MATCHSTICK BANKSIA RECOVERY TEAM

ANNUAL REPORT

1994

by

Greg Durell

for

The Matchstick Banksia Recovery Team

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SUMMARY

Funding from the Commonwealth Government's Endangered Species Program continued during 1994, which
allowed for implementation of recovery strategies for the long term protection of eleven populations of the Matchstick Banksia *(Banksia cuneata)*.

Funding for 1994 was allocated to the following actions

• Establish a Recovery team	Completed.
• Acquire land for conservation of *B. cuneata*.	Partially completed.
• Erect rabbit proof fencing on major populations	Completed.
• Implement rabbit control programmes on all populations.	Ongoing.
• Control salinity on populations at threat.	Ongoing.
• Improve the habitat of populations.	Ongoing.
• Collect seed for permanent storage and seedling planting.	Completed.
• Monitor and survey populations.	Ongoing.

In 1995 it is proposed to allocate funding to the following actions;

- Hold two Recovery team meetings.
- Continue with land acquisition..
- Erect rabbit netting at new population #11.
- Eradicate rabbits by 1080 trails , Phostoxin and warren destruction.
- Examine and implement planting of koala feed trees at Lazeaway # 8 to control rising ground water level at #8A.
- Enhance population #1 and #10. Carry out seedling planting of *B cuneata* and scrub species.
- Enhance populations #1, and population # 10 with seedlings.
- Place photograph in the Cuballing, Brookton and Quairading shire offices for public information.
- Monitoring and reporting. Assess recruitment or population decline all populations.
- Complete proposal for the establishment of *B. cuneata* plants within the Cuneata Park at Quairading.
- Establish seedlings at Stacey's property.
- Keep the public informed of progress of the plan through articles in newspapers and relevant newsletters.

1. INTRODUCTION

The Recovery Plan for the Matchstick Banksia, *Banksia cuneata*, has been in operation for approximately 12 months. Funding for implementation of the plan was approved in December 1993. Two Recovery Team meetings were held in 1994 to discuss future management actions and progress to date.

The emphasis on recovery and management for 1994, was to implement those areas considered a high priority for conservation of the species. The work carried out to date includes:

- completion of a census of all populations
- collection of seed for long term storage
- protection of the main populations from rabbits by fencing, 1080 control and warren destruction.

This annual report summarises the action taken in respect to the implementation of the Matchstick Banksia Recovery Plan for 1994.

