Wongan Triggerplant Recovery Team

Annual Report 1994

by

M J Fitzgerald and A E Kelly

for

The Wongan Triggerplant Recovery Team

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Department of Conservation and Land Management
Merredin District Office
Merredin, WA 6415

SUMMARY

The Recovery Plan for the Wongan Hills Triggerplant was made ready for submission to CALM Corporate Executive.

The Water Authority of Western Australia has completed its restructuring and has commissioned a report to assess its requirements for Water Reserve 16418. Negotiations will recommence after the completion of this report.

CALM has completed a rehabilitation plan for the gravel pit near population 5. Copies have been circulated to the Shire of Wongan-Ballidu and Main Roads WA. Implementation of the plan will be discussed at a meeting in February 1995. Rehabilitation operations will begin in April 1995.

Monitoring of the known populations found that most had experienced a decline in numbers. This is thought to relate to lengthening time since the last disturbance. Interestingly, however, spontaneous recruitment has been observed in two populations. This observation concurs with laboratory trials that suggest that disturbance is not essential for germination and that the seed may germinate after a period of ageing and weathering.

Monitoring of seed longevity has recorded no decline in the viability of seed stored at room temperature and tested at 8 and 16 months. Field trials have found that seeds respond positively to burning and smoking treatment. Laboratory trials are currently being undertaken into the effects of smoking but results are not yet available.

A rare and endangered flora garden was established in Apex Park, Wongan Hills with assistance from the Shire of Wongan-Ballidu, Kings Park and Botanic Garden, Main Road WA and CALM. The "Planting Ceremony" was attended by members of the Recovery Team, Shire Councillors and staff, representatives of the local Tidy Towns Committee and teachers and students from the Wongan Hills District High School who undertook most of the carefully supervised plantings. It was reported in the Central District Gazette.

INTRODUCTION

Recovery Team

The Recovery Team currently includes:

M J Fitzgerald	District Manager, CALM, Merredin (Chairman)
Ken Atkins	Senior Botanists, Wildlife Branch, CALM
Andrew Brown	Botanist, WATSCU
David Coates	Senior Research Scientist, CALM
Eric Chamberlain	WA Water Authority, Northam
Roger Fryer	Curator (Living Collections), Kings Park and Botanic Garden
Peter Kata	Shire Engineer, Shire of Wongan-Ballidu
Anne Kelly	Consultant Botanist, Recovery Plan Coordinator, CALM
Mike O'Donoghue	Recovery Team Secretary, CALM
Larry Trinder	Main Roads Western Australia, Northam

Larry Trinder has temporarily replaced Anna Napier, who is on maternity leave. Due to internal restructuring, the WA Water Authority is now represented by Eric Chamberlain.

Recovery Team Status and Funding

The Recovery Plan is ready for submission to CALM corporate Executive for approval.

Recovery Team Actions - 1994

Actions already completed include the establishment of a recovery team (Item 1) and surveys for new populations (Item 4).

Item 2 Progressing the Acquisition of Reserve 16418

The WA Water Authority has completed the restructuring of it's Central Region. It has commissioned an internal report to assess its long term requirements for the Wongan Hills water reserve.

The Shire of Wongan-Ballidu has expressed an interest in acquiring a small part of Reserve 16418, on its southern boundary.

The Water Authorities report is due in April 1995. If this report recommends relinquishment of any part of Water Reserve 16418 negotiations will then be undertaken between CALM, WAWA and the Shire of Wongan-Ballidu.

Item 3 Gravel Pit Rehabilitation

A rehabilitation plan was prepared for the gravel pit located on Reserve 16418 in June 1994. The plan covers strategies for the rehabilitation of the gravel pit near population 5 and track closures in the surrounding areas. One nearby gravel pit is implicated in the rehabilitation plan as it will be used as the dump site for foreign soil, rubbish and introduced plant materials removed from the primary pit.

Seed has been collected from a variety of local species and is available for use in revegetation.

