

**Geraldton District Threatened Flora & Ecological Communities  
Recovery Team**

**Project No. 446**

**Annual Report**

**2003**

by

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for the Geraldton District Threatened Flora and Threatened Ecological Communities Recovery Team

## Summary

This report covers progress made in the implementation of the Threatened Flora Management Plan for CALM's Geraldton District, Project Number 446, and Interim Recovery Plans for Declared Rare Flora (DRF) taxa and Threatened Ecological Communities, from January 2003 to January 2004.

There has been one meeting of the Recovery Team during the year and members have continued to contribute to survey work and recovery actions and in providing advice to the District Conservation Officer regarding flora conservation matters in their local areas.

A large amount of productive fieldwork has again been undertaken during the year with 27 new populations of 12 DRF taxa being surveyed by Recovery Team members and volunteers (*Caladenia bryceana* subsp *craecens* 2, *Caladenia wanosa* 1, *Conostylis dielsii* subsp *teres* 1, *Diuris drummondii* 1, *Drakaea concolor* 5, *Drummondita ericoides* 1, *Eremophila rostrata* 2, *Eremophila viscida* 1, *Eucalyptus blaxellii* 1, *Grevillea phanerophlebia* 1, *Leucopogon marginatus* 6, *Stachystemon nematophorus* 5). This has resulted in several DRF having improved conservation status and information has been gained on distribution, habitat, taxonomy and response to disturbance for several species.

Promotion of Threatened Flora conservation within the community has continued, including local newspaper articles and community and school group involvement in implementing recovery actions.

Implementation of Wildlife Management Program No. 26 Declared Rare and Poorly Known Flora in the Geraldton District has continued and Interim Recovery Plans for the following have been produced and are being implemented:

*Caladenia elegans* 2000 - 2003, *Pterostylis* sp Northampton 2000 – 2003, *Eremophila rostrata* 2002 – 2007, *Gyrostemon reticulatus* 2002 – 2007, *Grevillea phanerophlebia* 2001 - 2004 and *Hypocalymma longifolium* 2001 - 2004, Threatened Ecological Communities - Plant Assemblages of the Moonagin System 2001 - 2006, Plant Assemblages of the Billeranga System 2001 - 2006.

## 1. Recovery Team

1.1 **The recovery team** met once during the year. The next meeting is scheduled for 4<sup>th</sup> March 2004.

### Official Members

Don Bellairs	CALM Volunteer, Wildflower Society, Kalbarri
Ian Hamilton	Main Roads WA, Roadside Management Officer, Geraldton Division
Meg Officer	Woolgorong Station, Murchison Field Herbarium
Robin Westlake	CALM Volunteer, Wildflower Society, Woorree Nursery, Geraldton
Pat Fitzgerald	Murrum Station Mt Magnet
Estelle Leyland	Mullewa Wildflower Society
Graham Wilks	Mullewa Shire CEO

Several of these members (Meg Officer, Pat Fitzgerald, Estelle Leyland and Graham Wilks) have resigned as members for various reason, although have not been officially removed from the membership list.

### Technical Advisers and Non-Official Members

Anthony Desmond	(Chair) CALM Regional Leader Nature Conservation
Sue Patrick	(Chief Investigator), CALM Science, WA Herbarium
Val English	CALM, WA Threatened Species and Communities Unit
Rosemarie Rees	CALM, WA Threatened Species and Communities Unit
Alanna Chant	CALM, Conservation Officer (Flora), Geraldton District
Robyn Stevens	Morowa Herbarium Group, local TEC representative
Jenna Brooker	Geraldton Herbarium Group, Greenough Flats TEC
Anne Car	Dongara Herbarium Group
Robyn Soulier	Mingenew Herbarium Mingenev LCDC
Joesephine Docherty	Wildflower Society, Mullewa

## Declared Rare Flora

### *Acacia imitans* (CR)

Implementation of management requirements for this species has been as follows:

- Maintain liaison with land managers.  
The Geraldton District has continued to maintain liaison with the land managers, particularly in relation to feral goat control. Indigenous Protected Area (IPA) funds had been made available to fence a large section of the Ninghan pastoral lease, which includes only known location for this species - on the Singleton Range, however the contract was not finalized and fencing has not eventuated. A large number of feral goats were removed from Ninghan Station during 2003 and the requirement to fence the Singleton Range will be reassessed during 2004.
- Further survey is required to establish the full extent of the populations and to seek to locate others in similar habitat elsewhere.  
Survey in the Mt Singleton area was carried out during October 2003 and all populations were monitored. It was found that the impact of feral goat grazing on populations was reduced considerably and plants had begun to recover from the drought and grazing pressure with new growth evident. Survey on Mt Gibson Station determined that a recent wildfire reported to be in the area where a population of this species is located had not impacted on the population.

