WATSNU

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

The Newsletter of the Western Australian Threatened Species & Communities Unit

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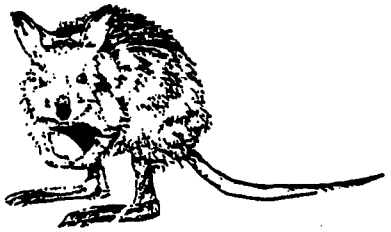
Mala Translocation to Trimouille Island, Mountebellos - by Andrew Burbidge, Don Langford and Phil Fuller

Mala, a Western Desert Aboriginal name for the central Australian subspecies of the rufous hare-wallaby (*Lagorchestes hirsutus*), is now widely used by all Australians for this animal. Mala are 'Extinct in the Wild' under IUCN Red List Criteria.

A recovery team was set up in the early 1990s to coordinate the conservation of the rufous hare-wallaby. In 1995 the recovery team started looking for a predator-free island where a population of mala could be established, as a hedge against extinction. The 'Mammals on Australian islands' database, developed by CALM scientists Ian Abbott and Andrew Burbidge, was used to identify possible introduction sites. This desk-top study identified several islands in Western Australia and South Australia, but after consultation with South Australian authorities, it became clear that the only real possibilities were Trimouille and North West Islands in the Montebello group, off WA's Pilbara coast.

But these islands were infested with black rats (*Rattus rattus*), and feral cats (*Felis catus*) had also been reported on Trimouille in the 1970s. Trimouille Island's environment had been degraded, not only by the rats and cats, but also by two nuclear weapon tests carried out by the British in 1952 and 1956. CALM's *Montebello Renewal* (part of 'Western Shield') was already in the planning stage and would have to be successful before the translocation could take place.



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Phase 1 of *Montebello Renewal* was a major project lasting from late May to early September 1996, involving over 40 people, of whom at least eight were at the Montebellos at one time. Some 11,000 bait stations (plastic bottles with holes cut in their sides) were laid on a 50 m grid over all larger islands, with smaller islands, islets and rocks being treated with plastic bags of bait laid from a helicopter or boat. Over two tonnes of Talon G rodenticide were laid in all, over all the 180 or so islands, islets and rocks in the archipelago. Phase 1 was funded by CALM, the Commonwealth Department of Primary Industry and Energy, and major sponsors who included West Australian Petroleum, Apache Energy, ACI lastics Packaging, Crop Care Australasia, Australian Customs Service, Pilbara Regiment Australian Army, and Selleys Chemical Company. Volunteers were crucial for this labour-intensive project and 24 people, mostly CALM staff, gave up some of their holidays to work at the Montebellos. A visit by CALM Pilbara Region staff in March 1997 cleand up two remaining small pockets of rats.

Monitoring during the winter of 1997 revealed no sign of rats. And the many visits to Trimouille Island during 1994 to 1997 showed that the feral cats had disappeared. So

planning for a mala translocation commenced. PWCNT's Don Langford visited Trimouille and North West Islands with CALM staff in July 1997 and reported back to the recovery team that Trimouille Island provided excellent mala habitat, and that North West Island was only marginally suitable. Sponsor support of the 1997 visit was important, with help being received from the Australian Customs Service, Apache Energy, Mermaid Marine, Woodside Petroleum and West Australian Petroleum. The recovery team decided to go ahead with a translocation to Trimouille and planning for the move, including the preparation of a detailed 'translocation proposal' (TP), as required under CALM policy, commenced. The TP was completed, refereed by independent scientists and approved by CALM and PWCNT. CALM's Animal Ethics Committee, which includes independent scientists and animal welfare experts, also approved the translocation methodology.

The proposed translocation was also discussed with the Aboriginal traditional owners of the area where the mala paddock is located. These people, who have taken a keen interest in the conservation of mala, gave their permission for mala to be moved to Western Australia.

In June 1998, CALM staff Phil Fuller, Peter Speldewinde, Ian Gale and Andrew Burbidge travelled to the Montebellos to clean up the remaining rodenticide from Trimouille Island. Some 160 kg of weathered, rotted bait was picked up from about 2 300 bait stations and destroyed. At the same time, further checks for the presence of rats were made. No rat sign was found. Recent rains had ensured that there was plenty of lush, green mala food and the island was declared 'mala friendly' on 15 June.

Also on 15 June, Don Langford and a team of Parks and Wildlife Commission staff and Aboriginal helpers left for the mala paddock and over the next few nights they captured 20 female and 10 male mala, fitted them with radio-collars and placed them in temporary holding pens.

The team at the mala paddock worked all night on 18 - 19 June. At 4 am on 19 June, the 30 mala were safely installed in hessian bags inside 15 pet packs and driven in four-wheel-drive vehicles for three hours to Willowra airstrip. Here they were loaded into a twin-engine aircraft, which flew them to Karratha, with one refueling stop at the Aboriginal settlement of Kiwirrkurra, in the southern Great Sandy Desert. Reflecting the importance of mala and the translocation to Warlpiri people, several Aboriginal elders were at Willowra airstrip to farewell the mala on the trip to their new home. At Karratha they were transferred to a Bell 'long-ranger' helicopter provided by Apache Energy and flown to Trimouille Island, arriving at 4.40 pm, WA time.

We believe that this was probably the most logistically complicated animal translocation yet undertaken in Australia. Naturally, we were most concerned about the welfare of the animals that were taken from the middle of the Tanami Desert and transported in noisy vehicles, fixed-wing and rotary-wing aircraft. While every care was taken it was with some trepidation that we started opening the pet packs around 7 pm that evening. Much to our relief, all the animals were alive and well, although one appeared a little weak. We had provided fresh lucerne chaff and apples, as well as drinking water, at the release site, and once released, all the mala moved only a few metres and started eating.

Over the next ten days we monitored their dispersal on Trimouille Island. Importantly, we did not have to disturb the mala to know that they were still alive, as the miniature radio transmitters were fitted with a 'mortality circuit' that changes the pulse rate of the transmitter if the collar is not moved for more than 10 hours. Radio-tracking showed that most animals remained within 100 m of the release point. Some moved a short distance away, only to return to the release site an few days later. Three or four more adventurous mala ventured up to 400 m away and one was found 800m from the release point. On 28 June, we finished the first stage of monitoring, knowing that all the translocated mala were alive. Monitoring will continue. The transmitters have a battery life of about 14 months. Further monitoring trips will be made over the coming months. After the batteries fail, monitoring of tracks and scats will provide an indirect method of measuring activity and dispersal.

