INTERIM RECOVERY PLAN NO. 16

SWAMP STARFLOWER (*CALYTRIX BREVISETA* SUBSP. *BREVISETA*) INTERIM RECOVERY PLAN

1996-1999

by

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June 1996

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FOREWORD

Interim Recovery Plans (IRPs) are developed within the framework laid down in Department of Conservation and Land Management (CALM) Policy Statements Nos 44 and 50. IRPs are designed to run for three years only and will be replaced by full Recovery Plans where required.

IRPs outline the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of threatened taxa or ecological communities, and begin the recovery process.

CALM is committed to ensuring that Critically Endangered taxa are conserved through the preparation and implementation of Recovery Plans or Interim Recovery Plans and by ensuring that conservation action commences as soon as possible and always within one year of endorsement of that rank by the Minister.

This IRP was approved by the Director of Nature Conservation on 17 May 1997. Approved IRPs are subject to modification as dictated by new findings, changes in status of the taxon or ecological community and the completion of recovery actions. The provision of funds identified in this Interim Recovery Plan is dependent on budgetary and other constraints affecting CALM, as well as the need to address other priorities.

Information in this IRP was accurate at March, 1997.

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SUMMARY

Swamp Starflower, *Calytrix breviseta* subsp. *breviseta* **Family:** MYRTACEAE

Flowering period: September-October

CALM Region: Swan **CALM District:** Perth **Shire:** Gosnells

Current status: Declared as Rare Flora in May 1991, ranked as Critically Endangered in September 1995

Recovery Team: Swan Region Threatened Flora Recovery Team

Illustrations and/or further information: A.E. Kelly, *et al*. *Declared Rare Flora and Other Plants in Need of Special Protection in the Metropolitan Area* (1993); S.J. Patrick, *Wildflower Society of Western Australia Newsletter* (1991); N.G. Marchant, *et al*. *Flora Of The Perth Region*. (1987); S. Curry and A.E. Kelly, *Landscope* (1993).

Calytrix breviseta subsp. *breviseta* is an erect or spreading shrub to 40 cm tall with linear to narrowly elliptic leaves and purple-blue flowers. It is known from 750+ plants in two populations. Population 1 is on private property (subpopulation 1a) and an adjacent property owned by the Ministry for Planning (subpopulation 1b). Population 2 is on private property. Both populations occur in the Kenwick area.

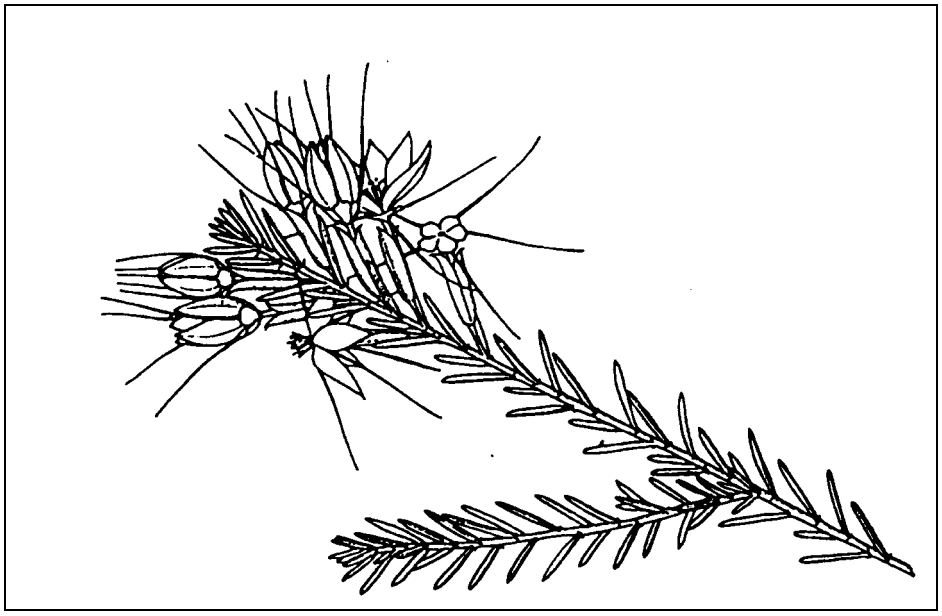
Recorded from the Bellevue and Gosnells areas in 1901 and 1915 respectively, *Calytrix breviseta* subsp. *breviseta* was then thought to have become extinct until it was rediscovered in 1990 during field work for CALM's Metropolitan Region Threatened Flora Management Program. Clearing on the Swan Coastal Plain has removed most suitable habitat and is the most obvious cause of the subspecies current critically endangered status.