Copies of the rehabilitation plan were provided to Main Roads WA and to the Shire of Wongan-Ballidu. A meeting is planned for February 1995 to discuss aspects of the implementation of the rehabilitation plan when CALM staff from the Katanning District will be available.

Rehabilitation should commence in late April 1995 using Main Roads, Shire of Wongan-Ballidu and CALM resources.

Item 5 Monitoring and Management of Existing Populations

All populations of *Stylidium coroniforme* were surveyed during the 1994 flowering season and report forms forwarded to CALM's Wildlife Branch.

The following table shows the number of plants and percentage change in total numbers since commencement of monitoring.

Population	No of Plants 1992	No of Plants 1993	No of Plants 1994	No of Plants 1992
Wongan Hills (pop 1)	37	29	29	-21.62
Wongan Hills (pop 2)	197	187	151	-23.35
Maya (pop 3)	20	19	18	-10.0
Maya (pop 4)	132	116	105	-20.45
Wongan Hills (pop 5)	257	199	127	-50.58

All populations, except population 1, experienced a loss in total numbers of individuals since the 1993 surveys. This trend is likely to continue in forthcoming years as the time since last disturbance increases. Further monitoring of all populations is required.

The monitoring quadrat at population 2, and all plants in population 1, were rescored for number of rosettes, % healthy rosettes, diameter of rosette clusters, number of inflorescences and mean number of flowers, open flowers and developing capsules per inflorescence. The total number of plants in the quadrat at population 2 has decreased by almost half (47.9%) since initial scoring in 1992. This decline is more severe than that experienced in population 2 as a whole, and may be due to the more enclosed vegetation within the quadrat. Loss of individuals also occurred in population 1 but this was balanced by recruitment. It is possible that population 1 has reached a low but stable population size.

Spontaneous recruitment of plants was recorded at both populations 1 and 5. This observation concurs with the results of laboratory germination trials that suggested that disturbance is not essential for germination and that the seed may germinate after a period of ageing and weathering.

Item 6 Establishment of New Populations

It was decided that the establishment of new populations should be deferred until there is a better understanding of the seed biology and recruitment patterns of this species.

Item 7 Germplasm Storage

Seed collected in December 1993 from all populations was placed into -18C storage at the Threatened Flora Centre at the WA Herbarium. Moisture content of the fresh seed ranged

from 10.37% for population 4 to 11.69% for population 2. The percentage germination ranged from 74.3% for population 2 and 87.0% for population 4.

Item 8 Seed Research

Monitoring of seed longevity has recorded no decline in the viability of seed stored at room temperature and tested (with gibberellic acid) at 8 and 16 months (96.0% and 97.0% respectively for population 4 and 87.0% and 90.0% for population 5). Untreated seed has shown little or no germination after these storage periods. Viability testing of 24 month old seed is in progress. Seedlings germinated in laboratory trials have been forwarded to the nursery at Kings Park and Botanic Garden for growing on and planting in the Wongan Hills Rare Flora Garden (see Item 10 below).

Monitoring of seed quadrats established in February 1993 is continuing. Several of the quadrats were subjected to burning and soil disturbance in April 1994, as no seedling recruitment was observed in the first year. Spring 1994 surveys recorded six seedlings in one of the quadrats only. No germinants were recorded in the untreated controls. It is possible that much of the seed was removed from the quadrats by wind and predators.

Research on the influence of smoke on seed germination has been conducted by Kings Park and Botanic Garden. Five quadrats installed around mature plants at population 5, plus one of the seed quadrats established in 1993, were smoked for one hour in April 1994. Surveys in October 1994 found germinants in some, but not all, of the quadrats. No seedlings were found in the 1993 seed quadrat or in the unsmoked controls.

Several hundred *Stylidium coroniforme* seeds have been forwarded to Kings Park and Botanic Gardens for laboratory smoking trials. Results of these tests are not available at present.

Item 9 Monitoring and Reporting

Refer to Item 5.

