INTERIM RECOVERY PLAN NO. 77

WUNDOWLIN WATTLE

(*ACACIA SCIOPHANES*)

INTERIM RECOVERY PLAN

2000-2003

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Photograph: Rebecca Evans

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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 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This Interim Recovery Plan will operate from December 2000 to November 2003 but will remain in force until withdrawn or replaced.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 27 June 2001. 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 December 2000.

SUMMARY

Scientific Name: ***Acacia sciophanes***
Common Name: Wundowlin Wattle
Family: Mimosaceae
Flowering Period: February to December (peak from March to May)
CALM Region: Wheatbelt
CALM District: Merredin
Shire: Mukinbudin
Recovery Team: Merredin District Threatened Flora Recovery Team (MDTFRT)

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, Western Australia; Coates, D. (1998). *Conservation biology and recovery strategies for six National and Western Australian critically endangered Acacia species*. Department of Conservation and Land Management, unpublished document; Maslin, B. R. (1977). Studies in the genus Acacia (Mimosaceae) No. 6 - Miscellany. *Nuytsia.* 2(3): 145-161. Department of Agriculture of Western Australia.

Current status: *Acacia sciophanes* was declared as Rare Flora in July 1995 and was ranked as Critically Endangered (CR) in November 1998. It currently meets IUCN Red List (World Conservation Union, 1994) category CR under Criteria B1+2c due to the low population numbers and continued decline in the area, extent and quality of habitat. The main threats are road, rail and firebreak maintenance, gravel extraction, weeds, fire and poor regeneration.

Habitat requirements: *Acacia sciophanes* has a very narrow range of distribution, growing only in a small area near Mukinbudin in deep yellow sand over granite, a soil that has been largely cleared for agricultural purposes in the area. Associated species include other acacias and *Allocasuarina acutivalvis.*

Critical habitat: The critical habitat for *Acacia sciophanes* comprises the habitat of populations of the species, adjacent areas of deep yellow sand over granite within 200 metres of populations, corridors of remnant vegetation that link populations, and other nearby occurrences of deep yellow sand over granite that are not currently known to contain populations of the species.

Existing Recovery Actions: The following recovery actions have been or are currently being implemented: -

1. Appropriate land managers and land owners have been informed of the species' location and their legal obligations.
2. Declared Rare Flora (DRF) markers have been installed at subpopulations 1a, 1b and 1d.
3. Dashboard stickers and posters that illustrate DRF markers and describe their purpose have been produced and distributed.
4. An A4 sized poster, which provides a description of the species, and information about threats and recovery actions, has been produced.
5. A flyer describing the species and its habitat has been distributed through the CALM's Merredin District office to local farmers and other residents in the Shires of Mukinbudin, Beacon and Bencubbin.
6. Some 2,500 seeds were collected in January 1996 and stored in CALM's Threatened Flora Seed Centre (TFSC).
7. In 1996 the Botanic Gardens and Parks Authority (BGPA) had three plants in cultivation which all subsequently died.
8. The Merredin District Threatened Flora Recovery Team (MDTFRT) is overseeing the implementation of this IRP.
9. CALMScience and several university students are undertaking research into the biology and ecology of *Acacia sciophanes*.
10. CALM began negotiations with Westrail in 1996 to fence portions of subpopulation 1a. This fencing has now been completed.
11. Staff from CALM's Merredin District office regularly monitor both populations.

IRP Objective: The objective of this Interim Recovery Plan (IRP) 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

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

Recovery actions

1. Coordinate recovery actions.
2. Liaise with relevant land managers.
3. Install DRF markers.
8. Rehabilitate gravel pit at Population 2a.
9. Monitor populations.
10. Collect seed and cutting material.

4. Fence subpopulation 2b.
5. Conduct further surveys.
6. Develop and implement a fire management strategy.
7. Undertake weed control.
11. Promote awareness.
12. Start translocation process.
13. Write full Recovery Plan.

1. BACKGROUND

History

There are numerous collections of *Acacia sciophanes* held at the WA Herbarium, all but six of which have been made from population 1. Of the six, two were taken from Population 2, two from vague locations that may possibly be from population 1, and the two remaining from a possible third population south of Mukinbudin. These last two collections were made by B. Maslin[1], the first in 1989 and the second March 1998. Both were collected from the same roadside where it appears there were just two adult plants. The area was investigated in 1999 by CALMScience staff but no plants were found.