Both populations are exposed to threats associated with little remaining habitat, weed invasion, accidental destruction, inappropriate fire and dieback. The aim of this Interim Recovery Plan is to abate identified threats and maintain viable *in situ* populations of *C. breviseta* subsp. *breviseta* in order to preserve the wild genetic stock of the subspecies. To achieve this aim the following essential and desirable recovery actions are prescribed.

Recovery actions:

Essential		Desirable	
1.	Install Declared Rare Flora markers	1.	Preserve genetic diversity of the subspecies
2.	Implement weed control	2.	Buffers and habitat rehabilitation
3.	Develop a fire management plan, ensure dieback hygiene	3.	Land title transfer
4.	Information dissemination	4.	Conduct further surveys
5.	Monitor populations	5.	Conduct research
		6.	Translocation

Calytrix breviseta* subsp. *breviseta



Donna Terrington

Distribution of *Calytrix breviseta* subsp. *breviseta*
Not available

1. BACKGROUND

1.1 History, taxonomy and status

Calytrix breviseta subsp. *breviseta* is an erect or spreading shrub to 40 cm high with linear to narrowly elliptic leaves and attractive purple-blue flowers. It differs from *C. breviseta* subsp. *stipulosa*, which is widespread in mallee and heath communities east of the Darling Range, in having longer, usually linear leaves, longer petals, a greater number of stamens, equal bracteoles, and a swampy clay flat habitat (Kelly *et al*. 1993).

A full taxonomic description is provided by L. A. Craven (1987) is included in Appendix 1.

Initially recorded from the Bellevue area (20 km E of Perth) in 1901 and Gosnells in 1915, this taxon was then thought to have become extinct until November 1990 when rediscovered by A. Kelly and A. Spooner during field work for the Department of Conservation and Land Management (CALM) Metropolitan Region Threatened Flora Management Program. In 1995 these populations were again surveyed and two populations containing a total of c. 750 plants were located. One population consists of 350+ seedlings which germinated following a summer wildfire in January 1994.

Recent surveys in the Bellevue area were not successful in locating populations of *C. breviseta* subsp. *breviseta*. The area has been largely cleared and no suitable habitat was found. Surveys of Ellen Brook Nature Reserve and heath near the Mundijong Road-Kargotich Road junction also failed to locate plants. Other areas surveyed include Tonkin Highway and the Railway Marshalling Yard, Guildford Cemetery, Hartfield Country Club in Forrestfield, areas near Forrestdale Lake, Keane Road and Passmore Road in Gosnells, Turner Road in Byford and the junction of High and Nicholson Roads in Canning Vale.

Due to the low number of plants, restricted distribution and the threats associated with growing in a specialised habitat, *Calytrix breviseta* subsp. *breviseta* was declared as Rare Flora in May 1991 and ranked as Critically Endangered in September 1995.

1.2 Distribution and habitat

Although originally recorded from Gosnells and Bellevue *C. breviseta* subsp. *breviseta* is now apparently confined to the Kenwick area. It is endemic to Western Australia.

It is found on a low lying, sandy clay flat amongst low heath of *Verticordia acerosa*, *Verticordia plumosa*, *Calothamnus hirsutus* and *Melaleuca uncinata* over very open low sedges. A list of associated species is included in Appendix 2.

Summary details of the two known populations are outlined in Table 1. A detailed description of each populations location is included in Appendix 3 (Confidential and not for publication).