The 1998 work under *Montebello Renewal* was again a partnership between government agencies and local industry. Environment Australia provided supporting funding for the implementation of the mala recovery plan and CALM and PWCNT carried out the work. Apache Energy sponsored the project by providing staff transport between the Montebellos and Perth and also provided the helicopter that flew the mala from Karratha to Trimouille Island. Faraday Pearls, who operate a pearl farm in the Montebellos, helped the project by transporting people within the Montebello group.

The future is now looking better for mala. In addition to this translocation, 20 mala were flown from the Tanami to Dryandra in April 1998, where they will be captive-bred to provide stock for future translocations to fox-controlled conservation lands in the south west and at Shark Bay.

IDENTIFYING AND CONSERVING THREATENED ECOLOGICAL COMMUNITIES IN THE WHEATBELT - Sheila Hamilton-Brown

A new 3-year project, funded by Environment Australia's National Bushcare and Endangered Species Program, has been set up to identify and help promote the conservation of biological diversity in the agricultural areas (ie. Wheatbelt) of south-west WA. The designated area for study correspond with that of the biological survey carried out in the Salinity Action Plan - central, northern and southern Wheatbelt.

In the initial stages of the project, letters introducing the project and seeking the assistance in identifying possible threatened ecological communities were sent to academics, CALM staff, Landcare Conservation District Committee groups (including Community Landcare Coordinators), Agriculture WA, naturalist groups and specific landholders in the central Wheatbelt. The response was very positive and an interim list of a number of possible threatened ecological communities in the central Wheatbelt has been made. Several field trips have also been undertaken to assess some of these communities, which include freshwater wetlands, saline wetlands, heathlands and woodlands.

A Scientific Advisory Committee, whose role is to assign conservation categories to the threatened ecological communities, has been formed and has met once. It is envisaged that three communities from this project will be put forward for assessment at the second meeting in September. Unfortunately, it looks like one of these will be assigned the category "presumed totally destroyed".

Plenty of publicity has been planned for this project as it is envisaged that a number of landholders will have threatened ecological communities on their properties. This includes several articles in naturalist publications and a brochure for display in CALM, Agriculture WA, Landcare and Shire offices and for follow up to LCDCs, naturalists groups and landholders. As well, a Threatened Ecological Communities display for the Dowerin Field Day in August 1998 has been organised. This is being done in conjunction with other organisations, such as Land for Wildlife, Roadside Conservation Committee and Greening Western Australia. The theme is to highlight community and government agencies participation in conserving threatened ecological communities, using the actions being carried out on Toolibin Lake as an example.

Sheila Hamilton-Brown graduated from the University of Western Australia with a Bachelor of Science degree in Botany and Zoology and Honours in Plant/fire ecology in the karri forests. Since graduating, she has worked in various fields, including assessing the economic benefits of Wheatbelt Acacias, and was co-author of a book on edible wattles of southern Australia. Prior to working in WATSCU, she was Research Assistant in an agricultural company investigating new kinds of compost-based fertilisers.

WATSNU IN FLORA

Watsnu with people.....

We have two new members joining our WATSCU flora team - ***Robyn Phillimore and Rebecca Evans.*** Robyn, previously employed with the Agricultural Protection Board and the Department of Environmental Protection, has a biological background and is currently completing her masters in Environmental Management. Rebecca has a Horticulture degree and has 5 years technical and research experience with Agriculture WA. Both will be working with us initially for one year, however this is likely to be ongoing.

Robyn Phillimore has taken over Leonie Monks' position and is responsible for coordinating the implementation of Interim Recovery Plans (IRPs) for Critically Endangered (CR) flora.

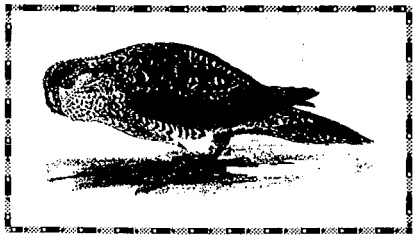
Rebecca Evans has joined Gillian Stack in writing and preparing these IRPs. The responsibility for writing these plans has been divided broadly by District. Rebecca is preparing IRPs for CR flora in the Merredin, Albany, Geraldton and Perth Districts, while Gillian is responsible for CR flora in the Narrogin, Katanning, Mundaring, Mornington, South West Capes and Esperance Districts. CR flora in the Moora District have been divided between Rebecca and Gillian.

Gillian Stack has been further refining IRPs, with many now in advanced draft and ready to be sent out for comments. Gillian is working on a total of 39 CR flora. This number includes six taxa which, through research and recovery actions undertaken by WATSCU and other CALM staff, are no longer regarded as CR. These will be written up into a *Summary of Findings* rather than an IRP. A field work program has been planned to gather necessary

been sufficient searches by experienced ornithologists, all unsuccessful, over the years to suggest that the species is extremely uncommon.

On the other hand, the existence of places such as Meentheena, without foxes, containing small but significant areas of mature, vigorous spinifex, as well as apparently abundant water and food resources, suggests the likelihood of small numbers of Night Parrots being able to survive throughout their original range. The continuing survival on Meentheena of good numbers of other ground dwelling species that are rare or absent in much of the pastoral region is also significant. We see no reason to doubt the validity of the sightings of the previous leasee of Meentheena. The station is now managed by CALM, and the possibility of eventually finding Night Parrots here or in other places where sympathetic management is practised remains real.

The Night Parrot is recognised in Western Australia as Critically Endangered and we believe that this remains the appropriate status for the species.



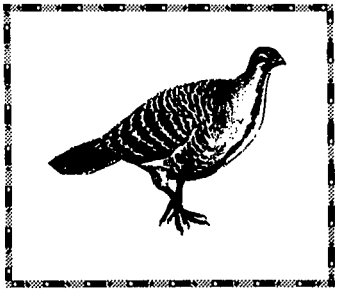
Malleefowl Update - by John Blyth

The conservation of the vulnerable Malleefowl (*Leipoa ocellata*) in Western Australia will receive a major boost this year with the conduct of a six months Greencorps project. World Wide Fund for Nature was the proponent of this project and five other community groups and CALM are providing support.

The new project is to establish a total of ten permanent monitoring grids throughout the southwest, in places where Malleefowl are known to occur and breed, and to count and record the nests within those grids now. The areas in each of which two grids will be established are around Ongerup, Wubin-Dalwallinu, Kalgoorlie and West Morawa and at Lake Magenta Nature Reserve.