2. POPULATION LOCATIONS OF *BANKSIA CUNEATA*.

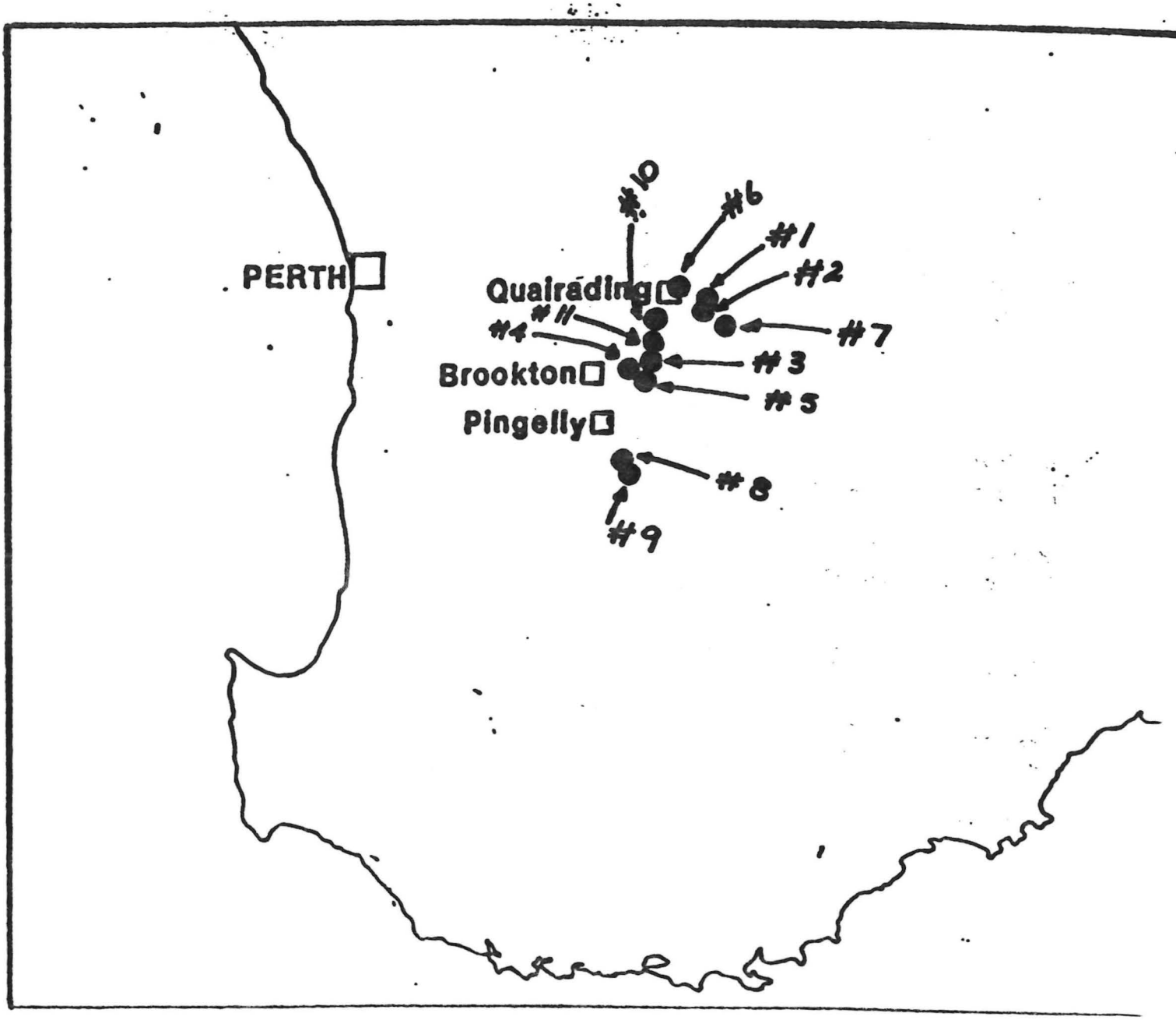


Figure 1. Distribution of *B. cuneata*

3. RECOVERY PLAN ACTIONS PROGRESS SINCE DECEMBER 1993.

Actions reported on below have the same numbers as in the Recovery Plan.

2.2.1 RECOVERY TEAM

The Recovery team currently consists of the following people:

1	Mr Greg Durell	CALM Narrogin .	Chairperson.
2	Dr David Coates	CALM Hebarium.	
3	Dr Kenneth Atkins	CALM Como.	
4	Dr Andrew Brown	CALM Woodvale.	
5	Mrs Robin Campbell	Men of the Trees.	
6	*Mrs Barbara Black	Quairading Shire Representative.	
7	Mr Peter Denton	Roads Verge Officer Main Roads Dept.	
8	Mr Dennis Graham	Landowner Popanyinning Population #8	
9	Mr John Simpson	Landowner Quairading. Population #7.	
10	Ms Sharon Hann	CALM Narrogin Secretary.	
11	Ms Elsa Dexter	ANCA.	

*Mrs Barbara Black was appointed to the team as the Quairading Shire representative during 1994.

The Water Authority of W.A. have opted not to have a representative on the team because of the minimal impact this plan has on water reserves.

Recovery Team meetings were held on the 29th of March at "Irabina" Field Centre, Dryandra Woodland and on the 9th of August in the Quairading Shire Office.

2.2.2 LAND TENURE CHANGES AND ACQUISITION

Negotiations have been continuing with the relevant agencies on two areas of crown land that contain populations of *B. cuneata*. These are:

2.2.2.1 Population #6 Quairading townsite.

Discussion continued with the Quairading Shire for a change of purpose of an area of bushland containing population # 6. This population is located within the Quairading townsite reserve. Negotiations with the Shire were successful and a substantial area has now been incorporated as a class "C" nature reserve vested in the National Parks and Nature Conservation Agency. (NPNCA). Population #6 is now protected within a conservation reserve. It is planned that in 1995 progress will be made to have this reserve upgraded to class "A" to ensure greater conservation protection.

2.2.2.2 Population #4 Reserve 12397. Brookton Shire.

The Brookton Shire Council have agreed in writing for a change of purpose of water reserve 12397 to a nature reserve vested in the NPNCA. Approval from the Water Authority of WA has been granted to this change of purpose and vesting. A recommendation has been sent to the NPNCA for consideration.

It is proposed that the change of this reserve to a class A nature reserve, vested in the NPNCA, will be concluded by June 1995, when the proposal passes through the W.A. Parliament.