Table 1: Summary of population information

Pop. No & Location.	Land Status	No. of plants.	Condition	Threats
1a. Kenwick	Ministry for Planning	350+ (seedlings)	Moderate	Frequent fire, accidental destruction during firebreak maintenance, weed invasion, dieback
1b. Kenwick	Private Property	130 (mature) 5 (seedlings)	Good	Accidental destruction during clearing and firebreak maintenance, dieback
2. Kenwick	Private Property	270 (mature) 30 (seedlings)	Good	Accidental destruction during clearing and firebreak maintenance, dieback

1.3 Biology and ecology

Very little is known about the biology and ecology of *C. breviseta* subsp. *breviseta*, both of which are currently being researched by Kings Park and Botanic Garden (KPBG). Subpopulation 1a consists of seedlings only which germinated following fire in January 1994 and indicates that the taxon is likely to be highly smoke responsive (K. Dixon. pers. comm.).

1.4 Threatening processes

1.4.1 Causes of the Critically Endangered status of this subspecies

The rarity of *C. breviseta* subsp. *breviseta* is probably due to the amount of clearing that has occurred for agriculture, housing and industry on the Swan Coastal Plain. Keighery (1994) states that more than 98% of the eastern side of the Swan Coastal Pain has been cleared, a higher percentage than for the wheatbelt. Habitat may have also been lost as a result of the pathogen *Phytophthora* spp. (dieback). The susceptibility of *C. breviseta* subsp. *breviseta* to *Phytophthora* spp is unknown, however many other members of the Myrtaceae family are known to be susceptible.

1.4.2 Threats to the ongoing survival of this subspecies in the wild

- **Accidental destruction** of some plants is possible during firebreak maintenance. All relevant authorities and land owners have been provided with locality information and made aware of the presence of this taxon.

- **Frequent burning** could result in the destruction of populations of *C. breviseta* subsp. *breviseta* . Although the fire that occurred in January 1994 on Ministry for Planning land (subpopulation 1a) stimulated the germination of soil stored seed it killed adult plants. This in itself is not a threat but it is possible that most seed germinated and few, if any, remain in the soil. If this is the case, any further burning before flowering and seed set could be detrimental.

- **Weeds** are invading subpopulation 1a and are competing with seedlings of *C. breviseta* subsp. *breviseta* for moisture and sunlight. Weeds also increase the fire risk of the area.

- **Dieback** is a serious threat to many ecological communities of the south-west. The susceptibility of *C. breviseta* subsp. *breviseta* to *Phytophthora* spp. is unknown, but many members of the Myrtaceae are susceptible to the pathogen.

1.5 Conservation status

C. breviseta subsp. *breviseta* is known from two populations. Population 1 is on private property (subpopulation 1a) and an adjacent property owned by the Ministry for Planning (subpopulation 1b). Population 2 is on private property. No plants are known to exist on a conservation reserve.

1.6 Strategy for recovery

The following essential strategies will be implemented:

1. Control the most threatening factors currently affecting *C. breviseta* subsp. *breviseta* as outlined in 3.2.
2. Protect *C. breviseta* subsp. *breviseta* from possible future threats (eg dieback) by appropriate management practices (see 3.2.3).
3. Ensure that relevant authorities, land owners and CALM personnel are aware of the presence of *C. breviseta* subsp. *breviseta,* and the need to protect it (eg. notification and roadside markers) and ensure that all are familiar with the threatening processes identified in these guidelines (see 3.2.1, 3.2.4).

The following desirable strategies will be implemented if resources permit:

1. Preserve the genetic diversity of *C. breviseta* subsp. *breviseta* by including it in a seed bank, cryostorage and/or *ex situ* cultivation (see 3.3.1).
2. Maintain buffers of natural vegetation around populations of *C. breviseta* subsp. *breviseta* and allow disturbed areas to revegetate naturally (see 3.3.2).
3. Ensure that the land title transfer occurs with the land containing Population 1a (currently owned by the Ministry for Planning) being vested with the National Parks and Nature Conservation Authority (NPNCA) and managed by CALM (see 3.3.3).
4. Conduct further surveys for *C. breviseta* subsp. *breviseta* on land containing suitable habitat (see 3.3.4).
5. Research the biology and ecology of *C. breviseta* subsp. *breviseta* (see 3.3.5).
6. Enhance plant numbers (eg by removal of a limiting factor or direct propagation and translocation techniques, see CALM Policy Statement No 29, *Translocation of Threatened Flora and Fauna* (see 3.3.6).