### *Acacia unguicula* (CR)

Implementation of management requirements for this species has been as follows:

- Maintain liaison with land managers.  
The Recovery Team has continued to maintain liaison with the land managers, particularly in relation to feral goat control. Indigenous Protected Area (IPA) funds had been made available to fence a large section of the Ninghan pastoral lease, which includes only known location for this species - on the Singleton Range, however the contract was not finalized and fencing has not eventuated. A large number of feral goats were removed from Ninghan Station during 2003 and the requirement to fence the Singleton Range will be reassessed during 2004.
- Further survey is required to establish the full extent of the populations and to seek to locate others in similar habitat elsewhere.  
Survey in the Mt Singleton area was carried out during October 2003 and populations 1, 3, 4 and 5 were monitored. The impact of feral goat grazing on populations was found to be reduced considerably and plants had begun to recover from the drought and grazing pressure with new growth evident.

### *Beyeria lepidopetala* (CR)

No populations of this species have been relocated to date. Recovery actions have therefore been as follows:

- Conduct further surveys.  
Searching for this species has continued opportunistically, in conjunction with other surveys in the Kalbarri area and the reported collection site was inspected during August 2003. A local member of the Recovery Team is familiar with this species and is searching in appropriate habitat opportunistically.

### *Caladenia barbarella* (EN)

Implementation of management requirements for this taxon, has been as follows:

- Monitor populations regularly.  
Populations 4, 5, 6, 7 and 8 were monitored during 2003. Orchids were found in low numbers at Populations 4, 5 and 8 and no individuals were located at 6 and 7.
- Maintain liaison with pastoralists.  
The Recovery Team has continued to maintain liaison with pastoralists during 2003. Discussions with Eurardy Station pastoralists indicated that although they undertake rabbit control (baiting and shooting), rabbits are a continuing threat to orchids on this Station. They are familiar with the locations of DRF orchids on the station and have offered to assist in relocating populations during spring 2004.
- Protect from fire during vegetative/flowering phase.  
The populations have not been impacted by fire.

***Caladenia bryceana* subsp. *cracens* ms (EN)**

Implementation of management requirements for this taxon during 2003 has been as follows:

- Monitor populations regularly.  
Populations 2, 5 and 7 were monitored during 2003. Surveys for new populations in Kalbarri National Park (Goat Hill) were not successful in locating new populations although the area appeared to be appropriate habitat for this orchid. Volunteers found two new populations of this orchid at East Yuna Nature Reserve during 2003. Further attempts to relocate populations at Horrocks and Murchison House are intended for 2004.
- Maintain liaison with the private landowners and pastoralists.  
Liaison has been maintained with relevant land managers.
- Protect from fire, where possible, during vegetative/flowering phase.  
Populations have not been impacted by fire.

***Caladenia elegans* ms (CR)**

Recovery actions implemented for this species during 2003 have included:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate recovery actions.
- Develop and implement a drainage and rehabilitation strategy for population 1.  
A greater amount of runoff appeared to be entering the area from an adjoining paddock this year. Weed control was undertaken, followed by planting of seedlings of associated species along the erosion gully, with some brushing along the first section of the drain. The drain now appears to have been deepened and action will be required to fill it in prior to winter. Native vegetation and topsoil from nearby road widening has been placed in the nearby disused gravel pit upslope of the population. This will be spread over the area to promote rehabilitation. Weed control and rehabilitation planting was also undertaken with Northampton Primary School at population 6.
- Collect seed and cutting material.  
A BGPA botanist collected material and the species has been successfully propagated in the Kings Park nursery. Progress toward a translocation will begin in 2004.
- Conduct further survey.  
Further survey was conducted on the Suckling property and the population was found to be more extensive than previously recorded.
- Liaise with land managers.  
District staff have continued to liaise with property owners the Chapman Valley Shire and the Northampton Shire regarding management of this species, particularly in regard to a proposal to widen the Port Gregory Road.
- Monitor populations.  
Populations 1, 2, 3, 5, 7 and 10 of this species were monitored during August 2003
- Control feral animals.  
The activity of feral pigs is being monitored and control measures are being undertaken by the property owner at population 10, and by pastoralists.