2.2.3 RABBIT CONTROL

The fencing with rabbit proof netting of population # 7 (Simpson's), #8A (Lazeaway), #10 (Johnson's) and #4 (Reserve 12397) were completed during 1994.

The rabbit proof fences have enabled the destruction of nearly all the rabbits within the fenced populations. Early indications have shown a marked decline in rabbit numbers in #8A and #7 due to the establishment of the fence and 1080 oat laying which has been laid twice during the summer

.

Destruction of all warren's within the fenced areas has been undertaken and subsequent warrens are being destroyed on routine inspections of the sites.

Follow up 1080 control will need to continue during late summer and autumn 1995 and beyond given the ability of rabbits to re-invade the sites.

Seedlings have appeared since fencing and rabbit eradication has occurred at Population #8A (Lazeaway).

A new population, #11, discovered during 1994, is the only outstanding fencing to be done. This is a small population of 3 plants recently located on Mr Wally Mill's property in the Brookton Shire. This population is near population #4.

2.2.5 HABITAT ENHANCEMENT

No progress has been made to date, except for fencing major populations and rabbit eradication.

Forty-seven *B. cuneata* seedlings have been raised from seed collected from population #10 (Johnston's). These seedlings were germinated in the Narrogin Plant Nursery (NPN) during March 1994. They have been placed in *Carroll tubes* which enable the development of a root system 0.5m long.

Population #10 contains < 10 plants growing on a large yellow sand dune. The soil is deep and sandy and is subject to drought. There has been no sign of seedling recruitment to date. It is hoped that the use of these tubes will assist in the establishment of younger plants at this site within the fenced area.

Approximately 160 *B. cuneata* seedlings have been successfully raised in smaller containers from seed collected from population #1 (Quairading- Bruce Rock road) at the NPN. Some of these seedlings will be planted within the roadside population, the rest at the nearby establishment site on Stacey's property and within the Quairading townsite.

The Men of Trees nursery has 30 seedlings surviving, these seedlings will be used in the Cuneata Park at Quairading.

2.2.5 Habitat enhancement

2.2.5.1 Buffers

Negotiation with adjoining landowners for the development of buffers to protect existing roadside population has not yet been done.

2.2.5.3 Site rehabilitation

Rehabilitation of roadverge populations has not yet occurred.

2.2.6 SEED COLLECTION

A quantity of seed has been collected from all of the known populations. This seed will be prepared for long term storage at the CALM WA Herbarium Rare Flora Seed Centre.

Seed has also been collected from population #1 and #10 for *in situ* seedling trials mentioned above.

2.2.7 POPULATION ENHANCEMENT

2.2.7.1 Quairading #1

Fifty seedlings raised at the NPN will be planted in 1995 on the road verge to enhance this population.

2.2.7.2 Quairading #2 and Brookton #3

No further action to date, still waiting for eradication of rabbits.

2.2.7.3 Brookton 1 & 2, Pingelly #2

No negotiation undertaken with land holders to date.

2.2.8 RE-ESTABLISHMENT

2.2.8.1 Stacey's property.

An area of about 0.5 hectare was ripped by Mr Russell Stacey and weeds sprayed for a direct seeding trial of *B. cuneata* in June 1994.

The seed planting and seed collection day took place at Russell Stacey's place on Tuesday 28 June 1994. Local volunteers, Judy Williams and CALM staff assisted in hand seeding approx 390 *B. cuneata* seed into ground previously ripped and sprayed.

This first attempt at direct seeding was unsuccessful with a total failure of survival when inspected in November. Some germination was noticed after an on-site inspection on 9 August 1994, however these seedlings subsequently died.

This failure can be attributed to a number of factors including:

- The very dry winter 1994. Little late winter rain occurred in the Quairading area.
- Rodents (wild house mice) digging up and eating the seed.
- Non-wetting soil.

Approval was granted to allow scrub seed to be collected from Badjaling Nature Reserve for establishing scrub species at Stacey's and nearby population #1. Approximately 500 shrub species' seeds have been sown at the NPN for establishment on this site with the *B. cuneata* seedlings growing in the NPN.

The fencing of Stacey's area will be done in 1995 with assistance from Mr Stacey.

2.2.8.2 Lake Mears reserve 12398

Formal approval for the introduction of *B. cuneata* to this site is yet to be arranged.

2.2.9 RESEARCH

2.2.9.1 Mapping and census.

A census of all populations of *B. cuneata* was completed in 1994, and is summarised below.