2. RECOVERY OBJECTIVE AND CRITERIA

2.1 Objective

The objective of this Interim Recovery Plan is to abate identified threats and maintain viable *in situ* populations to ensure the long term preservation of the species in the wild.

2.2 Criteria

2.2.1 Criteria for success

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

2.2.2 Criteria for failure

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

3. RECOVERY ACTIONS

3.1 Existing recovery actions

Declared Rare Flora (DRF) markers are now in place.

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

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

KPBG collected seed and cuttings in 1995.

Staff from CALM's Threatened Flora Seed Centre (TFSC) collected seed in 1994 and 1995. Some seed collected in 1994 was given to KPBG and seed material collected in 1995 was infertile. Due to the fire that occurred in the area

of subpopulation 1a, and the subsequent poor flowering and seed set of juvenile plants, little seed was collected in 1996. Staff from the TFSC will collect more seed in 1997.

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

3.2 Essential recovery actions

3.2.1 Install Declared Rare Flora (DRF) markers

During an inspection of *C. breviseta* subsp. *breviseta* populations in late November 1995, it was noticed that recent earthworks had occurred along the south east fenceline of the Ministry for Planning property (subpopulation 1a). The north west road reserve had been graded and vehicles had also entered the property and graded along the firebreak. During these activities, DRF markers were moved. As the subpopulation is adjacent to the firebreak, the potential for accidental destruction is high.

Action:	Install three DRF markers
Responsibility:	CALM (Perth District, Western Australian Threatened Species and Communities Unit (WATSCU))
Cost:	$200

3.2.2 Implement weed control

The south east edge of subpopulation 1a is becoming severely weed infested. Although the subpopulation was subject to weed control research in 1996 by SID, a weed control program is required and will involve:

1. Accurately mapping the boundaries of the subpopulation.
2. Selection of an appropriate herbicide or other method of weed control after determining which weeds are present.
3. Controlling invasive weeds internal to the boundary by hand removal and spot spraying around individual *C. breviseta* subsp. *breviseta* plants when weeds first emerge.
4. Scheduling to include weed spraying of other DRF populations requiring weed control within the Swan Region.

Action:	Implement weed control
Responsibility:	CALM (Perth District, SID, WATSCU), Gosnells Shire
Cost:	$500 pa.

3.2.3 Develop a fire management plan, ensure dieback hygiene

The fire hazard that weeds create in summer may be a threat to subpopulation 1a. *C. breviseta* subsp. *breviseta* seedlings in this subpopulation have had few flowers and are not mature enough to have produced enough seed to replenish the soil seed bank.

It is recommended that CALM Perth District personnel hold an on-site meeting with representatives from relevant authorities and land managers to outline the problems associated with inappropriate fire regimes and develop a fire management plan. Part of the fire management plan will involve the maintenance of firebreaks, especially those on the Ministry for Planning land (subpopulation 1a). Close liaison between all relevant land managers is required due to the close proximity of plants to firebreaks. CALM supervision of firebreak maintenance is recommended for both private property and Ministry for Planning land.

Due to the likely susceptibility of *C. breviseta* subsp. *breviseta* to dieback, all vehicles entering these sites should be subjected to dieback hygiene procedures.

Action:	Develop a fire management plan, dieback hygiene
Responsibility:	CALM (Perth District, WATSCU), relevant authorities and land owners
Cost:	$850

3.2.4 Information dissemination

To promote an awareness of *C. breviseta* subsp. *breviseta* among relevant CALM and Shire staff, the production of posters and dashboard stickers is recommended. Dashboard stickers should illustrate a DRF marker and provide a contact telephone number if one is encountered. Posters should illustrate and provide descriptive information on the subspecies.

The importance of biodiversity conservation and the preservation of critically endangered species need to be promoted to the general public, however, it is recommended that the exact location of *C. breviseta* subsp. *breviseta* remain confidential. Awareness can be encouraged throughout the community by a publicity campaign using the local print and electronic media and by setting up poster displays in venues of high exposure. Formal links with local naturalist groups and interested individuals should also be encouraged.