***Caladenia hoffmanii* subsp. *hoffmanii* ms (EN)**

Management requirements have been implemented as follows:

- Monitor populations regularly.  
Populations 1, 2, and 3 were monitored during 2003. Feral pigs had been impacting on the species habitat at Moresby and Oakabella Nature Reserves and the Geraldton District has carried out pig trapping at both reserves. 60 pigs had been removed from Moresby last year, however another 50 were observed to have moved into the reserve during summer 2003. The District is seeking funds to undertake a coordinated control program.  
Attempts were made to relocate populations recorded at Kalbarri and Port Gregory Road however these were not successful. More extensive survey of the Moresby Reserve is intended for September 2004.
- Maintain liaison with Shires.

Liaison with the Shire of Northampton and the Shire of Chapman Valley in relation to this taxon has continued.

- Collect germ-plasm material for storage according to the protocols of the Threatened flora Seed Centre at the WA Herbarium.  
A BGPA botanist collected material from this taxon during 2003.
- Protect from fire during vegetative/flowering phase.  
All populations have been protected from fire. Fire breaks at Moresby will be graded during summer 2003.

#### ***Caladenia wanosa* (EN)**

Management requirements have been implemented as follows:

- Monitor populations.  
Locations of Mullewa populations 1, 2 and 13 were inspected in early 2003 and markers were installed where necessary. Populations 3, 5, 6, 11 and 12 were monitored during flowering. Further survey was carried out along the Murchison River Gorges in Kalbarri National Park in an attempt to locate new populations. This included a hike from Hawks Head to Ross Graham and another from Ross Graham to Lockwood Springs. No new populations of this species were located in the Park. Feral pigs are continuing to impact on the species' habitat in Kalbarri and the District is seeking funds to undertake control. Survey by volunteers resulted in a large new population being discovered in East Yuna Nature Reserve.
- Control rabbits at populations 1 and 2.  
Rabbit activity has been monitored and found to be at a low level. Liaison with Agriculture Protection staff in regard to rabbit control has continued. Pastoralists at Eurardy have undertaken rabbit control however have reported that it has been difficult to keep rabbit numbers low.
- Maintain liaison with Shire, pastoralists and private landowners.  
Liaison has been maintained and Pastoralist at Eurardy have provided assistance with monitoring populations.
- Protect from fire during vegetative and flowering phase.  
Populations have not been impacted by fire.

#### ***Chorizema humile* (CR)**

This species has not yet been relocated in the Geraldton District and recovery actions have been limited to opportunistic survey in areas near previous collection sites.

#### ***Conostylis dielsii* subsp. *terres* (VU)**

Management requirements have been implemented as follows:

- Monitor populations regularly.  
Populations 2, 3, 4, 5, 6 and 8 were monitored during 2003. Population 5 was found to be disturbed by road widening, with approximately half of the population cleared. Further survey for this taxon within Burma Road Nature Reserve is intended for July 2004. A new population of this taxon was located on Tabletop Road, growing with *Conostylis micrantha*.
- Rabbit control.  
The level of rabbit activity has been monitored and determined to be a relatively low impact. Liaison with the relevant APB officer regarding this issue has continued.
- Protect, where possible, from fire until the fire response of the subspecies is known.  
Populations have been protected from fire and fire breaks within Burma Rd Nature Reserve have been upgraded. Recent survey has recorded individuals in an area that was burnt in 1995 and individuals on a fire break that was graded prior to 1995. Trials to monitor this subspecies response to fire are being planned.

### ***Conostylis micrantha* (VU)**

Recovery actions during 2002 have included:

- Monitor populations regularly particularly in relation to grazing by rabbits. Populations 7, 9 and 10 were monitored in January 2003. The level of rabbit activity has been monitored and determined to be relatively low. Liaison with the relevant APB officer regarding this issue has continued.
- Protect, where possible, from fire until the fire response of the species is known. Populations have been protected from fire and fire breaks within Burma Rd Nature Reserve have been upgraded. Trials to monitor this species response to fire are being planned in 2004.

