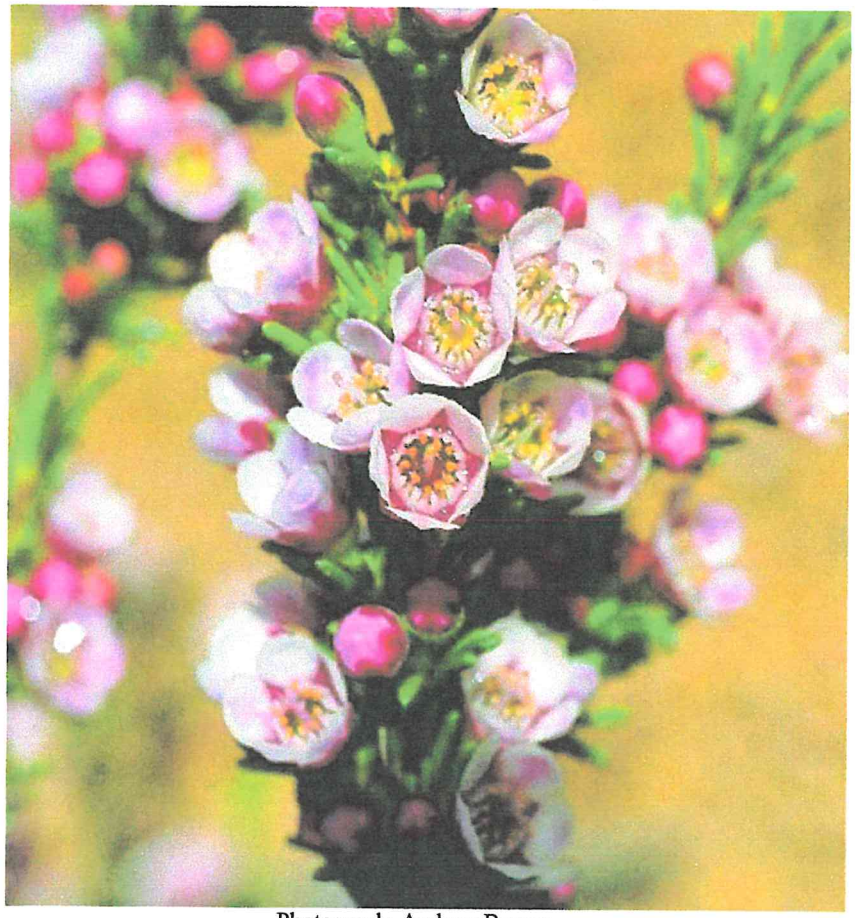
INGIN WAX
AUCIUM SP. GINGIN)

INTERIM RECOVERY PLAN

1999-2002

by

Rebecca Evans and Val English



Photograph: Andrew Brown

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Department of Conservation and Land Management
Western Australian Threatened Species and Communities Unit
PO Box 51, Wanneroo, WA 6946.

Natural Heritage Trust
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Department of Conservation and Land Management

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 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This Interim Recovery Plan will operate from April 1999 to March 2002 but will remain in force until withdrawn or replaced. It is intended that, if the taxon is still ranked Critically Endangered, this IRP will be replaced by a full Recovery Plan after three years.

This IRP was approved by the Director of Nature Conservation on 30 August 1999. 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 April 1999.

SUMMARY

Scientific Name: ***Chamelaucium* sp. Gingin**
Common Name: Gingin wax
Family: Myrtaceae
Flowering Period: September to November (December)
CALM Region: Swan
CALM Districts: Perth and Mundaring
Shires: Gingin and Chittering
Recovery Team: Swan Region Threatened Species and Communities Recovery Team

Illustrations and/or further information: Brown, A., Thomson-Dans, C. and Marchant, N. (eds.). (1998). *Western Australia's Threatened Flora*. Department of Conservation and Land Management. Como, Western Australia; Leigh, J., Boden, R. and Briggs, J. (1984). *Extinct and endangered plants of Australia*. Macmillan, South Melbourne.