This step is a primary task identified in the draft national recovery plan. The grids will allow periodic, systematic appraisal of the numbers of Malleefowl breeding in particular areas. Thus, the overall status of Malleefowl can be determined more easily and reliably, any changes in local breeding activity can be measured and if necessary ameliorative actions begun. Further it will allow us to build up a picture of the response of local populations of Malleefowl to specific management actions.

Most of the recovery actions remain in the hands of landholders and local community groups. For this reason, establishing permanent monitoring grids, and assessing the current amount of breeding activity as a baseline against which to measure future changes, is especially important. In future years it will be a relatively simple matter to find nests recorded during this project and check their status. Because most Malleefowl use the same nesting mound for several years, a significant reduction in the number of known nests remaining active would be a cause for concern and suggest the need for a thorough search of the grid. That task also will be very much easier with the permanent grid in place, and may be possible on a regular basis.



Another recent development is the unanimous decision by members of the WA Malleefowl Recovery Group to change its name to the WA Malleefowl Network. The new title reflects more accurately the informal and cooperative nature of Malleefowl conservation activities in this State, and removes confusion with the national Malleefowl Recovery Team.

A New Project on Threatened Ecological Communities; Investigations Throughout WA - Val English

A new project on threatened ecological communities was begun in March 1998, with funds from Environment Australia's National Reserve System program. Methods of identifying threatened communities were developed and applied to the south west of the state in an initial project, also funded by Environment Australia, that was begun in 1994. These methods are now being applied to ecological communities outside the south west of the state, particularly the pastoral and mining areas.

Land Conservation District Committees, Agriculture WA, pastoralists, scientists, conservation groups, the Department of Minerals and Energy, the Chamber of Mines, Aboriginal Communities, and mining companies have been informed about the project. All of those approached were also asked if they had any information about communities that may be threatened.

Many potentially threatened communities have been named in reports, or were mentioned by the groups listed above. Field studies and advice from people with information about particular communities will provide enough information to determine the level of threat to many of these.

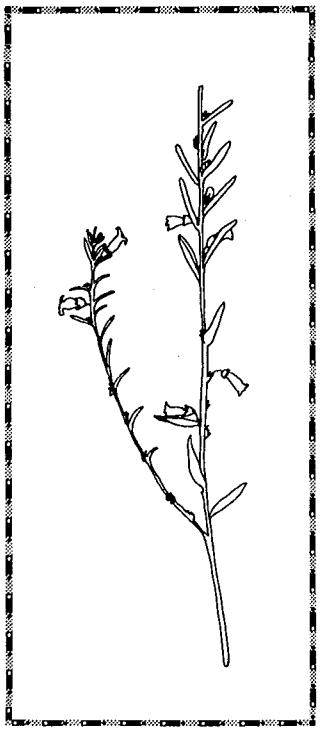
A new scientific advisory committee has been formed to provide advice about the project and threatened ecological communities in general. They are using methods that were developed during the initial project to determine the level of threat to communities, and they also provide advice on future management of threatened communities. The group includes people from a variety of organisations that have expertise in a broad range of community types. These include vegetation, invertebrate communities, marine assemblages, microbial communities, wetland assemblages, and communities of vertebrate fauna.

Two communities of cave fauna in the Cape Range area have already been determined to be critically endangered by the advisory committee. As a result, Interim Recovery Plans that identify the emergency management steps and sources of funds to sustain these communities into the future will now be developed.

The project is expected to be completed in three years, and will rely on future funding support from Environment Australia. Within this time, the aim is to identify the most threatened ecological communities throughout the state, and put in place mechanisms to ensure they are sustainably managed.

Narrogin District Threatened Flora Recovery Team

The Narrogin District Threatened Flora Recovery Team (which now incorporates *Grevillea scapigera*) met for the first time on Wednesday 22 July. The meeting was chaired by Greg Durell and held at the Bruce Rock Shire Hall. Many topics pertaining to threatened flora management were discussed.



Symonanthus bancroftii

Symonanthus bancroftii - update

- Gillian Stack

This species is known from a single female plant near Bruce Rock. It is a low shrub with white and violet flowers, from the same family as tobacco. It has been collected very few times, and not at all between 1964 and 1997. Bruce Rock LCDC sought and won a grant from WWF Australia to conduct searches for this species (see December 1997 edition of *WATSNU*). The first of these was conducted in September 1997, and the second was on 25 and 26 July 1998. We will keep you posted about the results!

Report on Recovery Teams for threatened ecological communties

There are currently five critically endangered ecological communities for which recovery planning and actions are being overseen by a recovery team. For most of these teams, the last six months has largely been spent putting the finishing touches to the draft Interim Recovery Plans, with routine management activities being conducted by CALM operations staff. This applies particularly to the three communities, 'sedgelands in Holocene dune swales', 'thrombolites of Lake Richmond' and 'montane thicket and heath of the eastern Stirling Range'.

However, the last six months have been more eventful for the recovery teams for Toolibin Lake and the Yanchep caves community and brief reports are provided below.

Toolibin Lake

Implementation of the Toolibin Lake Recovery Plan, which has been proceeding since 1994, is now receiving major funding from the State Salinity Action Plan as well as from Environment Australia. The Toolibin catchment is recognised as a Recovery Catchment for Natural Diversity. In the last year efforts under the Toolibin Lake Recovery Plan have concentrated on six major activities, discussed briefly below.

Groundwater pumping began in March 1997, in order to create sufficient draw-down to prevent saline groundwater from entering the root zone of lake bed vegetation. Considerable effort was required to resolve developmental problems after pumping began, but all eight pumps are now fully operational. Some issues are currently being investigated, such as determining a long-term solution to silt accumulation, and the build up of iron-producing bacteria, in the pumps and transfer system.

A model of the groundwater pumping system is currently being constructed in order to reproduce the observed behaviour of the lake and groundwater system. This model will be used to assess groundwater response to pumping under different conditions in order to ensure that operational targets are met.

The Toolibin Alley Farming Trial was expanded to include two trial sites involving *Melaleuca* species. Growth at these sites has been very good, with species such as *Melaleuca strobophylla*, which is found on the bed of Toolibin Lake, growing well. Infill of these sites is occurring in 1998 and further trials will continue in 1999. This is part of an important program to develop local species that are commercially prospective, and that meet biodiversity and land conservation needs.