### ***Darwinia masonii* (EN)**

Management requirements, which have been implemented, include:

- Monitor populations regularly, particularly in relation to mining operations. The portion of the population which grows on the western ridge of the Mt Gibson range was monitored during 2003 and impacts of mining exploration were observed. The mining company has not undertaken rehabilitation of the exploration clearing which has been extensive on the western ridge.
- Maintain liaison with pastoralists and mining operators. Liaison has been maintained particularly in relation to the issue of mine exploration disturbance and it now seems a mining proposal is imminent. Mining is likely to have a significant impact on the species and its habitat.
- Protect from frequent fire. Liaison with a Mt Gibson Mining Co. geologist provided information that the Mt Gibson range was impacted by a wildfire during 2003 and a consultant botanist has recorded new seedlings in the burnt area. Monitoring plots will be set up to obtain information about the species' fire response, growth and survival rate, flowering and fruiting.
- Further survey. Survey of suitable habitat close to the populations was conducted during 2003 however no new populations have been located. The Mt Gibson Mining Co. consultant botanist has also searched for this species during 2003.

### ***Daviesia speciosa* (EN)**

Management Requirements have been implemented as follows:

- Continue liaison with private landowners and the Shire. The Recovery Team has continued to liaise with landowners and the Shire. The Three Springs Shire Ranger has suggested some areas of remnant vegetation that appear to be likely habitat for this species and are intended for survey during 2004.
- Monitor populations regularly. Populations 3, 4, 5 and 7 in the Geraldton District were monitored during 2002 and their condition was found to be stable. It is intended that all populations will be monitored during March 2004.
- Exclude areas from road works and gravel extraction where plants are known to occur. Populations have been protected from road works and gravel extraction and markers are now in place at all known roadside populations.

### ***Diuris drummondii?* (VU)**

An orchid was collected at the Yerina Springs populations of *Hypocalymma longifolium* (DRF) that has been identified by Andrew Brown as "either *Diuris drummondii* (DRF) or a very close undescribed relative". The area has markers in place and is being protected due to the presence of the *Hypocalymma*. It is intended that the population will be fully surveyed and more material will be collected from the population during November 2004 in order for the identity to be confirmed.

***Drakaea concolor* ms (EN)**

Management requirements have been implemented as follows:

- Monitoring populations regularly.  
Populations 1, 4, 5, 7 and 8 were monitored during 2003. Populations, which are being impacted by feral pigs, have been demarcated with flagging tape so they can be fenced if funds become available.
- Protect from fire, where possible, during vegetative/flowering phase.  
No populations have been impacted by fire.
- Further survey is required.  
Further survey was carried out in Kalbarri National Park. Two new large populations were located during a hike from Ross Graham to Hawks Head. Three new small populations were located during a hike from Lockwood Springs to Hawks Head. New sub populations were surveyed at the Z Bend lookout. Markers were installed here and at population 5, which occurs on a firebreak.

***Drummondita ericoides* (EN)**

An Interim Recovery Plan is being prepared for this species. Management Requirements have been implemented as follows:

- Monitor populations regularly.  
All populations were monitored during 2003.
- Maintain liaison with adjacent private landowners.  
Liaison with relevant landowners has been maintained.
- Protect where possible from frequent fire.  
No populations have been impacted by fire, and fire breaks at Moresby have been upgraded. Fire history records indicate the entire Moresby Reserve was burnt in a wildfire during the 1970s.
- Further survey is required.  
A new population at Moresby Reserve was surveyed and includes over 200 plants.

***Eremophila nivea* (CR)**

Implementation of recovery actions has been as follows:

- Monitor populations.  
All populations were monitored during 2003
- Conduct further surveys.  
Surveys were undertaken for this species on CALM rangelands (Karrara) east of Morowa.
- Collect seed and cutting material and propagate plants for translocation.  
Seed and cutting material from plants at several populations has been collected and attempts to propagate plants for a second round of translocation planting is in progress.
- Obtain biological and ecological information.  
Trials to gain information on recruitment requirements for this species are planned for 2004. These will involve direct seeding trials at a translocation site and trials to induce recruitment at an existing population.