Current status: *Chamelaucium* sp. Gingin was declared as Rare Flora in September 1986 and ranked as Critically Endangered (CR) in November 1998. It currently meets World Conservation Union (IUCN) Red List category 'CR' under criterion B1+2b (IUCN 1994). The five populations of *Chamelaucium* sp. Gingin are highly fragmented. The main threats are weeds, fire, road and track maintenance, grazing by rabbits and sheep, farming activities and possibly disease.

Habitat requirements: *Chamelaucium* sp. Gingin is endemic to Western Australia and is apparently confined to the Gingin / Chittering areas, where it is known from a range of only 3 km. The five known populations contain approximately 1000 plants. The species occurs on white/yellow sand supporting open low woodland with *Eucalyptus todtiana*, *Banksia attenuata*, and *Hibbertia* sp.

Existing Recovery Actions: The following recovery actions are currently being implemented:
1. All appropriate people have been made aware of the existence of this species and where it occurs.
2. Population 5 has been fenced.
3. Purchase by CALM with assistance from Environment Australia of private land on which the species occurs is in train.
4. DRF (Declared Rare Flora) markers have been placed at all roadside locations.
5. An information sheet for *Chamelaucium* sp. Gingin has been produced.
6. Seed was collected in 1995 - 1997 from Populations 1c, 1b and 3 by CALM's Threatened Flora Seed Centre (TFSC).
7. The species has been successfully cultivated by several nurseries.
8. Staff from CALM's Perth and Mundaring Districts regularly monitor the populations.

IRP 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.

Recovery criteria
Criterion for success: The number of individuals within populations and/or the number of populations have increased.
Criterion for failure: The number of individuals within populations and/or the number of populations have decreased.

Recovery actions
1. Liaise with relevant landholders and authorities.
2. Monitor populations.
3. Disseminate information.
4. Preserve genetic diversity of the species.
5. Undertake weed control.

6. Develop and implement a fire management strategy.
7. Install fencing.
8. Conduct further surveys.
9. Obtain biological and ecological information.
10. Write full Recovery Plan.

1. BACKGROUND

History

Chamelaucium sp. Gingin was known to local farmers and nurseries for many years prior to the official recognition of the species as distinctly different. The Gingin wax was first recognised as a new species when G. Lullfitz, a well-known nurseryman, brought the species to the attention of N. Marchant (Western Australian Herbarium, Department of Conservation and Land Management (CALM)). Between 1991 and 1994 various CALM staff then extensively surveyed the area of the Darling Scarp near the original location. In 1995 D. Papenfus (Western Australian Threatened Species and Communities Unit (WATSCU, CALM) located an additional three populations after an intensive survey of the area. K. Borland and J. Carter (CALM, Perth and Mundaring Districts respectively) located a fifth population on private property in 1997. To date there are only five known populations of this species. These are confined to a very limited geographical range and are highly fragmented.

Population 1a is also located within an occurrence of an endangered ecological community (English and Blyth 1997). Gibson *et al.* (1994) describe the community as '*Banksia attenuata* woodland over species rich dense shrublands'.

Description

The Gingin wax is an open straggly shrub 1 to 2 meters tall with many slender stiff branches that bear numerous 5 to 20 mm long axillary shoots. Its erect, glandular, bright green leaves are 5.4-11.5 mm long by 1.2-1.4 mm wide, and are scattered along the main branches, but are mostly crowded on numerous short axillary shoots. Leaves are attached to a 0.5-1.5 mm long petiole, which is frequently appressed to the stem. The inflorescence is composed of a small head on short axillary shoots or sometimes a larger flower head at the end of main branches. The 6.6 – 9.2 mm flowers occur in groups of two to nine in small heads on axillary shoots. Up to 20 flowers are held in clusters at the end of main branches. The flowers are pale pinkish-white, and the buds are tinged a deeper pink. The calyx lobes are erect, ovate, glandular, 2-2.8 mm long and have margins that are irregularly denticulate and ciliate. The erect corolla lobes are 4.6-6 mm long, and are covered with fine scattered glands. The corolla margins are irregularly denticulate and very sparsely but finely ciliate.