Well-planned and executed revegetation and remnant protection programs continued in the catchment funded by individual landholders and external Grants. Revegetation has also been initiated at Toolibin Lake by CALM with the diversion channel being planted with *Casuarina obesa* and the western lake edge with *Eucalyptus loxophleba* and *Melaleuca uncinata*.

Drainage works for West Toolibin were completed in 1995 and this is now being followed by a drainage program for North East Toolibin. An area of private property and Dulbinning Nature Reserve are currently being surveyed in order to direct drainage works along natural drainage lines. This will have the dual purpose of alleviating waterlogging of agricultural lands and preventing saline runoff from entering the lake.,

The Monitoring Design and Data Analysis Report, completed in December 1996, has continued to guide monitoring requirements. A contract for terrestrial and lake bed vegetation monitoring is currently being implemented, as is an upgrade to the monitoring of surface water inflow.

In the meantime the completed bund and separator are ensuring that only surface water of appropriately high quality reach the lake floor, and that the lake level can be modified if required.

Yanchep Caves

The threatened ecological community known from five caves consists of invertebrates (animals without backbones) and a variety of micro-organisms living among aquatic mats of fine roots of tuart (*Eucalyptus gomphocephala*). This remarkable community includes animals that were widespread on the southern supercontinent Gondwana, of which Australia was a part, about 100 million years ago. These cave dwellers cannot survive drying and water levels in some caves have been declining since the early 1990s.

In March 1996, one of the six cave streams containing this community dried completely. Some animals did not recolonise the cave when the flow returned in September 1996, and were lost forever.

In February 1998, recovery team member Edyta Jasinska found that another two caves containing the root mat community were nearly dry. Urgent discus-

sions between recovery team members and officers of CALM's Perth District were held to design and begin emergency actions to prevent the loss of these two occurrences of the root mat community. Lined pools were installed under the root mats and filled with water from small wells dug to the groundwater in each streambed. The root mats took up water so rapidly that it was necessary for the pools to be topped up twice daily.

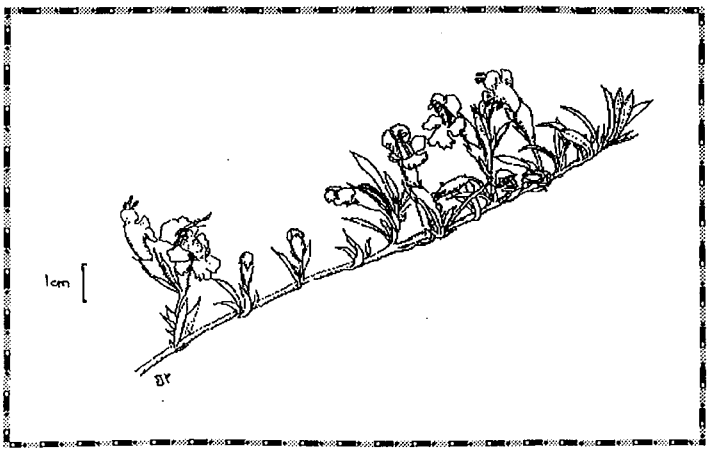
To overcome this problem an ingenious, low-cost pumping system was designed by CALM Yanchep mechanic, Richard Lorkiewicz, and established within each of the two caves. The battery-driven system is very successful. The caves are checked briefly once a day to ensure everything is operating and the batteries recharged once a week. Three other cave streams supporting the root mat community still continue to flow naturally.

The Recovery Team is designing a longer-term strategy to prevent the loss of cave waters at Yanchep. This includes thinning the nearby Pinjar Pine Plantation, and monitoring and managing nearby public and private groundwater abstraction. Some of this longer-term action has commenced with Softwood Business Unit modifying logging plans to commence thinning in the catchment area for the Yanchep cave streams. Meanwhile, the Recovery Team is confident that the cooperative emergency actions can prevent further losses of the root mat community in the Yanchep caves.

Critically Endangered Flora Posters

Thirteen posters illustrating species of Western Australia's Critically Endangered flora have now been printed. It is hoped to eventually cover all 95 CR flora in this way. These posters contain essential information needed to recognise each particular species. Information contained in the posters includes notes on distribution, habitat, flowering time, threats and what is being done to save each species, as well as the contact number should you have any information. The following posters are recently be produced and a further sixteen will be printed as soon as approval has been granted.

FULL NAME	COMMON NAME	CALM DISTRICT
Caladenia busselliana ms	Bussell's Spider Orchid	South West Capes
Caladenia viridescens	Dunsborough Spider Orchid	South West Capes
Calytrix breviseta subsp. *breviseta*	Starflower	Perth
Chamelaucium sp. Gingin	Gingin Wax	Perth and Mundaring
Conostylis micrantha	Small-flowered Conostylis	Geraldton
Daviesia microcarpa	Norseman Pea	Esperance
Eremophila nivea	Silky Eremophila	Moora
Eucalyptus phylacis	Meelup Mallee	South West Capes
Grevillea maccutcheonii	McCutcheon's Grevillea	South West Capes
Hemiandra gardneri	Red Snakebush	Moora
Hemiandra sp. *Watheroo*	Colourful Snakebush	Moora
Lambertia echinata subsp. *echinata*	Prickly Honeysuckle	Esperance
Lambertia echinata subsp. *occidentalis*	Western Prickly Honeysuckle	South West Capes



Hemiandra gardneri

1997 RECOVERY TEAM ANNUAL REPORTS

Annual Reports of the 1997 Recovery Teams have been submitted to CALM's Corporate Executive and, where Commonwealth funding is provided, to Environment Australia.
Summaries of these reports are reproduced below:

Albany District Threatened Flora Recovery Team

by Ellen Hickman

The Albany District Threatened Flora Recovery Team continues to review the management actions arising from the management plan for the Declared Rare and Poorly Known Flora in the Albany District, and the Interim Recovery Plans (most in preparation). Three years into the project there have been a number of changes to the threatened flora lists, however the main threats to the flora continue to be *Phytophthora* dieback which is managed by the Phosphite Spray Program and the lack of survey accounting for small numbers of populations. The infestation of weeds is also becoming a more prominent issue and progress was made this year to alleviate some of these problems.

The Phosphite Spray Program was very demanding during 1997, with preliminary field work, implementation and follow-up monitoring and survey for appropriate spray sites for the 1998 program. This has meant the majority of the work in 1997 evolved around the management of the Critically Endangered species. However it also provided opportunities for surveys for other species, which was very successful. The small involvement with weed management during 1997 looks like increasing in 1998 as this becomes a more prominent issue in the District.