Item 10 Public Display

A rare and endangered flora garden was established in Apex Park, Wongan Hills.

The Shire of Wongan-Ballidu selected and prepared the site, installed reticulation, posted signs, and placed granite rocks and borders using a landscape design prepared by Kings Park and Botanic Garden. Main Roads contributed mulching material. CALM developed a press release and information brochure on the garden (Refer attachment 1). A display board is currently being developed and will be installed before June 1995.

Staff from Kings Park and Botanic Garden propagated 14 rare and endangered taxa known from the Wongan Hills, including *Stylidium coroniforme*. Staff also provided talks to students from the Wongan Hills District High School about native plant propagation and rare species before the planting ceremony.

The "Planting Ceremony" was attended by members of the Recovery Team, Shire Councillors and staff, representatives of the local Tidy Towns Committee and teachers and students from the Wongan Hills District High School who undertook most of the carefully supervised plantings. The garden's opening was reported in the *Central Districts Gazette* (See attachment 2), and also in *CALM News*.

An information brochure on Stylidium coroniforme has been drafted and distributed for comment. The layout of the brochure is being finalised and will be compatible with brochures being prepared for other Recovery Plan species (both flora and fauna).

CONCLUSIONS

Most components of the project are progressing according to plan.

Action on Item 2 (Progressing the Acquisition of Reserve 16418) was delayed due to the restructuring of the Water Authority's Central Region. However, the completion of the Authorities report is likely to clarify key issues and expedite negotiations.

The completion of Item 3 (Gravel Pit Rehabilitation) was delayed due to human resource shortages in the Merredin District. The rehabilitation plan prepared in 1994 will be invaluable in coordinating the efforts of CALM, Main Roads WA and the Shire of Wongan-Ballidu throughout rehabilitation operations.

Rare garden planted

PRIMARY school students and Wongan-Ballidu Shire Council members and staff recently joined personnel from CALM and Kings Park and Botanic Garden at the planting of a rare flora garden.

Representing CALM were senior botanist Ken Atkins, Merredin district manager Mike Fitzgerald, administration officer flora Mike O'Donoghue, and contract consultants Ann Cochran and Anne Kelly.

The garden, the first of its kind to be established by a local authority, displays a selection of some of the 60 rare and poorly known species occurring within the shire boundaries.

It is next to the information bay on the main road through Wongan Hills, and was established as part of the recovery plan for the Wongan triggerplant (*Stylidium coroniforme*).

The recovery plan is being funded by the Australian Nature Conservation Agency and implemented by CALM, with help from the Wondan-Ballidu Shire, Kings Park and Botanic Garden, Main Roads and the Water Authority of WA.

It is hoped the garden will raise public awareness of the significance of local flora and lead to the discovery of new populations of the rare and threatened species in nearby areas.



Merredin District Manager Mike Fitzgerald and Wongan-Ballidu Shire Engineer Peter planting a Sandpiper Wattle, Acacia denticulosa. Photo courtesy *Central Districts Gazette*

CALM NEWS
JANUARY-FEBRUARY 1995

WONGAN - BALLIDU RARE FLORA GARDEN

Remnants of natural bushland around the town of Wongan Hills are a valuable conservation resource in an area that has been largely cleared of vegetation for agriculture. These remnants support a rich flora and are important refuges for many animal species. More than 400 different species of plants have been recorded from the Wongan Hills alone and many more species occur in the shrublands and heath of the surrounding sandplains. Some of the plants found in the region are known from nowhere else.

Like many other wheatbelt areas the flora of the Wongan Hills district includes a number of rare species. Some sixty rare and threatened species have been recorded from within the Wongan-Ballidu Shire. Many of these require special management and protection from threats such as clearing, weeds, fire and disease.

The plants displayed in the garden are a selection of rare and threatened species from the Wongan-Ballidu Shire. It is hoped that the garden will help raise public awareness of the significance of the local flora and lead to the discovery of more populations of the rare and threatened species.