Distribution and habitat

Chamelaucium sp. Gingin is endemic to Western Australia and is apparently confined to the Gingin area. It is known from a range of only 3 km. The five known populations contain a total of approximately 1000 plants. The species occurs on white/yellow sand supporting open low woodland over open scrub, with *Eucalyptus todtiana*, *Banksia attenuata*, and *Hibbertia* sp. *Chamelaucium* sp. Gingin does not occur in the nearby *Adenanthos cygnorum* and *Kunzea ericifolia* thickets.

Biology and ecology

Plant Growth

Chamelaucium sp. Gingin appears to be a reasonably long lived taxon, with plants in Population 1a known to be up to 16 years old prior to a fire in January 1995. These adult plants survived due to protection provided by the owner of the area of land that contains that population. The landholder also noted that the species tends to produce suckers after fire. The plants then take up to five years before flowers and seeds are produced. Due to the species' ability to sucker, it is possible that the genetic diversity within populations is low and this has

implications for reproductive capacity. This will be addressed in action 9 – obtain biological and ecological information.

Pollinators
European bees, native bees, native wasps, flies, and beetles have all been observed feeding on the nectar. A. Cochrane (Manager, TFSC) has noted European bees and 'small furry' native bees pollinating the taxon, however, she has also noted a low seed set, with many seeds aborting or not being pollinated. This will be addressed in action 9.

Dispersal and Germination
To date there has been no field observation of the natural seed dispersal mechanisms, however, germination of seedlings in new areas has been achieved through movement of sand from underneath mature plants (local landholder pers. comm.) The landholder also noted that germination was enhanced following the fire in 1995, and that reducing the competition from species with dense habit, such as *Adenanthos cygnorum* and *Kunzea ericifolia,* helps the plants to thrive.

Fire
Most plants on a local landholder's property were burnt and killed in an intense fire in January 1995. Some 30 plants survived where the fire was contained by the local bush fire brigade. As the plants take five years to reach maturity and produce seed, a fire frequency of five years or less would severely threaten this species.

Frost
Anecdotal evidence suggests that *Chamelaucium* sp. Gingin is frost resistant as the mature plants on a local landholder's property survived a very heavy frost in 1987, and winter frosts are common in the area (local landholder pers. comm.).

Disturbance
Chamelaucium sp. Gingin appears to be a disturbance opportunist. It occurs only on disturbed road reserves, firebreaks, powerline maintenance tracks, and in burnt bushland. A local landholder cleared around plants that germinated near thicket areas and recorded 'superior survival' of the taxon as a consequence of reduced competition (local landholder pers. comm.).

Disease
A number of taxa in the genus *Chamelaucium* are susceptible to dieback caused by *Phytophthora* spp., however resistance to the disease varies between species (G. Keighery pers. comm.).

Other factors
There is little information about predation of flowers and fruit, response to weed invasion and herbicide application but these data are necessary for management. It is essential that these data are gathered for *Chamelaucium* sp. Gingin so that recovery can be effectively managed (see action 9).

Threats

This species is currently ranked as Critically Endangered under IUCN Red List criterion B1+2b (IUCN 1994), due to it being severely fragmented and suffering continuing decline in area of occupancy. The main threats are weeds, fire, road and track maintenance, grazing by rabbits and sheep, farming activities and possibly disease.

- **Inappropriate fire regimes** would affect the viability of populations, as seeds of *Chamelaucium* sp. Gingin probably germinate following fire. Field evidence suggests that it takes five years for plants to reach maturity and to flower and produce seed. Therefore, the soil seed bank would rapidly be depleted if fires recurred before juvenile plants reached maturity and replenished the soil seed bank. However, it is likely that occasional fires are required for the species to propagate from soil stored seed. It is thought that regeneration also occurs from root stock after fire, and this material is thought to be able to flower and produce seed within a shorter period. Further investigation is required and will be addressed in management action 9.