Central Forest Region Threatened Flora Recovery Team

by Kim Williams

The Central Forest Region Threatened Flora Management Plan and its associated team has undergone some major changes in 1997 which should facilitate completion of the plan by mid 1998. Foremost has been the termination of the contract with "Ecologia" and a commitment by the Region to resource completion of the plan by local CALM staff. The updating of the plan with 1997 data, the review and enumeration of the species population data, the circulation of the species information for comment and the completion of the species distribution maps have all been achieved in the last half of 1997.

A restructuring of the team and incorporation into the Central Forest Region (CFR) Threatened Flora and Communities Team will facilitate a more integrated approach to threatened flora and communities management across the Region and serves to bring all operational and research staff with flora/communities conservation responsibilities into one forum.

Threatened Flora Management Plan Project Officer and Chair, Scott Wood, resigned from the team in late 1997 to take up a position with the Softwood Business Unit of CALM. The team thanks Scott for the work and effort that he contributed to the project over the last three years to bring it to its current state. Regional Nature Conservation Program Leader: Kim Williams has assumed primary responsibility for the project and will be assisted by Wildlife Officer Andrew Horan. A target completion date for the project has been set at June 30, 1998.

Chuditch Recovery Team

by Keith Morris and Brent Johnson

This is the sixth year of implementation of the Chuditch Recovery Plan. During the year financial support continued from Environment Australia's Endangered Species Program, CALM, Perth Zoo and Department of Defence. Studies into the impact of prescribed burning regimes and timber harvesting on Chuditch and other threatened mammals continued in the jarrah forest of south west WA. All impact treatments suggest that none of these disturbances have had a detrimental impact on Chuditch abundance or condition. Population monitoring continued at Mundaring, Batalling and Kingston as well as at several sites in the northern jarrah forest as part of the research associated with Operation Foxglove. The captive breeding program continued successfully at the Perth Zoo and 53 young were weaned during the year. Monitoring of the reintroduced populations at Julimar and Lake Magenta continued. The 1996 translocation to Lake Magenta has been successful and preparation for a further reintroduction to Cape Arid Natural Park is well advanced.

Corrigin Grevillea Recovery Plan

by IR Dixon (Kings Park & Botanic Garden)

Progress continued on the main components of the *Grevillea scapigera* recovery process. It is now in its 3rd year of the recovery plan and funds have continued from Environment Australia's Endangered Species Program.

Work carried out included:

- Population enhancement: which included translocation of *Grevillea scapigera* undertaken at two sites in late June 1997;
- Habitat enhancement: - Fencing has become an important component in the recovery of rare species. This was carried out by volunteers members of the local community;
- Monitoring of extant and newly created populations: monitoring of translocated and extant populations has been coordinated through the recovery team and is currently being carried out in conjunction with trained members of the Corrigin LCDC;
- Research: - includes genetic variability, biology, seed biology and recruitment of seed;
- Long term conservation and ex situ conservation; and
- Public education and creation of Phytosanitary Guidelines

Dibbler Recovery Team

by Tony Start

The Threatened Species and Communities Section of Environment Australia (EA) has financially supported a three-year Research Plan conducted by the Western Australian Department of Conservation and Land Management. The project commenced in early 1995 and finished in December 1997. It aimed to learn enough about dibblers to plan a recovery program. The dibbler proved to be a difficult species to study. Nevertheless, by reviewing and adapting the focus of the project each year, sufficient has been learned to allow an Interim Recovery Plan (IRP) to be written.

Two substantial, recent documents have recorded our knowledge of dibblers and progress with the project.

- *The 1996 Annual Report.* Because the focus of work shifted from mainland to island populations in 1997, the 1996 annual report (Baczocha and Start 1997) was prepared as a comprehensive account of our knowledge of dibblers to that time. Apart from some additional mainland location records little has been learned of mainland dibblers since then and that report remains an up-to-date report on the activities of the Research Plan implementation on the mainland. .
- *The Project Review.* In September 1997, at the request of EA and in accordance with a format provided by EA, the Recovery Team prepared a detailed review of the project, including progress with all actions over the three years (Start 1997).

Djoongari Recovery Team

by Peter Speldewinde and Keith Morris

This report documents the sixth year of implementation of the Djoongari (Shark Bay Mouse) recovery plan. Financial support continues from Environment Australia's Endangered Species Program, CALM and the Perth Zoo. The Bernier Island population was monitored twice and is maintaining distribution and abundance. The Doole Island population was monitored twice and the population seems to be recovering from its previous low numbers. A restocking of Doole Island with captive bred animals was carried out in June 1997. Heirisson Prong was monitored once with no Djoongari being captured over 1000 trap nights. The captive colony at Perth Zoo currently stands at 73 individuals.

Geocrinia Recovery Team

by Kim Williams

1997 was a year of highs and lows for the Geocrinia Recovery Team. Major achievements included:

- the discovery of seven new populations of *Geocrinia alba*
- consolidation of the population monitoring program by CALM district operational staff
- the agreement for the construction of another 4 500 m of conservation fencing on private property; and
- the further distribution of Frog Recovery Kits to landholders.

Disappointments during the year included:

- a fire entering the exclusion zone in the Spearwood Creek area, burning approximately 80% of the available habitat in this system; and three out of a total eight *G. vitellina* populations
- wildfires burning two *G. alba* sites; and
- failure to secure NHT funding to purchase part of Location 83 and secure the *G. alba* populations on this site in a formal conservation reserve.

Major goals for 1998 will be:

1) Completion of the conservation fencing on location 2718.

2) Continuation the population and fire ecology monitoring programs.

3) Enhancing the pig control program with particular attention given to the *G. vitellina* sites.

4) Review the pre and post fire management strategies of all sites.

5) Prepare operational guidelines for field translocation techniques

6) Continue with implementation of the communications plan.

Geraldton District Threatened Flora Recovery Team

by Susan Patrick

There have been two meetings of the Recovery team during the year and members have continued to contribute to survey work.

23 days of fieldwork have resulted in survey of 43 populations, including 13 of threatened taxa.

The final Plan is now written apart from accounts for 155 of the Poorly known taxa.