Acacia denticulosa
Sandpaper Wattle



A large shrub or small tree to 5m high with spectacular yellow flower heads and dark green, prominently veined leaves. The leaves are thick, round to oval in shape, with wavy margins. The cylindrical flowering spikes contain many small flowers and may be up to 10cm long. Found in the Wongan Hills, it also occurrs east to Mukinbudin and north to Karroun Hill. In the Wongan Hills it grows in clay over rocky greenstone. Elsewhere it is confined to granite outcrops. Flowers August to November.

Calothamnus asper
Rough Net-bush

A large much-branched shrub usually to 3-4m high but sometimes reaching up to 6m. The leaves are rigid, rough to the touch, and densely crowded at the ends of the branches. The red flowers are clustered amongst the leaves. Locally common in and around the Wongan Hills on ironstone scree slopes. Forms thickets in association with Tamma (*Allocasuarina campestris*). Flowers September to December.

Daviesia euphorbioides
Wongan Cactus



A small leafless shrub with thick fleshy stems and spiny conical scales. The orange-yellow and dark red flowers are clustered along the stems. Found on the sandplains of the Wongan Hills area, often as a coloniser of cleared ground. Also recorded to south of Dowerin. Flowers August to October.



Daviesia spiralis
Spiral-leaved Daviesia

A dense rounded shrub to 1.5m high distinguished by its spirally twisted leaves that may be up to 10cm long. It has pale orange and brownish pea flowers that are solitary or paired along the branchlets. Known only from the Wongan Hills area where it is found on hilltops and slopes in gravelly soils over laterite. It is often found in disturbed or open sites. Flowers September to January.

Gastrolobium hamulosum
Hook-point Poison



An open straggly shrub with slender branches and blue-green leaves that end in a small hooked point. The leaves are arranged in groups of three along the branches and the golden yellow and red flowers are in groups at the end. Occurs from north of Moora to Calingiri and Wongan Hills, sometimes in open disturbed sites. Habitat includes gravelly soils on quartzite ridges, clay flats and sand. Flowers August to October.

Grevillea dryandroides
Phalanx Grevillea

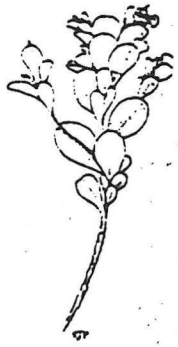


A prostrate shrub to 1m or more across with scattered stems bearing erect, deeply divided, grey-green leaves. The flowers are profuse, pinkish red and borne along trailing stalks that extend along the ground beyond the leaves. Grows in sandy soils with some gravel amongst low heath between Corrigin and Ballidu. It is often found beneath large shrubs and successfully colonizes cleared ground. Flowers August to October and February to March.

Grevillea tenuiloba

A low spreading shrub with arching branches becoming prostrate. The leaves are grey-green and divided into narrow sharply pointed lobes. Deep orange flowers are in long terminal inflorescences. Recorded mainly in the Mullewa - Morawa area but extending south to Dandaragan and Cadoux. Occurs in sandy soils, sometimes associated with granite. Flowers in September.

Hemigenia viscida
Sticky Hemigenia

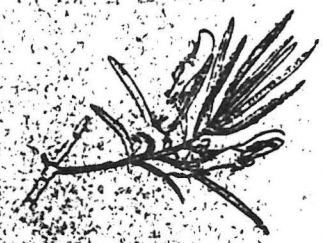


An erect bushy shrub to 90cm high with shiny sticky leaves and solitary violet to purple flowers. Found near Wongan Hills and Tammin amongst low heath on sand over laterite. Shows some response to disturbance. Flowers November to January.

Melaleuca sciotostyla
Wongan Melaleuca

A spreading shrub to 1.5m high with short narrow leaves and profuse groups of flowers occurring at the ends of the branchlets. The inflorescences are almost globular and usually consist of four pink flowers. Known only from the Wongan Hills area where it grows with other *Melaleuca* species in gravelly clay soil at the base of lateritc breakaways. Flowers in August.