Action:	Produce posters and dashboard stickers, implement a publicity campaign
Responsibility	CALM (Corporate Relations Division, Perth District, WATSCU)
Cost:	$500 first year, $1500 second year

3.2.5 Monitor populations

Monitoring of factors such as weed encroachment, habitat degradation, population stability (expanding or declining), pollination activity, seed production, recruitment, and longevity is prescribed.

Populations will be inspected annually as a requirement under CALM's Policy Statements No. 9. *Conservation of Threatened Flora in the Wild* and No. 28. *Reporting Monitoring and Re-evaluation of Ecosystems and Ecosystem Management*. See also below 3.3.5 (11) *Development of a Quadrat/Transect Based Monitoring System For Threatened Plant Species*.

Action:	Monitor populations
Responsibility:	CALM (Perth District, WATSCU)
Cost:	$350 pa.

3.3 Desirable recovery actions

3.3.1 Preserve genetic diversity of the subspecies

Germplasm collections should be given a high priority if the extinction of populations of *C. breviseta* subsp. *breviseta* is considered a high probability through disease, its limited distribution or low number of plants. If this is deemed to be the case, recovery of this subspecies is likely to need *ex situ* conservation techniques.

Genetic diversity conservation of the species should be incorporated into the research component (see 3.3.5) and should include collection of seed from both populations, ensuring an adequate representation of genetic diversity of each.

If it is not possible to collect adequate quantities of viable seed, other more costly germplasm storage methodologies may need to be investigated. These can involve living collections from cutting or other source material, or storage of tissue culture material. If resources are limited these techniques will need to be carefully prioritised in relation to *in situ* conservation. This will be coordinated by the SRTFRT.

It is also important that the size and viability of the soil seed bank is determined and research undertaken to develop techniques for stimulating germination of soil stored seed. Care, however, should be taken as these processes inherently carry a significant risk of depletion of seed bank reserves.

Action:	Collect seed and/or genetic material from both populations, determine the size and viability of soil seed banks
Responsibility:	SRTFRT, CALM (TFSC), KPBG
Cost:	$1600.

3.3.2 Buffers and habitat rehabilitation

The remnant vegetation surrounding Populations 1 and 2 should be maintained as a buffer to prevent the encroachment of weeds. It also provides habitat for a population of the threatened Quenda (Southern Brown Bandicoot).

It is recommended that the track through the middle of the south-west section of the Ministry for Planning property be allowed to revegetate naturally. If weed control is necessary along this track, it should be carried out at the same time weed control is implemented for subpopulation 1a.

Action:	Buffers and habitat rehabilitation
Responsibility:	CALM (Perth District, WATSCU)
Cost:	Nil, unless weed control needed

3.3.3 Land title transfer

The Ministry for Planning property (subpopulation 1a) is managed for conservation. In time it will be vested with the NPNCA and managed by CALM. This land provides continuity with several other relatively undisturbed natural plant communities, including the adjacent remnant pockets of native vegetation on the Yule Brook property owned by The University of Western Australia (which is effectively managed as a reserve), Bickley Road area and the proposed Brixton Street Reserve (Mattiske and Associates 1992a).

The addition of the property containing *C. breviseta* subsp. *breviseta* to the conservation reserve system will be particularly valuable as the subspecies occurs on Guildford clays which are found only on the eastern side of the Swan Coastal Plain. These soils are very fertile and occur in areas that have been almost entirely cleared for agriculture and urban use.

The proposed Brixton Street Reserve and associated wetlands are currently under assessment by the Australian Heritage Commission for inclusion on the Register of the National Estate. These areas, when combined, support several threatened species which are currently being studied by KPBG as well as a number of taxa on the Priority Flora list and rare hybrids (see list below).

Declared Rare Flora:

Aponogeton hexatepalus, *Hydrocotyle lemnoides* and *Diuris purdiei*.