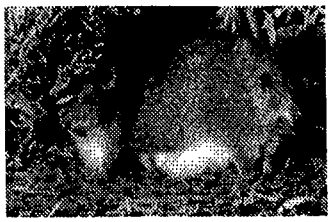
Gilbert's Potoroo Recovery Team

by Jackie Courtenay

Management of threats to Gilbert's Potoroo (fire and feral predators) was continued under the Two Peoples Bay Management Plan and the Noisy Scrub-bird Recovery Plan. Surveys for dieback infected areas were also continued by Alan Danks and Mal Grant. A slashed low fuel buffer was established around the Potoroo captive breeding facility, and a compacted gravel strip established around the immediate perimeter of the pens as part of a mouse barrier acts as a further fuel free buffer.

Extensive hair tube surveys were conducted on Mt Manypeaks and the Tick Flat area of Mt Gardner, and several other areas of Mt Gardner were also surveyed using this method. One Potoroo hair was obtained from Mt Manypeaks. Probable Potoroo scats were found in the West 6 area of Mt Gardner and a trap line established in late 1997 although no Potoroos have yet been captured. Trapping was repeated at a number of sites where Potoroos had previously been caught. A new juvenile female was caught at East Firebreak, and an aged male was caught at Hakea. Trapping at other sites (new and "known") failed to either recapture known animals, or find any new populations.

Reproduction in the captive colony has been limited to one breeding pair who produced two young in 1997. Other females



had access to males but did not conceive. Two animals (an old female and her unweaned young) died in early 1997 so the total number of animals in the colony remained unchanged at 12 (plus one pouch young). Low light cameras and video system have been obtained enabling four cages to be monitored simultaneously. A detailed study of reproductive behaviour was conducted by an Edith Cowan University Honours student and results are expected in the near future. The slow rate of breeding in the captive colony has highlighted the urgent need for studies of diet and social structure of the wild populations, as well as investigations of reproductive status of the captives.

Genetic studies using microsatellite markers has been completed by Elizabeth Sinclair. Further genetic work using mtDNA would be desirable to better understand the population structure and the extent of any bottleneck that has occurred.

Matchstick Banksia Recovery Team

by Greg Durell

Funding from the Commonwealth Government's Endangered Species Program continued in 1997, allowing for the implementation of recovery strategies for the long term protection of eleven populations of the Matchstick Banksia *(Banksia cuneata)*.

Implementing the following recovery actions continued in 1997:

- Acquire land for conservation of *B. cuneata*. Partially completed.
- Maintain rabbit proof fencing on major populations. Ongoing.
- Rabbit control baiting programmes on all populations. Ongoing.
- Control salinity on populations at threat. Ongoing.
- Improve the habitat of populations. Ongoing.
- Collect seed for permanent storage. Completed.
- Monitor and survey populations. Completed with report 1997.
- Research Pollination Biology Completed with report 1997.
- Seedling planting. Ongoing. As per species Translocation Proposal.

In 1998, it is proposed to continue recovery of the species by:

- holding a Recovery Team meetings in February 1998,
- continue with land acquisition,
- monitor and implement the rabbit eradication programme by 1080 trails , *Phostoxin*, and warren destruction,
- monitor the effect of high water usage trees at Lazeaway (Pingelly 1) to control rising ground water level,
- enhance population 1,5,8 and 10. Carry out seedling planting of *B cuneata* and scrub species,
- enhance populations as described in the *Draft "Translocation proposal for Banksia cuneata"*,
- monitoring of populations. Assess recruitment or population decline in all populations,
- monitor and report of the 1995 establishment of seedlings at Stacey's property,
- complete one media release concerning the recovery programme of *B. cuneata*,
- investigate strategies to prevent further decline at Simpson's (Quairading 4), and
- erect fencing, map and collect seed from the new population at Harrismith (population number 12).

Merredin District Threatened Flora Recovery Team

by Alex Agafonoff, Paul Roberts and Mike Fitzgerald

- Effective liaison and education saw *Drakonorchis drakeoides* populations 4 and 5 and all populations *Grevillea pythara* being protected by fencing.
- Successful application for a *Landscope* Conservation Visa Card grant was made to rehabilitate a gravel pit in Elphin

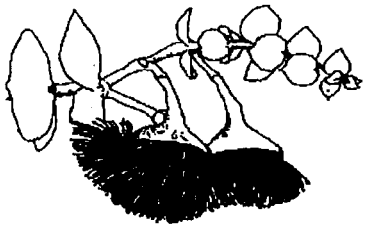
Nature Reserve as part of the management of *Daviesia euphorbioides.*

- Seeds were collected from many critically threatened taxa for storage at CALM's Threatened Flora Seed Centre.
- A new population of *Myriophyllum lapidicola* discovered.
- A detailed fire control plan was developed for the Wongan Hills area. This package will provide information to local fire control officers, enabling them to minimise the impact of fire suppression activities on threatened flora populations.
- Several species from the CALM priority list have had their conservation status assessed and will be recommended for Declared Rare Flora status.
- Experimental protection of *Tetratheca deltoidea* from grazing has established grazing is seriously effecting this taxon.
- Students at Wyalkatchem High School are planning a Wheatbelt flora garden for the town. This garden will include some of the DRF and Priority species from the local area.
- Interim Recovery Plan (IRP) implementation has progressed well this year with important actions being completed for some of the most threatened taxa in the District. Some actions for the more secure taxa have not yet been fully actioned. These will be addressed during 1998.
- Landholders and local Shires have been very helpful, providing essential support for implementation of several IRP actions.
- CALM's adoption of the IUCN Red list criteria for assessing conservation status has resulted in the District's number of critically threatened taxa more than doubling.

Moora District Threatened Flora Recovery Team

by Rebecca Wolstenholm

The Moora District Conservation Officer has completed her



second year. The role of the Conservation Officer is to implement the management program for declared rare and poorly known flora in the Moora District. It is a two-year program Federally funded by the Environment Australia, with the objective to ensure the continued survival of endangered populations in the wild through appropriate management. The Moora Threatened Flora Recovery Team has been formed, and team meetings held.

The Wildlife Management Program is undergoing final edit before Ministerial endorsement. This will be published in the near future.

Interim Recovery Plans (IRPs) have been published for three of the Critically Endangered species in the Moora District. A further fourteen IRPs are in draft stage. Recovery actions recommended in the IRPs Critically Endangered species are either completed or are in the process of being carried out. A further seven species are having preliminary research carried out on them prior to having IRPs written up for each. In total the CALM Moora District has twenty-four proposed Critically Endangered plant taxa.