Microcorys eremophiloides
Wongan Microcorys



An openly-branched shrub to 2m high with large deep pink to red flowers that resemble those of *Eremophila* (poverty bush) species. The opposite linear leaves are dark green above and covered with white hairs below. Occurs mainly in the Wongan Hills where it grows in laterite rock crevices or gravelly soil on breakaways and slopes. It is frequently recorded along firebreaks and tracks. The species has also been recorded from a few granite hills further east. Flowers September to November.

Rhagodia acicularis
Wongan Saltbush



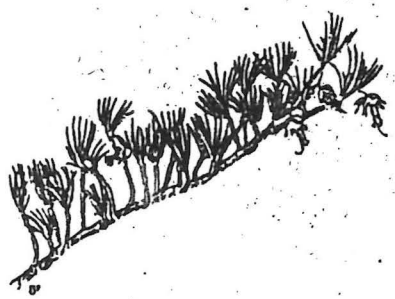
A compact rounded shrub to 50cm high with spiny branchlets and small fleshy leaves. The whole plant is covered in small rounded hairs giving it a rough appearance. The flowers are yellow-green with male and female flowers borne on separate plants. Confined to the Wongan Hills where it grows in lateritic soils on breakaway slopes. Flowers October to May.

Stylidium coroniforme
Wongan Triggerplant



A small perennial herb with rosettes of grey green leaves in clusters at the base. The flowers are creamy pink to white and are arranged on darkly coloured stalks arising from the centre of each rosette. Known from Wongan Hills and Latham where it grows on shallow sandy soils over laterite, usually in open or disturbed sites. Flowers September to October.

Verticordia staminosa* ssp. *staminosa
Wongan Featherflower



A widely spreading shrub with solitary yellow flowers surrounded by bright red bracts. The narrow leaves are crowded at the tips of the branchlets. Known only from near Wongan Hills where it grows in shallow soil on exposed granitic slopes. Flowers June to October.

Verticordia venusta

An erect spindly shrub to 2m high with rounded grey-green leaves and purplish pink flowers grouped at the ends of the branches. It occurs over a wide range in the north eastern wheatbelt, from Perenjori to Wongan Hills and east to Bencubbin. Grows in sandy soils, sometimes with gravel, in heath and shrubland. Flowers October to January.