POPULATION NUMBER	NUMBER OF *B CUNEATA*
#1	57
#2	7
#3	0
#4	87
#5	9
#6	76
#7	60
#8	118
#9	2
#10	8
#11	3
TOTAL	**430**

Within the fenced area at population #8 (Lazeaway) numerous seedlings were noticed germinating under dead plants. These are yet to be counted.

Flowering was noticed at most sites in October- November of 1994 (see Appendix).

2.2.9.3 Hydrology effects

The populations which possibly may be affected by rising water tables are # 7 (Simpson's) and # 8A (Lazeaway).

2.2.9.3.1 Salinity control

Water logging and salinity may be threating the long term survival of population #7 and 8A. Additional planting of trees and shrub species surrounding the populations and in re-charge areas will assist in arresting the threat of rising water tables. Planting proposals for both areas will be completed in 1995 in conjunction with Mr Simpson and Mr Graham.

A proposal has jointly been prepared by CALM and Mr Gary Graham for the long term protection of population #8A (Lazeaway). This proposal, yet to be formally endorsed by the Recovery Team, involves the establishment of *Eucalyptus* sp., suitable for koala feed, on farmland adjacent to the population. This will assist in the control of rising ground water within the population.

It was thought that a salinity problem may exist at #4 Reserve 12397. However, water samples taken from underground, reveal that water is not saline and at considerable depth.

2.2.9.4 Recruitment

Some natural recruitment has been noticed at #8A following rabbit control work recently undertaken.

2.2.10 LIAISON AND PUBLIC EDUCATION

2.2.10.2 Public education

A news release was sent to the local rural newspapers and Farmers weeklies (see Appendix).

I was asked to do a short interview on the ABC Country Hour. This is a hourly rural segment.

An article was completed for CALM's newspaper, *CALM News*.

An article was completed for the Australian Network for Plant Conservation's "Danthonia" (see Appendix).

A public meeting for all interested Quairading people was held at the Quairading Shire offices on the 9th of August. Dr David Coates presented a talk outlining the plan, the significance of WA's Rare Flora and the history of Recovery Plans.

Mrs Judy Williams presented two radio interviews on local radio stations.

2.2.10.3 Cuneata park Quairading

Eight plants still exist in this park. These are the surviving plants from a planting programme in the mid 1980s. Some plants have suffered from wind damage. The area has potential if developed properly to allow for more plants to be established here.

Mrs Barbara Black from Quairading is at present preparing a proposed plan in conjunction with the Quairading Shire for establishing additional plants and associated species in "Cuneata Park"

Further development will continue in 1995.

4. CONCLUSION

Since the commencement of implementing this Recovery Plan considerable effort has been made in the area of promotion and seeking the support of local interest groups and Shire councils. A major achievement was the hosting of a meeting in the Quairading Shire offices. A local shire councillor and interested Quairading townsfolk attended the meeting.

The completion of rabbit proofing and initial success at eradicating rabbits may prove to be very important for the recruitment of *B cuneata* within the fenced sites.

The completion of a census from all populations will now enable annual monitoring of all populations to determine recruitment pattern or population decline.

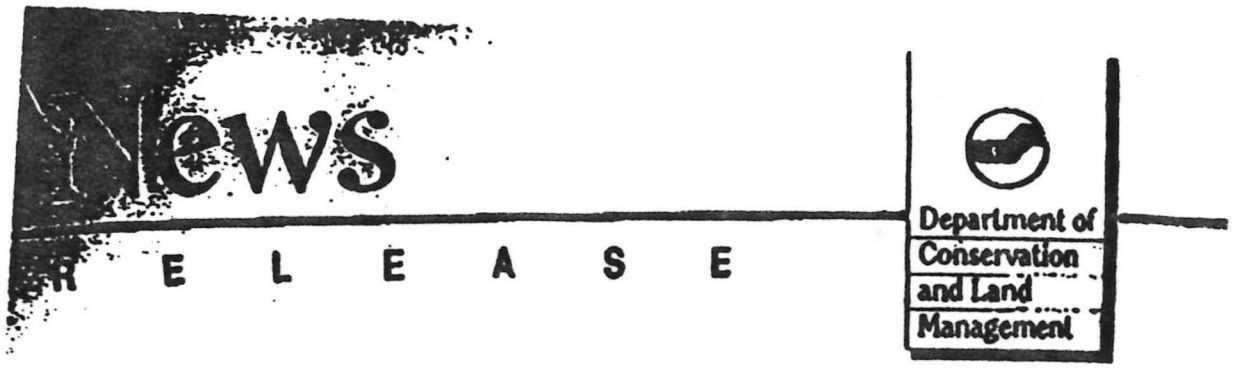
In 1995 it is anticipated that the following actions will be commenced or completed.