- **Road, track and firebreak maintenance activities** threaten specific populations and their habitat. Threats include actions such as grading road reserves, constructing drainage channels and mowing the roadside vegetation to improve visibility. These disturbance events also often encourage weed invasion into adjacent habitat, as well as causing damage to actual plants. Relevant authorities need to be informed of the location of populations so that appropriate protective measures can be implemented. Adjacent landowners should also be informed of the presence of this species to prevent possible damage due to grazing, crop maintenance, firebreak maintenance or other activities that may threaten the populations.

- **Grazing** by rabbits (*Oryctolagus cuniculus*) has had a minor impact on all populations. In addition, disturbance of soil from rabbit warren construction, and the increased levels of nutrients and weeds from droppings is affecting the habitat of the species. Grazing may also limit natural recruitment through impacting establishment of *Chamelaucium* sp. Gingin seedlings.

- **Grazing** by sheep is a possible threat as some of the populations occur on private property, however, to date there has been no recorded damage. If protection is not provided, however, adult plants and recruitment of *Chamelaucium* sp. Gingin will probably be impacted in the future.

- **Weed invasion** is a minor threat to populations adjacent to roads, tracks, and firebreaks. Weeds suppress early plant growth by competing for soil moisture, nutrients, and light. They also exacerbate grazing pressure and increase the fire hazard due to the production of high levels of fuel which are produced annually by many grass weed species, and are easily ignited. Narrow linear populations such as those that occur along road and rail reserves are severely affected by influences from adjacent cleared land, commonly referred to as edge effects (Lynch 1987, Saunders *et al.* 1987, and Taylor 1987). In addition to the proximity of a weed seed source, edge effects include increased wind speed, increased fertiliser runoff, modified hydrology, and altered disturbance regimes, including fire.

- **Farming activities** such as fence and firebreak maintenance may cause damage to plants that are growing close to fence lines. Some populations of *Chamelaucium* sp. Gingin are also close enough to farmland to be affected by herbicide and fertiliser applications.

- **Disease:** To date dieback (caused by *Phytophthora* spp.) is not known to occur in the immediate vicinity of this species, however, the disease could become a threat in the near future. *Chamelaucium* sp. Gingin may be susceptible to this pathogen and the prevention of the spread of dieback into the habitat of the populations is therefore important.

Summary of population information and threats

Population & Location.	Land Status	Year and no. of plants	Condition	Threats
1a. Ioppolo Rd	Private property	1995 - 78 1996 – 82 total for 1a,b,c	Disturbed	Road and firebreak maintenance activities, weed invasion
1b. Ioppolo Rd	Private property	1995 - 1		Firebreak maintenance activities, weed invasion
1c. Ioppolo Rd	Road reserve	1992 - 20+ 1996 – 294 total for 1c,f,h	Healthy	Road maintenance activities, weed invasion
1d. Ioppolo Rd	Private property	1996 - 29 total for 1d,e		
1e. Ioppolo Rd	Road reserve	unknown		
1f. Ioppolo Rd	Private property	unknown		
1g. Ioppolo Rd	Private property	1995 - 0		
1h. Ioppolo Rd	Road reserve Western Power line	unknown		
1i. Ioppolo Rd	Private property	1996 – 86		
1j. Ioppolo Rd	Road reserve	1996 – 86		
2. Ioppolo Rd	Private property	1995 – 2 1996 - 2	Disturbed	Fencing activities, road realignment.
3. Breera Rd	Road reserve	1995 – 300	Poor	Weed invasion, road maintenance activities, prescribed burning, grazing
4a. Breera Rd	Private property	unknown		
4b. Breera Rd	Road reserve	1995 - 200+	Moderate	Firebreak maintenance activities, weed invasion, prescribed burning
5. Ioppolo Rd	Private property	1997 - ≈500	Healthy	Grazing

2. RECOVERY OBJECTIVE AND CRITERIA

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.