***Eremophila rostrata* ms (CR)**

An Interim Recovery Plan (2003 – 2008) has been prepared for this species. The criteria for success of the draft IRP (i.e. the number of individuals within populations and/or the number of populations have increased) have been achieved in 2003. The taxon is still very low in numbers and further recovery actions are intended for 2004 including survey, monitoring, fencing, and progress toward rehabilitation and disturbance trials. Implementation of recovery actions listed in this IRP during 2003 has been as follows:

- Place markers at population 3.  
Markers were installed at population 3 during 2003 and the Perenjori Shire Works Foreman was notified that markers are now in place.
- Seek to have populations 1 and 2 fenced.  
Fencing has been considered for populations and it now seems that fencing population 2 is no longer necessary. The property owner of population 2 has been consulted and has agreed with arrangements to fence the remnant containing the population. Quotes are now being obtained and the area will be fenced in early 2004.

- Seek rehabilitation trials.  
An on site meeting with the St Barbara Mining Co. Rehabilitation Officer occurred to discuss the site, which is located on one of the company's mining leases. The company has no plans to carry out further mining on the lease and the Officer agreed that the mining company would make a machine and operator available to rip the area, which has been cleared and disturbed by mining. The operation is likely to take place during 2004.
- Conduct further surveys.  
Survey to the west of population 1 resulted in two new populations (22 plants and 1 plant) being located.
- Monitor populations.  
All populations were monitored during 2003.
- Obtain biological and ecological information.  
Due to the vast difference in habitat between the Perenjori and Cue populations Science Division staff have been consulted on the possibility that these may be two different taxa. During 2004 new material will be collected from each of the populations to determine if morphological differences are present.

### ***Eremophila viscida* (CR)**

Recovery actions undertaken during 2003 have been implemented as follows:

- Coordinate recovery actions.  
The Geraldton District has continued to coordinate recovery actions.
- Conduct further surveys.  
Further surveys in Barnong Conservation Park were conducted during 2003 and a new population was located within the Reserve by District Staff. Regular monitoring of populations has continued (pops 15 & 16 in the Geraldton District).
- Notify and liaise with relevant land managers.  
Liaison with relevant land managers has been maintained in order to promote awareness.
- Start translocation process.  
The translocation process to date has included purchase of materials for fencing and a watering system.
- Obtain biological and ecological information.  
Monitoring of original road side disturbance trial plots continued during 2003. No new seedlings have been recorded, possibly due to drought conditions. A population in remnant vegetation on private property adjoining the road verge has now been fenced to exclude stock and a second trial to induce recruitment was implemented. No new seedlings have been recorded in this area, however a similar project conducted in Merridin District was successful in stimulating germination in burnt and rake/burnt plots.

### ***Eucalyptus beardiana* (EN)**

Management requirements which have been implemented, include:

- Monitor populations regularly.  
Populations 1, 9 and 11 were monitored during 2003. Further survey in Kalbarri National Park is intended for April 2004. Seed was collected for storage at the Threatened Flora Seed Centre during 2003.
- Maintain liaison with pastoralists.  
Liaison with relevant pastoralists has been maintained.
- Protect from inappropriate fire regimes.  
Populations have not been impacted by inappropriate fire regimes.

### ***Eucalyptus blaxellii* (VU)**

Management requirements, which have been implemented, include:

- Monitor populations regularly.  
A large population of over 100 plants of this species was surveyed in Moresby Conservation Park. Further survey in appropriate habitat will be opportunistic, in conjunction with survey for *Drummondita ericoides*.

***Eucalyptus crucis* subsp. *praecipua* (EN)**

An Interim Recovery Plan is currently being prepared for this subspecies. Management Requirements, which have been implemented, include:

- Monitor populations regularly, particularly in relation to grazing pressure and seedling recruitment. All populations were monitored in 2003. Seed was collected from populations, where it was available, and forwarded to the Threatened Flora Seed Centre. Several granite out-crops on Ninghan and Mt Gibson Stations were searched for this taxon however no new populations were recorded.
- Ensure the current pastoralist is aware of the populations and maintain liaison. Liaison has been maintained with the pastoralist.
- Protect from inappropriate fire regimes. Populations have not been impacted by fire.

***Eucalyptus cuprea* (CR)**

Recovery actions for this species in 2002 have included:

- Monitoring  
Populations 1, 4, 5, 7 and 8 were monitored during 2003. Survey for further populations has been carried out at Galena Nature Reserve and no new populations were recorded. The species is still listed as Critically Endangered and further survey of the Galena area is planned for 2004.