- Hold two Recovery team meetings.

- Continue with land acquisition..
- Erect rabbit netting at new population #11.
- Eradicate rabbits by 1080 trails , Phostoxin and warren destruction.
- Examine and implement planting of koala feed trees at Lazeaway # 8 to control rising ground water level at #8A.
- Enhance population #1 and #10. Carry out seedling planting of *B cuneata* and scrub species.
- Enhance populations #1, and population # 10 with seedlings.
- Place a photograph in the Cuballing, Brookton and Quairading Shire offices for public information.
- Monitoring and reporting. Assess recruitment or population decline all populations.
- Complete proposal for the establishment of *B. cuneata* plants within the Cuneata Park at Quairading.
- Establish seedlings at Stacey's property
- Keep the public informed of progress of the plan through articles in newspapers and relevant newsletters.

The Recovery Team intends to meet again in March 1995.

6. APPENDIX 1. PRESS RELEASE FOR THE MATCHSTICK BANKSIA RECOVERY PLAN.



JUNE 8, 1994

Private landowners in the Wheatbelt are helping to bring the endangered matchstick banksia (*Banksia cuneata*) back from the brink of extinction.

Two landowners, Gary Graham of Popanyinning and John Simpson of Quairading, are members of a recovery team formed to save the species.

Populations of the plant on their properties were recently fenced to protect them from rabbits.

Department of Conservation and Land Management (CALM) staff at Pingelly are also carrying out a rabbit eradication program using 1080 oats.

Another Quairading landowner, Russell Stacey, has allowed CALM to use an area on his property for establishing a new population, due to begin this winter.

The recovery team also has members from CALM, Quairading Shire, the Australian Nature Conservation Agency (ANCA), Men of the Trees, the Water Authority and the Main Roads Department.

"The enthusiasm from local landowners is one of the highlights of the recovery plan," CALM operations officer Greg Durell said.

"It is fantastic that private individuals are becoming involved in flora conservation."

Mr Durell said that Judy Williams, of Brookton, had been appointed on a contract basis to carry out a census on matchstick banksia and to map known populations of the plant.

"This information will allow us to monitor these populations in the future," he said.

"Judy Williams recently located a new population of three plants with the help of a botanically-minded friend, bringing the total number of plants to about 500 in 11 populations.

"However, there could be more endangered banksias elsewhere and we ask anyone who knows where more plants are asked to contact CALM's Narrogin office."

Matchstick banksias flower from September to [illegible] striking cream to pink flowers that resemble [illegible] leaves.

[illegible] recovery plan is partly funded [illegible]

6. APPENDIX 2. ARTICLE FOR THE NEWSLETTER OF THE AUSTRALIAN NETWORK FOR PLANT PROPAGATION.

A programme for the long term survival of one of Western Australia's rarest banksias is currently being put into practice by members of the local community and The Department of Conservation and Land Management (CALM).

Banksia cuneata or more commonly known as the Matchstick Banksia is a small tree indigenous to a small area in southern Western Australia. Its natural range occurs from near Popanyinning, a small town 180 kms south -east of Perth to near the township of Quairading approximately 200 kilometres east of Perth. It was originally thought to occur only in the Quairading area where it was first collected in 1937. It was later formally described by Mr Alex George a well known Botanist. More recently, additional populations near Brookton and Popanyinning have been located. Eleven populations are known to exist at present comprising of approximately 500 plants in total. Most of the remaining plants occur on road verges, however some plants are also known from conservation reserves and private remnant bushland.

The plant gets its name from its wedge shaped or cuneate leaves It flowers from September to December. The inflorescences have an appearance similar to safety matches, hence the common name Matchstick Banksia..

The plant occurs naturally on deep yellow sands and yellow clayey sands, common around the Quairading area, indicating that this species may once have been more widespread. However clearing of the natural vegetation for farmland and other development has limited this plant to these remaining populations.

All populations are a similar age, and few young plants occur naturally. The age of each population has been dated back to the early 1960s.

Of concern is that now adult plants are becoming over mature and are dying at a greater rate than the natural re-cruitment of young seedlings. Seed is abundant in some populations, it is stored on the adult plant waiting for a mechanism for release. This release mechanism was probably stimulated by fire which naturally would have occurred from time to time, killing the adult plant however allowing for the survival of the population by the release and germination of seed after a fire.