Criterion for success: The number of individuals within populations and/or the number of populations have increased.

Criterion for failure: The number of individuals within populations and/or the number of populations have decreased.

3. RECOVERY ACTIONS

Existing recovery actions

All appropriate people have been made aware of the existence of this species and where it occurs.

The fence has been completed surrounding Population 5, under a fencing agreement with the landowner. CALM funded half and erected all of the 1.5 ha perimeter fence, and the owner funded the remainder (K. Borland pers. comm.). The owner of private property adjacent to Population 3 is willing to move a fence about 4 m to protect plants from grazing by sheep and provide extra habitat for the plants, if CALM provides funds (see recovery action 7 – install fencing).

The owners of the property on which Population 1a occurs were fostering the species as an attractive native garden plant before the species was declared as rare, and have made and shared many observations regarding this taxon's biology and ecology. An offer of purchase has been sent to this landholder. Population 1a occurs in

the Threatened Ecological Community, '*Banksia attenuata* woodlands over species rich dense shrublands' (Gibson *et al.* 1994; English and Blyth 1997).

DRF (Declared Rare Flora) markers have been placed at all roadside populations and the Shire of Gingin and the Shire of Chittering have been informed of the placement of these markers and their importance in the conservation of this species.

An information sheet for *Chamelaucium* sp. Gingin has been produced and distributed. This includes a description of the plant, its habitat type, threats, management actions, and photographs. This sheet has been distributed to the public through CALM's District office, and the Shire of Gingin and Chittering offices and library. Copies were also be supplied to the Bush Fire Brigade (BFB), Westrail and Agriculture WA (AgWA) to raise awareness of the plant and its appearance.

Seed was collected from Populations 1c, 1b and 3 by the TFSC and germination results have been variable. The following table summarises these collections and germination tests.

Date	**Populations**	**Initial Germination**	**First year Germination**
Dec 1995	3	50%	22%,
Oct 1996	3 and 1c	10%, 10%	0%, 0%
Nov 1997	3 and 1c,1b	20%, 40%, 60%	10%, 1c - not tested, 20%

(Data provided by A. Cochrane, TFSC)

Most of these seed collections are a bulk of seed taken from 50 to 80 adult plants, with the exception of the 1995 collection where seed was taken from 10 individual plants. The seed numbers in each collection range from 200 to 400 with 1650 seeds collected in total. All seed is stored at -18° and germination rates are assessed initially, after one year in storage, then again after five years.

The species was successfully cultivated by several nurseries, however due to lack of commercial interest it only exists as stock plants in several gardens. *Chamelaucium* sp. Gingin grows successfully from both cuttings and from seed (private landholder pers. comm.) and KPBG hold 26 mature plants grown from rooted cuttings or seed provided by A. Cochrane (CALM, TFSC).

CALM Swan Region staff regularly monitor the populations.

The Swan Region Threatened Flora and Communities Recovery Team (SRTFCRT) is overseeing the implementation of this IRP and will include information on progress it in its annual report to CALM's Corporate Executive.

Future recovery actions

Where populations occur on lands other than those managed by CALM, permission will be sought from the appropriate land managers prior to recovery actions being undertaken.

1. Liaise with relevant landholders and authorities

CALM will liaise with relevant authorities and landholders, explaining the importance of the conservation of this species, the conservation process and how each group can effect the survival of the species.

An information kit will be constructed that illustrates the importance of species conservation, the role of DRF markers in the conservation of declared rare species, contact names and numbers, and specific information about this species. Due to the potential susceptibility of the species to dieback caused by *Phytophthora* spp. the need for the application of dieback hygiene procedures will be included in information provided. This will stress the need to restrict the movement of soil into the habitat of the populations.

Action:	Liaise with relevant authorities and landholders
Responsibility:	CALM (Perth and Mundaring Districts) through the SRTFCRT, Western Power, and Shires of Gingin and Chittering, relevant landholders and other relevant authorities
Cost:	$3,200 in the first year and $2,700 in subsequent years.