A number of Priority plant species in the District have been surveyed this year to update their conservation status.

Narrogin District Threatened Flora Recovery Team

by Greg Durell

Funding from the Commonwealth Government's Endangered Species Program commenced in 1996, allowing for the implementation of recovery strategies for the long term protection of two critically endangered taxa, determining recovery strategies for two endangered taxa, and evaluating nine threatened or poorly surveyed taxa in the Narrogin District. These recovery actions were completed in early 1997 (Final Report May 1997).

$44,200 was approved by Environment Australia in 1997 to provide 12 months further funding to continue implementing recovery actions described in the draft *"Declared Rare and Poorly Known Flora in the Narrogin District Plan"*, Interim Recovery Plans and Recovery Plans.

Currently seven species within the district are ranked as critically endangered , 14 as endangered, and eight as vulnerable.

A recovery team was approved by CALM with the inaugural meeting planned in February 1998.

A 12 month, full time Assistant Conservation Officer position, to be based at CALM's Narrogin District, commenced in mid November 1997.

Noisy Scrub-bird Recovery Team

by Alan Danks

During 1997, management of Two Peoples Bay Nature Reserve continued under the guidelines provided by the Management Plan. An estimated 43 722 people visited the Reserve during the year and construction of the new Two Peoples Bay Visitor Centre was completed in November. Displays are currently being prepared. Regular fox baiting within the Reserve and adjoining crown land was carried out as usual. Importantly, there were no significant wildfires within the Reserve during 1997. In December, lightning started a fire on the northern side of Mt Manypeaks which was of concern because of its potential to affect the largest scrub-bird population. Fortunately this fire was contained within a small area.

The most significant event of 1997 was the return of Noisy Scrub-birds to the Darling Range after an absence of 150 years. Surveys for potential release sites in the Darling Range were com-

pleted in early 1997 and, after discussions on fire management with CALM Officers from the relevant Districts, three sites north of Harvey Weir were identified as suitable release sites. Two of these were chosen as release sites for 1997, one of them within ALCOA's Willowdale bauxite mining area. In total 13 males from the Mt Gardner area were released at the two sites in the Darling Range. Thanks to the generous support of ALCOA, the six males released at the Willowdale site were fitted with radio-transmitters and their movements within the release site monitored on a daily basis for several weeks by a team of trackers. Some interesting data on post-release behaviour was obtained. By November, four males could be heard at the Willowdale site. At the Upper Harvey site only one male was regularly singing in the release area.

In the Albany Management Zone, a total of 590 singing males were either counted or estimated (a calculated estimate was made for the Mt Manypeaks area). On Bald Island, where scrub-birds were released between 1992 and 1994, there is evidence that breeding is occurring. However, the small population which survived the wildfire on Mt Taylor in 1994, now appears to have been lost - possibly due to the effects of two very dry years. The population index on Mt Gardner was also down on the previous year. On the other hand, growth in numbers of singing males continued on Mt Manypeaks where 322 singing males were estimated to be present in 1997. The mainland population now appears virtually continuous from Mt Gardner to Mermaid Point near Cheynes Beach

Numbat Recovery Team
by Tony Friend

The Numbat Recovery Program aims to maintain the three numbat populations judged in 1994 to be self-sustaining and to increase the number of self-sustaining populations to at least nine, by reintroduction to former habitat. The three existing populations are at Dryandra, Woodland, Perup Nature Reserve/Kingston State Forest and

Boyagin Nature Reserve and these are monitored annually. Population numbers at Boyagin and Perup Kingston remained unchanged from 1996 levels, but numbers at Dryandra have continued to decline. Intensive monitoring of radio-collared animals at Dryandra did not reveal unusually sources of mortality however. This is a major cause for concern, as the Dryandra population has been the chief source of animals for translocation. Consequently two of the three translocations planned for 1997 were not carried out.

Monitoring of radio-collard animals at reintroduction sites at Tutanning, Batalling, Dragon Rocks, the northern jarrah forest, Yookamurra and Karakamia continued in 1997. High rates of survival and reproduction at Dragon Rocks indicate successful population establishment there. The results of a driven survey at Tutanning, indicated an increase in the population in this small area. At Batalling, a diggings survey showed that the reintroduced population there is still quite small, but that the most favoured habitat is wandoo woodland near the eastern margin of the forest.

The most recent new translocation, to Dale Conservation Park in the northern jarrah forest, met with limited success as the animals dispersed widely from the release site and most were not located, although survival amongst the few animals was high. A new release site, in an area dominated by wandoo rather than jarrah, was used in 1997 for the second release.

Eight young were produced in the captive colony at Perth Zoo during 1997. A new captive breeding research program has commenced there in an effort to solve problems that prevent breeding in some years.

Funding continued from the Endangered Species Program and a review of the progress of the implementation of the Numbat recovery plan was carried out in October 1997 as required and submitted to Environment Australia for assessment.

Rulingia sp. (Trigwell Bridge) Recovery Team
by Bob Fitzgerald

The major achievement for 1997 has been the translocation of 43 *Rulingia* sp. seedlings propagated by Kings Park and Botanic Garden which were planted on the 22-23rd of September in 4 plots, distributed over three sites.

Plot 1 is situated on private property at the existing *Rulingia* sp. location, plots 2, 3 and 4 were established on Trigwell Nature Reserve, a CALM managed conservation reserve approximately three km to the west. Various planting strategies and techniques are being trialed to determine appropriate and efficient establishment procedures to maximise success rates for future translocations of this species. Variables being accessed include topography, vegetation associations, soil composition, plant spacing, watering regimes and fencing techniques. It is hoped this combination will assist the team in gaining knowledge about the growth of this species and it's site tolerances/requirements.

To date, three months after the initial planting, all translocated plants at all sites are extant, with the majority of individuals having increased in height by some 12 % (range 45.5% - 0%). There have been no grazing impacts, either mammal or insect, and the watering systems are all functioning reliably.

Kings Park and Botanic Garden have been approached to undertake the propagation of approximately 200 seedlings and new sites are now being surveyed for these additional plants

The next phase of the project

will be to monitor the translocates survival over the summer months and determine which techniques will be applied to the next round of translocations in mid 1998.