***Eucalyptus synandra* (VU)**

Management requirements, which have been implemented, include:

- Monitor populations regularly.  
Populations 18 and 19 of this species were monitored during 2003.
- Ensure that road verge populations are marked.  
All road verge population are now marked.
- Maintain liaison with the Shire, private landowners, pastoralists and mining operators.  
Liaison has been maintained with relevant land managers.
- Protect from inappropriate fire regimes.  
No populations were impact by fire.
- Further survey.  
Survey for this species during 2003 has been opportunistic, on a CALM rangelands property (Karrara). It is intended that survey for this species in the Koolanooka area will be carried out in 2004.

***Glyceria drummondii* (EN)**

Management Requirements, which have been implemented, include:

- Monitor populations regularly.  
Both populations of this species were monitored during 2003. Due to drought conditions it was not possible to locate or distinguish any plants. Further survey for this species is intended during a favorable season.
- Maintain liaison with the private landowner.  
Liaison with the landowner adjoining the road verge population on Scroops Road (pop 2) has resulted in him stating that the plant also occurs on his paddock adjoining the road verge (in a wet year) and his agreement to fence the area. The property owner has recently been provided with the required fencing materials. He has also suggested that this DRF grows in other areas of his property, and these will be surveyed during a favorable season.

***Grevillea cristineae* (EN)**

Management requirements which have been implemented include:

- Monitor populations regularly.  
All Geraldton District populations were monitored during 2003. Further survey in reserves close to the known populations was carried out (reserves 27083, 34140 and 12657).
- Maintain liaison with landowners and managers.  
Liaison with landowners and managers has been maintained.
- Protect from frequent fire, where possible, until fire response has been investigated.  
Populations in the Geraldton District have not been impacted by fire.

### ***Grevillea murex* (EN)**

Management requirements which have been implemented during 2003 include:

- Further survey is required on conservation reserves and other remnant vegetation in the area. Survey for this species during 2003 was opportunistic when working in the Yandanooka area.
- Ensure populations are marked.  
All Geraldton District populations were monitored during 2003 and markers were recorded at each road verge population.
- Maintain liaison with Shire.  
Liaison with the Mingenew and Morowa Shires has been maintained.

### ***Grevillea phanerophlebia* (CR)**

An Interim Recovery Plan (2001 – 2004) is in place for this taxon. The IRP criteria for success for this taxa has been achieved during 2003 due to the location of a new population. The species is still very low in numbers and further recovery actions detailed in the IRP will be implemented during 2004 following the outcome of research into the taxonomic status. Implementation of the recovery actions during 2003 follows:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate recovery actions.
- Clarify taxonomic status.  
Material has been collected and research is in progress to clarify the taxonomic status.
- Undertake weed control.  
Weed control was undertaken at population 1
- Conduct further surveys.  
Surveys at Wicherina Reserve with the Geraldton Regional Herbarium Group resulted in a new population being located.
- Monitor populations.  
All populations were monitored during 2003.
- Promote awareness.  
Liaison with relevant stakeholders has been carried out to promote awareness. The survey at Wicherina was carried out with the Geraldton Regional Herbarium Group, who are now familiar with the species and interested in further survey of Wicherina during spring 2004.

### ***Gyrostemon reticulatus* (CR)**

An IRP (2002 – 2007) is in place for this species and implementation of the recovery actions during 2003 has included:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate recovery actions.
- Conduct further surveys.  
Areas have being identified for further survey for this species during 2004. Two new plants nearby population 2 were discovered by Brother Van Veen following some earthworks for construction of a new building. This indicates that mechanical disturbance of the soil may also be effective in stimulating germination.
- Monitor populations.  
Populations were monitored during 2003. Due to the species being a disturbance opportunist populations have continued to decline.
- Obtain biological and ecological information.  
Changes in population size over time, other field observations and historical information from Brother Van Veen indicate that plants appear after a disturbance (fire and/or soil disturbance), decline rapidly and could possibly become senescent in as little as 10 years. If a substantial number of new populations are not recorded through further survey over the next year, trials to induce recruitment will be planned for the following year.

### ***Halosarcia bulbosa* (EN)**

Management requirements which have been implemented include:

- Monitor population regularly.  
The Geraldton District has continued to monitor the population regularly. The population was recorded as being in a healthy condition with fencing and markers in place. The issue of draining saline land in the Morowa Shire could potentially impact on this species and its habitat.
- Maintain liaison with private landowner and the Shire.  
Liaison has been maintained with the Shire.
- Further survey is required in suitable habitat in the area.  
Areas upstream and downstream within the saline drainage line in which the population occurs were searched for this species however no new populations were recorded.