2. Monitor populations

Annual monitoring of factors such as weed densities, habitat degradation (including the impact of dieback), population stability (expansion or decline), pollination activity, seed production, recruitment and longevity are essential. For roadside populations, the visibility of DRF markers will also be monitored and their visual prominence maintained.

Weeds and rabbits are a minor threat at many of *Chamelaucium* sp. Gingin populations. These factors will be monitored to determine when action is required.

Action:	Monitor populations
Responsibility:	CALM (Perth and Mundaring Districts) through the SRTFCRT and land managers
Cost:	$500 per year.

3. Disseminate information

The importance of biodiversity conservation, the preservation of critically endangered species generally and the existence of *Chamelaucium* sp. Gingin in particular will be promoted to the public. Awareness will be encouraged in the community by a publicity campaign through the local print and electronic media and poster displays. Formal links with local naturalist groups and interested individuals will also be encouraged. A poster illustrating all critically endangered flora in CALM's Perth and Mundaring Districts will be developed for display at shire offices and shopping centres.

An information sheet for *Chamelaucium* sp. Gingin has been produced and distributed (see existing actions). CALM will also produce a mail-out information flier for distribution in the Gingin area. These fliers are aimed at local residents to provide information and a contact if they locate the species.

Action:	Disseminate information
Responsibility:	CALM (Perth and Mundaring Districts and Corporate Relations Divisions) through the SRTFCRT
Cost:	$2,000 in the second year, $400 in the first and third years.

4. Preserve genetic diversity of the species

Some seed has been collected for this species (see existing recovery actions). However, further collection from other populations will be conducted to capture a larger proportion of the genetic diversity. Care will be taken as these processes carry an inherent and significant risk of depletion of seed bank reserves. The first aim of germplasm collection is the preservation of the species in the wild.

Due to the current number of plants in cultivation and the ease of propagation from cuttings, it is not currently necessary to collect additional vegetative plant material.

Action:	Preserve genetic diversity of the species
Responsibility:	CALM (Perth and Mundaring Districts and TFSC) through the SRTFCRT
Cost:	$2,400 in the first and second years.

5. Undertake weed control

Weeds are a minor threat at all the road reserve populations. The adult *Chamelaucium* sp. Gingin plants are coping with the competition from weeds, but a greater threat is the effect on recruitment of seedlings. Effective weed control with the use of herbicides and hand pulling will be conducted in these areas.

The tolerance of native plant species to herbicides at *Chamelaucium* sp. Gingin sites is unknown and weed control programs will be undertaken in conjunction with research (see action 9). The aim of weed control is to maintain the pre-invasion condition of the habitat (prevention), control or arrest ongoing weed invasion (intervention) and reverse the degraded condition of the habitat where applicable (rehabilitation) (Panetta and Hopkins, 1991). A weed control program for these populations will involve:

1. Accurately mapping the boundaries of weed populations.
2. Selection of appropriate herbicide or method of weed control for the weeds that are present.
3. Controlling invasive weeds internal to the boundary by hand removal or spot treatment.
4. Scheduling to include weed spraying at other DRF populations requiring weed control.

The road reserves on which populations of this species occur are managed by the Shires of Gingin and Chittering, and the weed control programs will be developed in consultation with these authorities and relevant land managers.

Action:	Undertake weed control
Responsibility:	CALM (Perth and Mundaring Districts, and CALMScience) through the SRTFCRT, Shires of Gingin and Chittering and relevant land managers
Cost:	$2,300 per year.

6. Develop and implement a fire management strategy

Field evidence suggests that mature plants are damaged by fire, producing suckers that then take up to five years to become reproductive. It is likely, however, that the species requires occasional fire for recruitment from soil-stored seed. Frequent fires would therefore be detrimental to the long term survival of the species (see Section 1). Fire also promotes the introduction and proliferation of weed species.