There have been numerous surveys for *Acacia sciophanes*; three of which are of significance. F. Mollemans[2] conducted the first in 1990 and accurately mapped subpopulations 1a and b including the location of most of the individual plants. This mapping has helped to show that subpopulations 1a and 1b have not changed significantly in plant number in the last 10 years.

The second survey by M. Fitzgerald[3] in 1994 investigated all surrounding areas of 'deep yellow sand over granite' (Fitzgerald, 1994), the soil type indicative of the first population. Although an extensive survey no further populations were found.

A third survey in 1998 by CALMScience staff found a new population several kilometers south of the original population. It appears that F. Mollemans investigated this second site in 1990, finding a population of *Acacia merrickiae*, but no record of *A. sciophanes*. Given that the two species occur together, further investigation may be warranted of a location in which *A. merrickiae* was located in 1990, and which occurs between the two known populations of *A. sciophanes*.

Despite a number of surveys there are currently only two known populations of *Acacia sciophanes*. These grow less than 7 km apart with around 806 adult plants.

[1] Bruce R. Maslin, Principal Research Scientist, WA Herbarium, CALMScience Division.
[2] Frans Mollemans, Previously Consultant Botanist, CALM.
[3] Mike Fitzgerald, Project Officer, CALM Merredin.

Description

When mature, *Acacia sciophanes* develops into a diffuse, openly branched, wispy shrub to 2.3 m high. Its zigzagging branches are mostly pendulous, circular in cross-section, and slightly resinous. The phyllodes are coarsely thread-like, 9-15 cm long, and 1-2 mm wide. The phyllodes are curved, spreading, and very slightly resinous, have 4 prominent ribs, and are hooked at the apex. Globular bright yellow flower heads are held on stalks that are 5-6 mm long. The pods are linear up to 10 cm long, 1-2 mm wide and are circular in cross-section. They are sometimes twisted, and the margins are slightly contracted between the seeds. The species is distinguished by its diffuse, open habitat and zigzagging branches (Maslin, 1977).

Adult plants at the second population have branchlets with less of the characteristic 'zigzag' appearance of the first population (personal communication M. Buist[4]). These plants have, however, been verified as *Acacia sciophanes* by taxonomic and genetic analysis (personal communication D. Coates[5]).

The species is closely related to *Acacia anfractuosa* with the two species sharing a distinctive wispy growth habit, drooping zigzag branches and a similar inflorescence and seed pod. However, they are easily separated by their phyllode characteristics. *A. sciophanes* has phyllodes which are more or less circular to quadrangular in cross-section as a result of the longitudinal ribs. *A. anfractuosa* has phyllodes which are more or less flat to diamond shaped in cross-section, with 3-7 nerves on each face. The distributions of the two species are not known to overlap (Maslin, 1977).

Distribution and habitat

Population 1 grows on 'deep yellow sand over granite' (Fitzgerald, 1994) in highly disturbed habitat on rail and road reserve. The species may previously have been more widely spread, however, the specific soil type has been largely cleared for agriculture.

Critical habitat

Critical habitat is habitat identified as being critical to the survival of a listed threatened species or community. Habitat means the biophysical medium or media: (a) occupied (continuously, periodically or occasionally) by an organism or group of organisms; or (b) once occupied (continuously, periodically or occasionally) by an organism, or group of organisms, and into which organisms of that kind have the potential to be reintroduced (*Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)).

The critical habitat for *Acacia sciophanes* comprises:

- The habitat of known populations.
- Similar habitat within 200 metres of known populations (these provide potential habitat for natural recruitment).
- Corridors of remnant vegetation that link populations with other nearby areas of apparently suitable habitat that do not currently contain the species.
- Areas of similar habitat that may be used for future translocation.

Biology and ecology

The biology of *Acacia sciophanes* is poorly known. However, field observations suggest that *Acacia sciophanes* is likely to require disturbance (such as fire) to germinate soil-stored seed. This is evidenced by its occurrence in disturbed sites along, railway lines, road reserves and firebreaks. While the site remains unburnt, the population will continue to decline as older plant senesce. Field observations also suggest that the species is endemic to a small area around Mukinbudin (Fitzgerald, 1994). The probability of finding further populations is relatively slim given the high degree of clearing for agriculture within the Mukinbudin area and the small amount of remnant bushland remaining on the specific soil type.