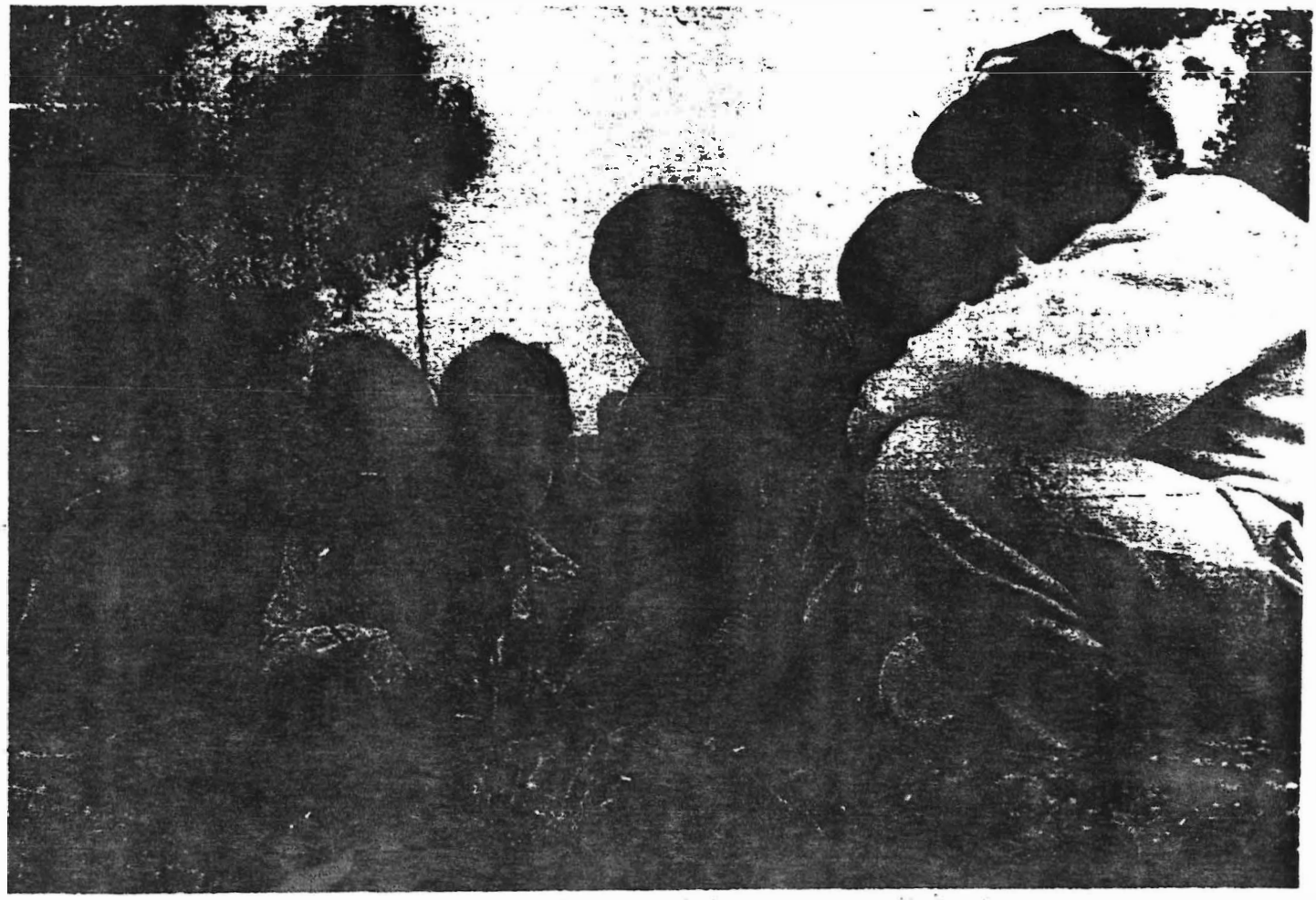
The establishment of the Wongan Hills Rare Flora Garden has been a co-operative project between the Shire of Wongan-Ballidu, the Department of Conservation and Land Management, Kings Park and Botanic Garden, the Australian Nature Conservation Agency, Main Roads and the WA Water Authority.

If you recognise any of the plants displayed in the garden on your property, or whilst travelling in the area, please report them to the Merredin Office ph (090) 412 488 or the Wildlife Branch ph (09) 334 0422 of the Department of Conservation and Land Management.

Attachment 1

Attachment 2

Niche for endangered species



Wongan-Ballidu Councillor Duncan Holme and Wongan Hills primary school students preserve rare flora.

A rare flora garden has been established in Wongan Hills to display endangered species from the Wongan Hills - Ballidu shire.

The garden, located in an area of land adjacent to the information bay on Wongan Road, forms part of the Recovery Plan for the Wongan Triggerplant, a rare species growing in the area.

The main threats to all rare plants in the area were clearing of land, grazing and human activity, according to CALM District Manager, Mike Fitzgerald.

"The garden is designed to raise public awareness of rare and threatened species in the area," Mr Fitzgerald said.

"There are roughly 22 species declared rare and over 60 are threatened."

Students from Wongan Hills District High School attending the opening were told that many of the plants occurred nowhere else in the world.

The Recovery Plan - funded by the Australian Nature Conservation Agency to the sum of $15,000 - involves the combined efforts of the Shire of Wongan - Ballidu, Kings Park and Botanic Garden, the Department of Conservation and Land Management, Main Roads and the WA Water Authority.

CENTRAL DISTRICTS GAZETTE
29 JUNE 1994