A fire management strategy will be developed by the SRTFCRT in consultation with relevant authorities and land managers.

Action:	Develop a fire management strategy
Responsibility:	CALM (Perth and Mundaring Districts) through the SRTFCRT, land managers and other relevant authorities
Cost:	$2,300 in the first year and $500 in subsequent years.

7. Install fencing

While the plants at Population 3 are not directly threatened by grazing, grazing is impacting adjacent habitat. The owner of the property adjacent to this road reserve population is willing to move the fence4 m to protect the habitat from sheep grazing in this paddock. A stock-proof fence will be erected around the population including a buffer of surrounding habitat.

Action:	Install fencing
Responsibility:	CALM (Perth and Mundaring Districts) through the SRTFCRT and relevant land manager
Cost:	$5,200 in the first year.

8. Conduct further surveys

There have been extensive surveys for this species since 1988, when it was first recognised as a distinct species. However, there are still various areas that contain suitable habitat that have not been surveyed. Further survey for the species will be undertaken in areas of suitable habitat during the species' flowering period (September to December).

Volunteers from the local community, Wildflower Societies, Naturalist Clubs, and other community based groups will be invited to be involved in surveys supervised by CALM staff.

Action:	Conduct further surveys
Responsibility:	CALM (Perth and Mundaring Districts) through the SRTFCRT
Cost:	$2,300 per year.

9. Obtain biological and ecological information

Increased knowledge of the biology and ecology of the species will provide a scientific basis for management of *Chamelaucium* sp. Gingin in the wild. Investigations will include:

1. Investigation of the soil seed bank dynamics and the role of various factors (disturbance, competition, rainfall, grazing) in recruitment and seedling survival.
2. Determination of reproductive strategies, phenology and seasonal growth.
3. Investigation of the mating system and pollination biology.
4. Investigation of the population genetic structure, levels of genetic diversity and minimum viable population size.
5. Investigation of the impacts of herbicides and other weed control techniques on habitat.

Action:	Obtain biological and ecological information
Responsibility:	CALM (Perth and Mundaring Districts, CALMScience) through the SRTFCRT
Cost:	$16,300 per year.

10. Write Recovery Plan

At the end of the three-year term of this Interim Recovery Plan, the need for further action will be assessed. If it is deemed necessary to the recovery of the species, a full Recover Plan will be written. The aim of the Interim Recovery Plan is not only to abate current threats but also to provide ecological and biological information to aid the writing of a full Recovery Plan.

Action:	Write full Recovery Plan
Responsibility:	CALM (Perth and Mundaring Districts and WATSCU) through the SRTFCRT
Cost:	$18,300 in the final year if required.

4. TERM OF PLAN

This Interim Recovery Plan will operate from April 1999 to March 2002 but will remain in force until withdrawn or replaced. It is intended that, if the taxon is still ranked Critically Endangered, this IRP will be replaced by a full Recovery Plan after three years.

5. ACKNOWLEDGMENTS

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Ken Borland	Operations Officer, CALM Perth District
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Anne Cochrane	Manager, CALM Threatened Flora Seed Centre
Emma Holland	Previously Consultant, W.A. Threatened Species and Communities Unit, CALM
Sophie Juszkiewicz	Propagator, Kings Park and Botanic Garden
Kim Kershaw	Conservation Officer, CALM Narrogin District
Jeanette Gilmore	A/Land Acquisition Officer, CALM Land Administration
Neville Marchant	Senior Principal Research Scientist, CALM W.A. Herbarium
David Mitchell	Program Leader Nature Conservation, CALM Swan Region
Lyndon Mutter	Program Leader Nature Conservation, CALM Perth District
Diana Papenfus	Botanist, previously, CALM W.A. Herbarium
Sue Patrick	Senior Research Scientist, CALM W.A. Herbarium
Robyn Phillimore	Project Officer, W.A. Threatened Species and Communities Unit, CALM
Gillian Stack	Project Officer, W.A. Threatened Species and Communities Unit, CALM
Andrew Brown	Botanist, W.A. Threatened Species and Communities Unit
Greg Keighery	Principal Research Scientist, CALM