**Note the translocation of an additional 200 seedlings was approved in July 1998*

Toolibin Lake Recovery Team
by Ken Wallace

During 1997 efforts have concentrated on four major activities:

- Continued work on the groundwater pumping program. There were a number of development issues, however, groundwater pumping began in March 1997. Considerable effort was required to resolve developmental problems after pumping began, such as excessive air in the pumpline running to the surge tank and silt build up from the bores to the transfer pump and tank. This developmental work will continue in 1998.
- The Toolibin Alley Farming Trial was expanded to include two trial sites involving *Melaleuca* spp. Establishment of seedlings was poor - due to a combination of inadequate seedling quality, site establishment and weather conditions. Infill and further trials will continue in 1998. This is part of an important program to develop local species which are commercially prospective, and which meet biodiversity and land conservation needs.
- The Monitoring Design and Data Analysis Report, completed in December 1996, was circulated.
- Well planned and executed revegetation and remnant protection programs continued in the catchment funded by individual landholders, Alcoa, and Natural Heritage Trust Grants.

Western Ringtail Possum Recovery Team
by Andrew Burbidge

The preparation of an Interim Recovery Plan (IRP) for the Western Ringtail continued during the year, with a further draft being circulated among Team members and amendments suggested by Team members being incorporated. The Team had planned to complete the IRP during 1997 but other work took priority.

A Translocation Proposal for the Western Ringtail was approved in October 1997. This involved animals from the east Busselton Primary School site that were released in Yalgorup National Park. Research work has confirmed that a viable population has established in Yalgorup National Park following translocations over the past few years.

Populations have been found in peppermint habitat on the Harvey River, near Collie, and in the Porongurup National Park. The Harvey River population is the northernmost known extant natural population.

Western Swamp Tortoise Recovery Team
by Andrew Burbidge

It is a pleasure to report that during the past year there has been continuing progress towards implementing the actions contained in the Western Swamp Tortoise Recovery Plan and that implementation continues to be on schedule. Highlights of the year included:

- Monitoring of the population at Ellen Brook Nature Reserve continues to suggest a gradual increase in the number of tortoises over the past decade, but most of these are juvenile animals. The increase has been sustained since the fox-proof fence was constructed around the tortoise habitat in the reserve in 1990.
- Perth Zoo currently holds 163 tortoises comprising 11 pairs of breeding adults and 141 juveniles. Thirty-seven hatchlings were obtained in 1997 from eggs laid in 1996 at a hatching rate of 90% .
- Groundwater was pumped to North West Swamp, Twin Swamps Nature Reserve from June to late-November. The 1997 winter had well below average rainfall and without groundwater pumping, the Western Swamp Tortoise population at Twin Swamps would not have fared well; nor would a translocation have been possible.
- Twenty-five tortoises, bred and raised to about 100 g body weight at Perth Zoo, were released at North West Swamp, Twin Swamps Nature Reserve, in August 1997. Two hatchlings were also released.
- Of the 72 tortoises translocated to Twin Swamps Nature Reserve in 1994, 1995, 1996, and 1997, 32 were known to be alive in 1997 and 11 were known to be dead or were returned to captivity because of injuries sustained from predation by ravens. Other animals may be alive but were not located during the year. This is a satisfactory result.
- Following significant predation of translocated tortoises by ravens at Twin Swamps Nature Reserve in 1995, a raven control program was approved and initiated in 1996. Raven predation on translocated tortoises in 1996 was lower than in 1995, but was still at an unsatisfactory level. However, raven predation of juvenile tortoises in 1997 was again significant with six animals known to have been killed. Raven control will be stepped up at crucial times of the season next year.
- During 1997, the Recovery Team prepared a review of the implementation of the Recovery Plan over the period 1993 to 1997 and wrote a draft second edition on the Plan for the period 1998 to 2002. At the time of writing the Team had not been advised whether Environment Australia would continue to fund a proportion

of the total costs of implementation.

- The Team prepared a detailed proposal for the re-introduction of Western Swamp Tortoises to Perth Airport and this was forwarded to Westralia Airports Corporation during the year. In response, Westralia Airports stated that they were preparing a Master Plan and Environmental Strategy by 1 July 1998 and that the possible translocation of the tortoise would be addressed during the preparation of the these documents.

Wongan Triggerplant Recovery Team

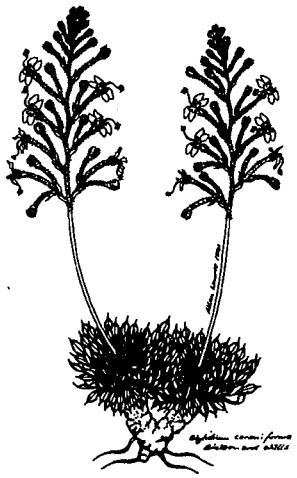
by Mike Fitzgerald

The period of the current agreement over the Wongan Triggerplant's recovery has now elapsed.

To cover the requirement for future recovery actions, the following recommendations will be put to the Recovery Team at its next meeting:

1. The recovery of the Wongan Triggerplant will continue to be managed as an independent recovery program until 2002, when it will again be formally reviewed.

It will not be integrated into an area based management program until all success criteria have been achieved and outstanding recovery actions are limited to monitoring and minor maintenance.



An annual report will continue to be prepared and circulated to interested parties, including Environment Australia.

The success criteria will be revised. Key changes will include: A management agreement covering Water Reserve 16418 will be endorsed by the Water Corporation and CALM by 1999.

- Techniques to safely promote recruitment to declining populations will be developed and implemented by 2000.
- At least two new populations will be established on Water Reserve 16418 or on other lands within the Wongan Hills area by 2002.
- By 2002, all known populations will be stable or increasing, taking into account mature plants, seedlings and the viable seed in any soil seed bank

2. The following actions will be undertaken to ensure successful recovery:

The Recovery Team will reform with a membership reflecting the revised recovery actions. CALM will continue to negotiate for Water Reserve 16418 to be set aside as a Nature Reserve.

A management agreement will be endorsed by Water Corporation and CALM. It will cover the protection of the populations located on Water Reserve 16418. Surveys for additional populations will continue on an opportunistic basis.

All populations will be managed to minimise threats to the populations long term survival. Additionally, recruitment methods will be trialed at each of the population sites.

Those methods that prove to be most successful in terms of the number and subsequent, overall health of germinants and their populations will then be applied more widely.

Two new populations will be established in the Wongan Hills area.

The viability of seed stored in the Threatened Flora Seed Store will be maintained by annual testing and by harvesting of new seed as required.

All populations will be monitored by accurate census on an annual basis. Environmental events will be reported and trends will be analysed.

Public awareness will be maintained by regular press releases and other activities.

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