Priority Flora:

Priority 1
Calandrinia aff. *composita*, *Eryngium pinnatifidum* subsp. *palustre* ms, *Eryngium subdecumbens* ms, *Grevillea thelemanniana* subsp. *thelemanniana* and *Lepidosperma rostratum.*

Priority 2
Andersonia gracilis, *Comesperma rhadinocarpa*, *Hydatella dioica* and *Schoenus capillifolius*.

Priority 3
Baeckea tenuifolia, *Eleocharis* sp. (GJK 5180), *Helipterum pyrethrum*, *Isopogon drummondii*, *Rhodanthe pyrethrum*, *Schoenus benthamii* and *Synaphea acutiloba*.

Priority 4
Anthotium junciforme, *Comesperma undulatum*, *Drosera occidentalis*, *Verticordia lindleyi* subsp. *lindleyi* and *Villarsia submersa*

Rare Hybrids:

Anigozanthos bicolor x. *viridis*, *A. bicolor* x. *manglesii*, *A. manglesii* x. *viridis*, *Tribonanthes brachypetala* x. *australis* and *T. australis* x. *uniflora*.

Action:	Land title transfer (Ministry for Planning land to be vested with the NPNCA and managed by CALM)
Responsibility:	CALM (Land Administration, Perth District), Ministry for Planning

Cost: $150 pa. (for 2 years)

3.3.4 Conduct further surveys

Areas of uncleared land containing suitable habitat will be further surveyed on a systematic basis for the presence of *C. breviseta* subsp. *breviseta*. This should be conducted by CALM District and Regional staff and be done when the subspecies is in flower (September-October).

Action: Conduct further surveys
Responsibility: CALM (Perth District, Swan Region)
Cost: $500 pa.

3.3.5 Conduct research

Weed control research is currently being carried out. Further research designed to increase an understanding of the biology and ecology of *C. breviseta* subsp. *breviseta* will provide a scientific base for management of this subspecies in the wild. Research should include:

1. The response of *C. breviseta* subsp. *breviseta* to herbicide treatments.
2. Pollination biology and seed set.
3. Investigation of factors determining level of flower and fruit abortion.
4. Quantification of level of invertebrate grazing or removal of seed.
5. The size and viability of seed bank.
6. Seed germination requirements.
7. The role of disturbance in regeneration.
8. Longevity of plants, and time taken to reach maturity.
9. Knowledge of the extent of genetic variation within and between populations. This is essential if new populations are to be established.
10. The development of a monitoring system. Specific protocols for rare flora will be outlined in a future CALM discussion paper "*Development of a quadrat/transect based monitoring system for threatened plant species*", A. Brown, P. Pigott and D. Coates (in prep).

Action: Conduct research
Responsibility: CALM (SID, Perth District, WATSCU)
Cost: $1000 first year, $2000 second year

3.3.6 Translocation

Information on the translocation of threatened animals and plants in the wild is provided in CALM Policy Statement No 29. Surveying potential habitats for possible future translocation sites is recommended within the scope of IRPs, with actual translocation addressed in full Recovery Plans where necessary. This should be coordinated by the SRTFRT. Any translocation proposal will have to be endorsed by the Director of Nature Conservation.

Action: Survey potential habitat for translocation
Responsibility: SRTFRT, CALM (Perth District, Swan Region)
Cost: See Section 3.3 4 (Conduct further surveys)

Table 2: Summary of recovery actions

Recovery Actions	Population	Priority	Responsibility	Completion date
Essential				
Install DRF markers	1a & 2	High	CALM (Perth District, WATSCU)	Done 17th September 1996
Implement weed control	1a	High	CALM (Perth District, SID, WATSCU), Gosnells Shire	April 1996, ongoing
Develop a fire management	1a, 1b & 2	High	CALM (Perth District,	September 1996/98