It is thought that the species is insect pollinated, as are most other *Acacia* species (Rye, 1980) but there are currently no supportive field observations. Pollination is never the less quite successful with plants producing prolific fruit and seed. Unfortunately, very few seedlings have been observed which indicates that the factor limiting regeneration is occurring after seed set (i.e. lack of suitable fire events). CALMScience Division is undertaking research on this (see Existing recovery actions).

Threats

[4] Marcelle L. Buist, Student, WA Herbarium and University of WA.
[5] Dave Coates, Principal Research Scientist, CALMScience Division.

Acacia sciophanes was declared as Rare Flora in July 1995 and was ranked as Critically Endangered (CR) in November 1998. It currently meets IUCN Red List (World Conservation Union, 1994) category CR under Criteria B1+2c, due to its restricted occurrence, low population numbers (2) and continuing decline in area, extent and quality of habitat. The main threats are road, rail and firebreak maintenance, gravel extraction, weeds, fire and poor recruitment.

- **Ongoing road, rail and firebreak maintenance** threatens both populations. Threats include grading, chemical spraying, drain construction and mowing roadside vegetation. Apart from causing damage to actual plants, such activities also encourage weed invasion. Relevant authorities have informed of the location of populations so that appropriate protective measures can be implemented. Adjacent landowners should also be informed to prevent possible damage due to grazing, spraying, firebreak maintenance and other activities that may threaten either population.

- **Future gravel extraction** is a possible threat to subpopulation 2a. Although gravel has not been extracted for at least a year (personal communication M. Buist), future use of the pit is possible. The Shire has been formally notified of the presence of *Acacia sciophanes* in case of any further gravel extraction.

- **Weed invasion,** particularly on road and rail reserves, threatens populations 1 and 2. Weeds suppress early plant growth by competing for soil moisture, nutrients and light. They also increase grazing pressure and create a fire hazard due to their high fuel loads. Narrow, linear populations, such as road and rail reserves, are severely affected by weed seed blown in from adjacent cleared land (Lynch 1987; Saunders *et al*. 1987; Taylor 1987).

- **Inappropriate fire regimes** would affect the long-term viability of both populations. Adult plants of *Acacia sciophanes* are probably killed by fire with regeneration relying on the germination of soil-stored seed. The soil seed bank would be rapidly depleted if fires recurred before plants reached maturity and replenished the soil seed bank. Appropriate fires (every 10-20 years) on the other hand are likely to be required for populations to recruit from soil-stored seed.

- **Poor recruitment** due to a lack of disturbance threatens both populations with very few young plants of *Acacia sciophanes* being observed.

Summary of population information and threats

Pop. No. & Location	Land Status	Year/No. plants	Condition	Threats
1a. W of Barbalin	Railway Reserve	2000 98	Moderate	Inappropriate fire, weeds, railway maintenance, poor regeneration.
1b. W of Barbalin	MRWA Road Reserve	1994 3(3)	Moderate	Inappropriate fire, weeds, road maintenance, poor regeneration.
1c. W of Barbalin	Nature Reserve	1999 402	Healthy	Inappropriate fire, weeds, firebreak maintenance, poor regeneration.
1d. W of Barbalin	Shire Road Reserve	2000 123	Moderate	Inappropriate fire, weeds, road maintenance, poor regeneration.
2a. W of Barbalin	Water Reserve	1999 *115	Disturbed and modified	Gravel extraction, inappropriate fire, weeds, firebreak maintenance, poor regeneration.
2b. W of Barbalin	Private Property	1999 65	Moderate	Poor regeneration, weeds, inappropriate fire, firebreak maintenance.
2c. W of Barbalin	Private Property	1999 *115	Moderate	Poor regeneration, weeds, inappropriate fire, firebreak maintenance.

Note: * total for both subpopulations combined. Numbers in brackets () refers to number of seedlings.

Guide for decision-makers

Section 1 provides details of current and possible future threats. Developments in the immediate vicinity of any of the populations or within the defined critical habitat of *Acacia sciophanes* require assessment. No developments or maintenance activities that may threaten *Acacia sciophanes* should be approved unless the proponents can demonstrate that they will not have a significant impact on the species, its habitat or its potential habitat.

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.

