovery Plan (species changed to EN)	Most met; however criteria for failure also met	Yes
7	<i>Conostylis micrantha</i> , Small-flowered Conostylis	CR	VU	All essential actions implemented (some ongoing), some desirable not implemented	Fencing (not necessary at present) Research (not high priority) Translocation planning (not necessary)	Yes	No
8	<i>Hemiandra gardneri</i> , Red Snakebush	CR	CR	Most	Weed control (weeds not a major threat) Fire management plan (fire not a major threat) Research (not a high priority) Translocation planning (low priority)	Yes	Yes
9	<i>Acacia pygmaea</i> , Dwarf Rock Wattle	CR	EN	Most	Some research Acquire land (new populations found, now unnecessary) Survey for translocation sites (translocation now not a high priority)	Yes	No

IRP No.	Taxon	Status in 1996/97	Status in 2000	Recovery actions implemented?	Recovery actions not implemented	Success criteria met?	Need full RP?
10	<i>Darwinia carnea</i> , Mogumber Bell	CR	CR	Most Translocation carried out, even though not prescribed	Fence pop 5b (pop extinct) Fire management plan (none in Moora District) Weed control (some done, most not required at present) Research (not a high priority)	Partially	Yes
11	<i>Daviesia microcarpa</i> , Norseman Pea	CR	CR	Yes		No	Yes
12	<i>Dryandra ionothocarpa</i> , Kamballup Dryandra	CR	EN	Almost all	Change vesting and purpose of Reserves (City of Albany declined request to change purpose and vesting)	Yes	No
13	<i>Dryandra montana</i> , Stirling Range Dryandra	CR	CR	Almost all	Translocation (unable to locate suitable dieback-free site)	No	Yes
14	<i>Eremophila veneta</i> , Metallic-flowered Eremophila	CR	VU	Almost all	Translocation (low priority due to discovery of additional populations)	Yes	No
15	<i>Caladenia winfieldii</i> ms, Majestic Spider Orchid	CR	EN	Almost all	Translocation (low priority due to discovery of additional population)	Yes	No
16	<i>Calytrix breviseta</i> subsp. <i>breviseta</i> , Swamp Starflower	CR	CR	Most	Land yet to be reserved (work ongoing) Research (not high priority) Translocation planning (but little habitat remains)	Yes	IRP needed