### ***Hybanthus cymulosus* (CR)**

Implementation of management requirements for this taxon has been as follows:

- Maintain liaison with land managers.  
The Recovery Team has continued to maintain liaison with the land managers, particularly in relation to feral goat control.
- Further survey is required to establish the full extent of the populations and to seek to locate others in similar habitat elsewhere.  
Survey in the Mt Singleton area was carried out during October 2003 and all populations were inspected however it has not been possible to relocate the species. Information was received from the Fire & Emergency Services regarding a wildfire at Mt Gibson station, which appeared to have occurred in the vicinity of this species. This was checked in the field during 2003 and it was found that the fire did not impact the populations. Indigenous Protected Area (IPA) funds had been made available to fence a large section of the Ninghan pastoral lease, which includes the populations of this taxon on the Singleton Range, however the contract was not finalized and fencing has not eventuated. A large number of feral goats have been removed from the area over the past twelve months and the requirement to fence will be reassessed during 2004 monitoring.

### ***Hypocalymma longifolium* (EN)**

An Interim Recovery Plan (2001 – 2004) is in place for this species and implementation of the recovery actions has included:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate implementation of recovery actions.
- Determine the taxonomy of the species.  
A field trip was undertaken in 2003, during which material was collected at both populations of this species and morphological differences have been observed between the two populations, which suggest they are not the same taxon. Due to sufficient morphological difference genetic analysis will not be necessary, and taxonomic review will proceed based on morphological differences.
- Conduct further surveys.  
Further survey was conducted of the Murchison River Gorges however no new populations of the Murchison House taxon have been located.
- Undertake feral animal control.  
A large number of goats have been removed from Murchison House station following recommendations made by the Pastoral Board following a Rangeland Condition survey.
- Monitor populations.  
Both populations were monitored during 2003.
- Liaise with relevant land owners and managers.  
Liaison with relevant land owners and managers has continued. Liaison with pastoralists and Department of Agriculture will continue in relation to feral goats on Murchison House.

### ***Lechenaultia chlorantha* (EN)**

Management requirements have been implemented as follows:

- Monitor populations regularly.

Population 3 of this species was monitored during 2003. It is intended that all populations will be monitored during 2004.

- Further survey on red sandstone outcrops throughout the area of occurrence. Surveys were carried out along the Murchison River, from Hawks Head to Ross Graham and from Lockwood Spring to Hawks Head. These surveys include some areas of red sandstone, however no new populations of this species were recorded.

***Leucopogon marginatus* (EN)**

Management requirements which have been implemented include:

- Monitor populations  
Populations 4, 5 and 6 of this species were monitored during 2003.
- Further survey.  
During 2003 further survey for this taxon was undertaken and four new populations were located within Burma Road Nature Reserve and two populations were located within Wicherina Reserve. The survey at Wicherina was undertaken with the Geraldton Regional Herbarium group who are now familiar with the species and interested in conducting further survey at Wicherina during spring 2004.

***Pterostylis* sp Northampton (CD Hopper 3349) (CR)**

The taxon is still extremely rare and a revised IRP will be prepared during 2004. Implementation of recovery actions during 2003 has included:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate recovery actions for this taxon.
- Develop and implement a drainage and rehabilitation strategy for Population 2.  
A greater amount of runoff appeared to be entering the area from an adjoining paddock this year. Weed control was undertaken, followed by planting of seedlings of associated species along the erosion gully, with brushing along the first section of the drain. The first section of the drain now appears to have been re-opened and will need to be filled in before winter. Native vegetation and topsoil from nearby road maintenance has been placed in the nearby disused gravel pit upslope of the population. This will be spread over the area to promote rehabilitation. Weed control and rehabilitation planting was also undertaken with Northampton Primary School at Population 6.
- Liaise with relevant land managers.  
District staff have continued to liaise with the Northampton Shire regarding management of this population, particularly in regard to a proposal to widen the Port Gregory Road.
- Monitor populations.  
All populations were monitored during August 2003.
- Conduct further surveys.  
Further surveys were conducted on the Suckling property and nearby remnant vegetation during the flowering period, however no new populations were located.
- Collect seed and tissue culture material.  
A BGPA botanist has collected material from this taxon during 2002. Attempts to propagate this orchid have not been successful with soil fungal isolates used to date. During 2004 soil will be collected from the field in order to conduct further propagation research.
- Promote awareness.  
The Geraldton District has continued to distribute poster sheets and an article about DRF orchids in the Northampton area was published in a local newspaper.
- Seek to acquire land, erect barriers, and rehabilitate buffer at Population 4.  
Weed control and seedling planting was undertaken to rehabilitate a buffer at Population 4. Northampton Primary School assisted with planting seedlings.