plan, ensure dieback hygiene			WATSCU), relevant authorities and landowners	
Information dissemination	1a, 1b & 2	High	CALM (Corporate Relations Division, Perth District, WATSCU)	Ongoing
Monitor populations	1a, 1b & 2	High	CALM (Perth District, WATSCU)	August - October 1996/97/98
Desirable				
Preserve genetic diversity of the subspecies	1a & 1b	Moderate	SRTFRT, CALM (TFSC), KPBG	November 1995
Buffers and habitat rehabilitation	1a	Moderate	CALM (Perth District, WATSCU)	April - May 1996
Land title transfer	1a	Moderate	CALM (Land Administration, Perth District), Ministry for Planning	In negotiation/ongoing
Conduct further surveys		Moderate	CALM (Perth District, Swan Region)	September -October 1996/97/98
Conduct research.	1a, 1b & 2	Moderate	CALM (SID, Perth District, WATSCU)	Ongoing
Translocation.		Low	SRTFRT, (CALM Perth District, WATSCU)	No date set

3.4. Costs

Table 3: Summary of costs for each recovery action

Recovery Action	1996			1997		1998	
	CALM	**EA**	**KPBG**	**CALM**	**EA**	**CALM**	**EA**
Essential							
Install DRF markers	200						
Implement weed control	500			500		500	
Develop a fire management plan, ensure dieback hygiene	850					500	
Information dissemination		500			1500		
Monitor populations	350			350		350	
Sub-total	**$1900**	**$500**		**$850**	**$1500**	**$1350**	
Desirable							
Preserve genetic diversity of the subspecies	500		1100				
Land title transfer	150			150			
Conduct further surveys	500			500		500	
Conduct research	1000			2000			
Sub-total	**$2150**		**$1100**	**$2650**		**$500**	
Total	**$4050**	**$500**	**$1100**	**$3500**	**$1500**	**$1850**	

EA Environment Australia (formerly ANCA)

Total of all costs over three years: $12 500

ACKNOWLEDGMENTS

The following people have provided valuable assistance and advice in the preparation of this Interim Recovery Plan;

Ken Atkins	CALM Wildlife Branch
Kingsley Dixon	Kings Park and Botanic Garden
Brenda Moran	CALM Wildlife Branch
Mike O'Donoghue	CALM Wildlife Branch
Les Robson	CALM Swan Region
Maurizio Rossetto	Kings Park and Botanic Garden
Neville Wallace	CALM Wildlife Branch

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Appendix One: Taxonomic description

Craven, L.A. (1987). A taxonomic revision of *Calytrix* Labill. (Myrtaceae). *Brunonia* **10**, 1-138. CSIRO, Melbourne.

Appendix Two: Associated species

CUPRESSACEAE
Actinostrobus pyramidalis

POACEAE
**Avena fatua*
**Briza maxima*
**Briza minor*
Danthonia setacea
**Eragrostis curvula*
**Polypogon monspeliensis*
**Vulpia* sp.

RESTIONACEAE
Isolepis nodosa
Leptocarpus canus

CENTROLEPIDACEAE
Centrolepis aristata

DASYPOGONACEAE
Lomandra integra

ANTHERICACEAE
Borya sphaerocephela

MIMOSACEAE
Acacia lasiocarpa var. *lasiocarpa*

COLCHICACEAE
Burchardia multiflora

HAEMODORACEAE
Anigozanthos viridis
Conostylis filifolia
Haemodorum simplex

IRIDACEAE
**Romulea rosea*

THYMELAEACEAE
Pimelea imbricata

PROTEACEAE
Banksia telmatiaea
Grevillea thelemanniana subsp. *thelemanniana*

PAPILIONACEAE
**Lotus suaveolens*
**Trifolium campestre*

ASTERACEAE
Podolepis lessonii

STYLIDIACEAE
Stylidium divaricatum

MYRTACEAE
Calytrix aurea
Calothamnus hirsutus
Eremaea pauciflora
Hypocalymma angustifolium
Melaleuca rhaphiophylla
Melaleuca thymoides
Melaleuca uncinata
Verticordia acerosa
Verticordia huegelii
Verticordia plumosa

GENTIANACEAE
**Centaurium erythraea*

SCROPHULARIACEAE
**Parentucellia viscosa*

LOBELIACEAE
Isotoma scapigera
**Monopsis simplex*

GOODENIACEAE
Goodenia filiformis
Lechenaultia expansa
Scaevola lanceolata

* Introduced species