Unfortunately fire is not a viable proposition for regeneration until more research work is carried out, given the vulnerability of these isolated populations to the elements of wind erosion, salination, rabbits, parrots, and weeds which potentially contribute to habitat degradation after a fire.

The availability of natural pollinators may also be a limiting factor in the production of viable seed.

A Recovery Plan to study and properly manage this species for this species was written in 1991. The plan has recently been funded for implementation, with funds coming from the Department of Conservation and Land Management (CALM) and the Australian National Conservation Agency (ANCA).

The plan has been in operation since January 1994. with the aim to secure the main populations of *B. cuneata* plants, stimulate the natural increase within the populations, and establish two new populations in areas likely to have contained the species before clearing.

Within two years it is hoped that the six main populations on private property and conservation reserves are secure and contain established young plants.

The work that has been done already to help achieve this, with the cooperation of local authorities, local farmers, local volunteers and other interested people include:

- The change of purpose of two existing reserves containing *Banksia cuneata* to Nature reserves. This will ensure that the reserves can be managed for conservation, thus protecting these populations of Matchstick Banksia.

- Rabbit netting has been placed around the main populations and eradicate of rabbits from within populations has taken place.

- Each population has been surveyed and individual plants counted. This will allow for the production of base maps for the future monitoring of population numbers on an annual basis.

- Seed has been collected for long term storage and gemination trials being done at the Narrogin CALM nursery and Men of trees nursery.