***Stachystemon nematophorus* (EN)**

This species was relocated in Kalbarri National Park during 2001. Since rediscovery it has been located in a number of locations within the Park and recovery actions have included:

- Monitor populations  
The populations have been monitored during 2003 and further survey has been carried out along the Murchison River and other areas of Kalbarri National Park. Two new populations were located on the

Murchison River east of Lockwood springs and one was located in an old gravel pit. Two populations recorded at Murchison House during 2002 have been confirmed as this species.

- Liaise with relevant land managers.  
Pastoralists are removing a large number of feral goats from Murchison House Station, which will reduce the impact of grazing on these populations.

#### ***Styliidium coroniforme* (EN)**

Management requirements implemented for this species during 2003 have included:

- Monitor populations regularly.  
The Geraldton District populations for this species were monitored during 2003. The populations have been found to be declining over the past few years. Further survey for this species was carried out in the rail reserve during 2003 but no new populations were recorded. It will be necessary to plan and implement trials to investigate the conditions required for recruitment, due to the decline in number of individuals and poor recruitment in each population. It will also be necessary to clarify whether the Maya populations of this species are the same taxon as those at Wongan Hills.
- Maintain liaison with land managers.  
The Recovery Team has continued to maintain liaison with Westnet Rail in relation to protection of this species which occurs on rail reserve.

#### ***Verticordia spicata* subsp. *squamosa* (CR)**

An IRP is currently being updated for this subspecies. Implementation of recovery actions over the period of this report has been as follows:

- Coordinate recovery actions.  
The Recovery Team has continued to coordinate recovery actions.
- Monitor populations.  
Regular monitoring of populations has continued. Four young plants, which appeared following smoke trials at population 4, are now 3 years old and flowered in 2003. Rabbit proof cages were expanded to allow for their new growth. The plant at population 3, which had appeared drought stressed has now died, therefore it is intended that trials to stimulate the soil seed bank will be planned.
- Collect seed and cutting material, start translocation process.  
The translocated population was monitored 3 times during the year and 11 of the original 29 plants have survived their second summer. 6 of these flowered and produced fruit in 2003, which indicates that plants will begin flowering within two years after germination. More seed was collected from other populations, a portion of this was forwarded to the Threatened Flora Seed Center for storage and some was sent to BGPA Nursery, where more plants are being propagated for further translocation.

### **Threatened Ecological Communities**

*Acacia rostellifera* low forest with scattered *Eucalyptus camaldulensis* on Greenough Alluvial Flats Occurrences of the Greenough Flats TEC were each inspected during 2003 for the purpose of re-assessing the status of the community, as it had been suggested that a nomination be submitted to have it classified as "Presumed Totally Destroyed".

#### **Perched fresh-water wetlands of the northern Wheatbelt dominated by extensive stands of living *Eucalyptus camaldulensis* (River Red Gum) across the lake floor**

During 2003 WATSCU staff visited a number of wetlands in the Buntine-Marchagee area to see if there were occurrences of similar wetlands in that area. Several *Eucalyptus camaldulensis* wetland sites were visited but there was some question as to the origin of the River Red Gums and they didn't fit the same description as Morilla.

#### **Plant assemblages of the Koolanooka System**

The Koolanooka Hills have been the subject of several mining applications during 2003 and both District and WATSCU staff have been liaising with two mining companies, Midwest Corporation (a refloat of Kingstream) and Koolanooka Iron Limited (a subgroup of Mt Gibson Iron), regarding their proposed magnetite mining operations. The two proposed mining operations are in the northern portion of the

Koolanooka hills, however, both occurrences of the TEC (Koolanooka Hills and hills near Perenjori) have current or pending exploration licenses over them.