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7. TAXONOMIC DESCRIPTION

Marchant, N. (1998)
(Undescribed taxon from Iopollo Road, south of Gingin referred to as *Chamelaucium* sp. Gingin)

Shrub with many slender ± stiff branches bearing numerous ultimate short axillary shoots 5-20 (-30) mm long. *Decurrences* strongly and abruptly raised but short, 0.2-0.6 mm long. *Leaves* glandular, scattered and erect along main branches, but mostly crowded on the numerous short axillary shoots where they are semi-spreading to spreading, narrowly obovate-very narrowly obovate-linear-narrowly elliptic-very narrowly elliptic, 5.4-11.5 mm long, 1.2-1.4 mm wide, 0.6-0.8 mm deep; adaxial surface flat, midrib region sometimes very slightly raised; abaxial surface convex, rounded or angular; leaf blade plano-convex to triquetrous; margins entire; apex mucronate. *Petiole* 0.5-1.5 mm long, frequently appressed to stem. *Inflorescence* a small pseudoterminal head on short axillary shoots, sometimes there is a larger pseudoterminal head at the end of main branches; floral leaves flattened, glandular, ovate-triangular-oblong, 1.3-2.2 mm long, 0.9-1.3 mm wide; adaxial surface concave; margins entire to finely uneven, rarely ciliate on the upper half; apex mucronate. *Flowers* 2-9 in small heads on axillary shoots and up to 20 in the clusters at the end of main branches, 6.6-9.2 mm diameter; disc diameter 3.0-4.2 mm; pedicels 0.8-2.0 mm long. *Bracteoles* caducous, deeply concave, cucullate, 3.4-4.3 mm tall; midrib region brownish, with scattered raised glands; margins ± entire; umbo incurved, narrowly conic-acicular, 0.3-1.0 mm long. *Floral tube* broadly-very broadly obconic-broadly-very broadly turbinate, glandular, ± smooth, obscure-shallowly 10 ribbed, 4.4-5.4 mm long; lower floral tube 2.8-3.4 mm long, not foveolate, shallowly 10-ribbed; upper tube 1.5-2.2 mm long, obscurely or not ribbed. *Calyx lobes* ± erect, ovate, glandular, 2.0-2.8 mm long; margins irregularly denticulate and ciliate, cilia 0.5-2.0 mm long; sinuses broad. *Corolla lobes* ± erect, with fine scattered glands, broadly elliptic-broadly obovate, concave, 4.6-6.0 mm long; margins irregularly denticulate, very sparsely and finely ciliate. *Staminal tube* 0.6-1.0 mm long, erect or arching inwards. *Stamens* 10; filaments and staminodes borne at the same level, erect or inarching; filaments narrowly triangular, 0.7-1.1 mm long, slightly constricted just beneath the connective (anthers eventually break off at this constriction); anthers 0.4-0.5 mm diameter; connectives swollen, reddish brown, projecting abaxially and frequently dorsally as a ridge. *Staminodes* 10, oblong-narrowly ovate, sometimes slightly swollen in the subapical region, 0.9-1.3 mm long; apex obtuse or acute, sometimes bent inwards. *Styles* narrowly conic, 6.2-7.1 mm long, reaching to the top of corolla lobes. *Stigma* strongly dilated resembling a swollen disc, finely papillate, 0.5-0.6 mm diameter; hairs from the base of the disc and directed backwards, 0.4-1.0 mm long, tapering to the tip. *Ovules* 5-8.

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Myrtaceae: *Chamelaucium*

Chamelaucium sp. Gingin (N. Marchant s.n. 4/11/88)
Taxon 13930 is current.

Conservation Status: R

Description:
Open shrub, 1-2 m high. Flowers white; flowering September to December. Soils: white or yellow sand. Habitat: undulating plains, rises.