7. APPENDIX 3. PHOTOGRAPHS OF RABBIT PROOF FENCING OF *B. CUNEATA* 1994.

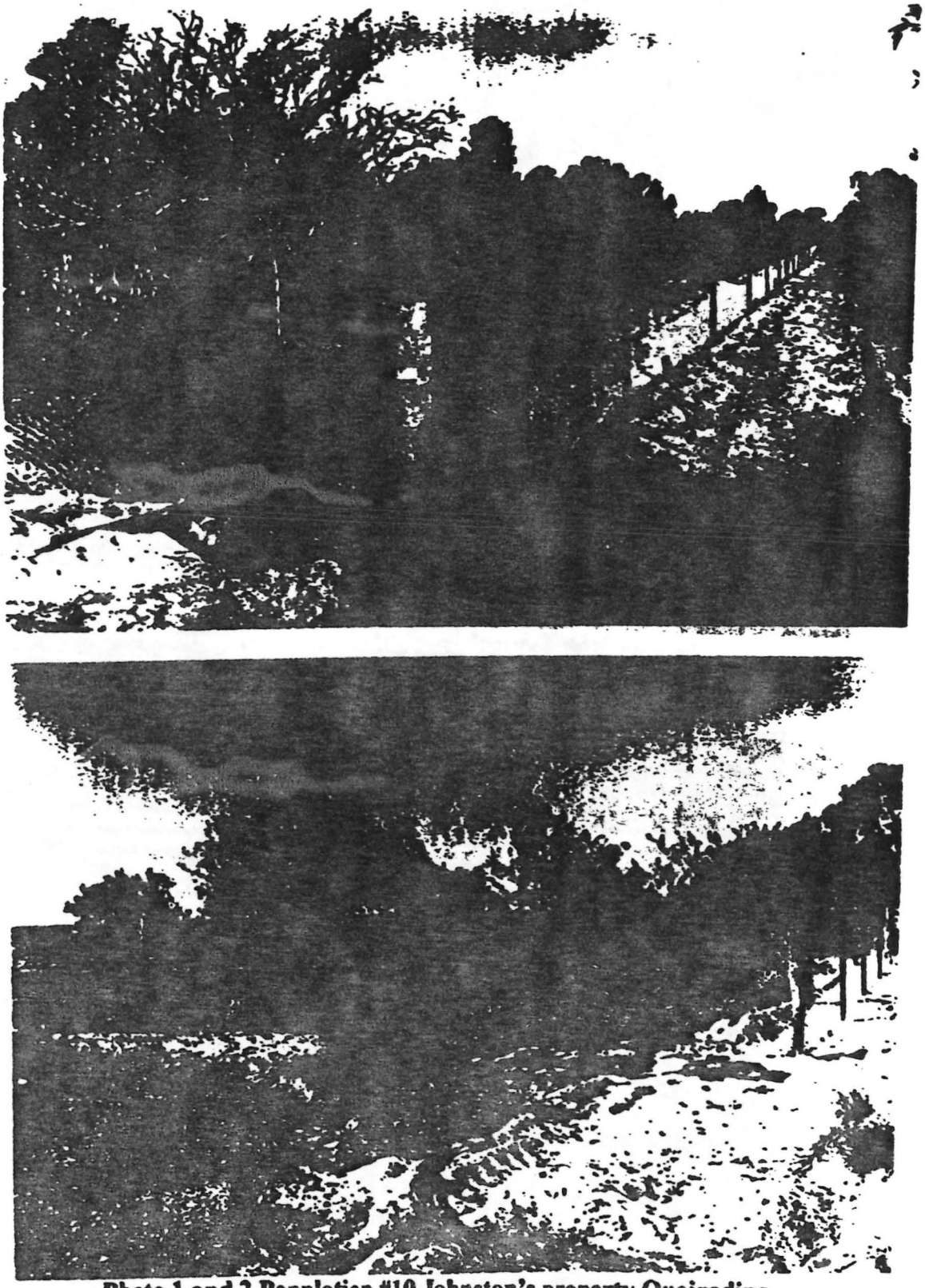
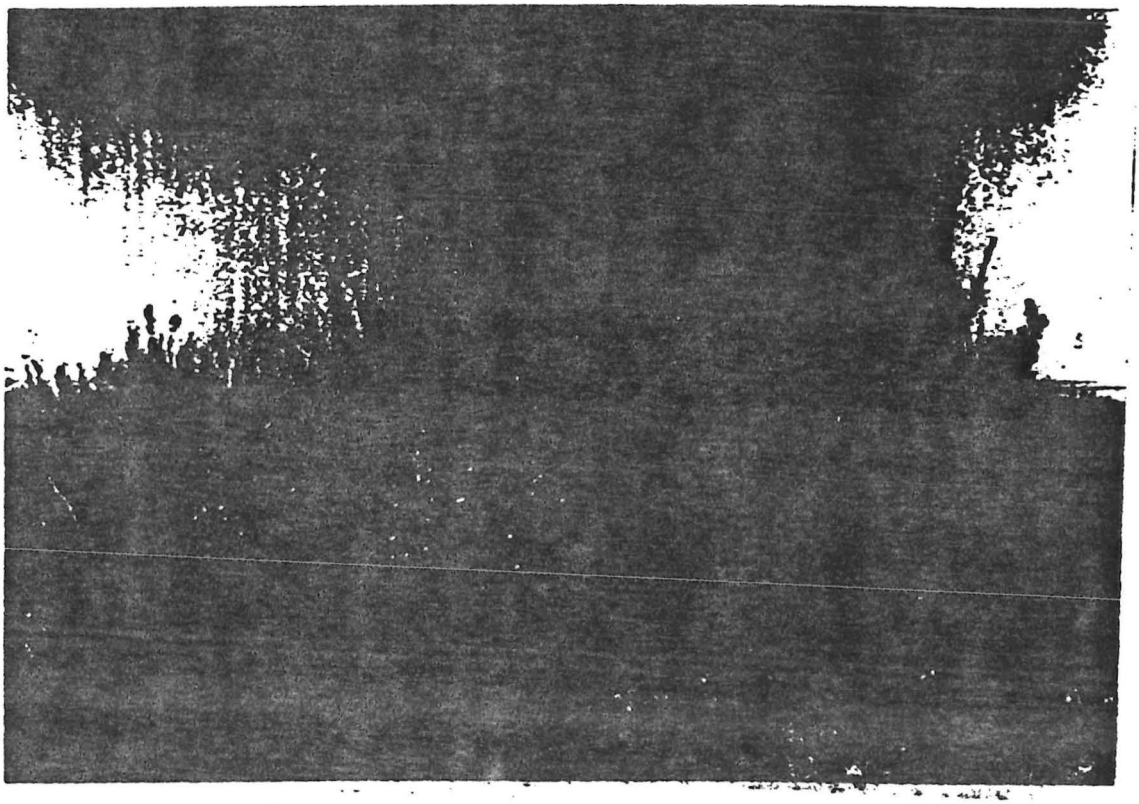
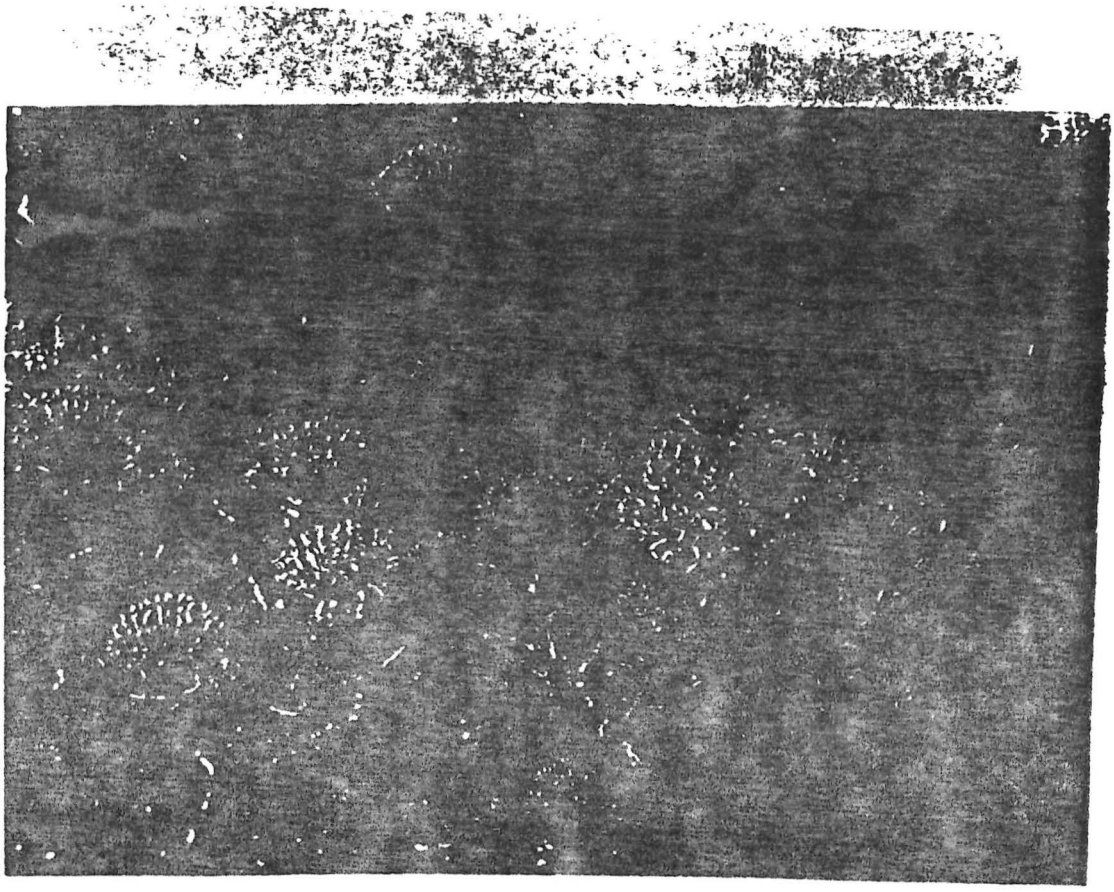


Photo 1 and 2 Population #10 Johnston's property Quairading.

8 APPENDIX 4. PHOTOGRAPHS OF *B. CUNEATA* AT QUAIRADING #1 FLOWERING OCTOBER 1994.





- Methods are currently being investigated for the re-establishment of seedlings into natural habitats, which will help to maintain the viability of the naturally occurring populations into the future.

As with the management of most of Australia's threatened species, the task is never easy, and as Managers problems are always encountered. It is hoped that through this plan some of the problems associated with the long term protection of the Matchstick banksia can be overcome. Some of the problems encountered to date include:

- The underground water problem that generally goes unnoticed may have serious long term effects on the condition of at least three of the natural populations. Ground water monitoring needs to be implemented to assess the ground water situation.

- Seedling establishment within populations will require considerable effort to ensure successful establishment of seedlings by artificial and natural regeneration . A wide range of different techniques needs to be studied.

- Rabbit control will be ongoing as the Matchstick Banksia grows on sites that rabbits love.

- The populations occurring on narrow strips of uncleared road reserve require intensive management to prevent damage from natural and unnatural elements.

- *Phytophthora cinnamomi* (Dieback fungus) has been located in one population. All the plants have been sprayed with *Phosphonate* a chemical designed to increase the plants natural immunity to fungal attack. This population will require follow up spraying every two years.

Over the next two years it is hoped that at least some of these problems can be overcome or managed to prevent the further decline of plant numbers in each population. It is hoped that seedlings can be successfully established within the natural populations and the people of the local communities will maintain an interest in ensuring the safe keeping of our natural heritage and the survival of this plant for future generations.