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

3. RECOVERY ACTIONS

Existing recovery actions

All land managers and landowners have been made aware of the threatened nature of the species and its location. Private property owners, the Shire and the Water Corporation have been formally notified of the presence of *Acacia sciophanes* populations on or adjacent to their land. This notification details the Declared Rare status of the taxon and the associated legal responsibilities.

Declared Rare Flora (DRF) markers have been installed at subpopulations 1a, 1b and 1d. DRF markers alert workers of the presence of threatened flora and help prevent accidental damage. An increased awareness of these markers has been promoted to local authorities through the development and distribution of posters and dashboard stickers. These illustrate DRF markers, inform of their purpose and provide a contact telephone number to use if a marker is encountered during operations.

An A4 sized poster, which provides a description of the species, and information about threats and recovery actions, has been developed for *Acacia sciophanes*. It is hoped that the poster will result in the discovery of new populations.

A reply paid postal drop illustrating *Acacia sciophanes* and describing its distinctive features and habitat has been distributed by CALM's Merredin District office to local farmers and other residents in the Shires of Mukinbudin, Beacon and Bencubbin. Postal drops aim to provide information about threatened species and a contact name and number if new populations are found.

Some 2,500 seeds were collected in January 1996 and stored in CALM's Threatened Flora Seed Centre (TFSC). An initial germination rate of 88% was recorded and the germination rate after one year was higher at 93% (personal communication Anne Cochrane[6]).

In 1996 the Botanic Gardens and Parks Authority (BGPA) had three plants in cultivation, however, all have subsequently died.

The Merredin District Threatened Flora Recovery Team (MDTFRT) is overseeing the implementation of this IRP and will include it in its annual report to CALM's Corporate Executive and funding bodies.

CALMScience, funded through NHT, have commenced research under the project titled, 'Conservation biology and recovery strategies for six National and Western Australian endangered *Acacia* taxa.' (Coates, 1998). The project aims to undertake an integrated research and experimental management program and develop recovery strategies for the six critically endangered *Acacia* species, one of which is *Acacia sciophanes*.

During this project a comparative study of levels of genetic diversity between rare and more widespread species of *Acacia*' has found that *Acacia sciophanes* is not as complex genetically as the closely related species *Acacia anfractuosa.* The genetic analysis also helped verify that the slightly different shaped plants in population 2 are *Acacia sciophanes*. Analysis of the results is ongoing and further information will be available shortly (personal communication D. Coates).

A study of the ecological characteristics of the six Critically Endangered *Acacia* spp. and factors limiting the growth of populations has commenced and results will be made available as the project progresses (Buist, 1998). This research aims to investigate:

1. Population structure
2. Habitat specificity
3. Reproductive biology
4. Seed bank dynamics
5. Seed morphology, anatomy, and germination physiology

Subpopulation 1a, and adjacent subpopulations, are threatened by ongoing rail maintenance. CALM began negotiations with Westrail in 1996 and has fenced groups of plants that may be damaged by these activities.

Staff from CALM's Merredin District Office regularly monitor both populations.

Future recovery actions

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

1. Coordinate recovery actions

The MDTFRT will continue to oversee the implementation of recovery actions for *Acacia sciophanes* and will include information on progress in its annual report to CALM's Corporate Executive and funding bodies.

Action: Coordinate recovery actions
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $380 per year

2. Liaise with relevant land managers

Staff from CALM's Merredin District will continue to liaise with land managers to ensure that populations are not damaged or destroyed accidentally.

Action: Liaise with relevant land managers
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $700 per year

[6] Anne Cochrane, Manager, Threatened Flora Seed Centre, CALM.

3. Install DRF markers

DFR markers placed at subpopulation 1a have been placed inaccurately and will be moved. CALM will assess if DRF markers are necessary for population 2 and install them if necessary.

Action: Install DRF Markers
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $500 in the first year

4. Fence subpopulation 2b

Although it is unlikely that plants at subpopulation 2b are currently being grazed, this area should be fenced to exclude stock.

Action: Fence subpopulation 2b
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $1,800 in the first year

5. Conduct further surveys

Further surveys by CALM staff, with the assistance of local naturalists and wildflower society members, will be conducted during the flowering period of the species (February to December).

Action: Conduct further surveys
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $2,400 per year

6. Develop and implement a fire management strategy

Fire is thought to kill adult plants of *Acacia sciophanes* with regeneration likely to be largely from the germination of soil-stored seed. Frequent fire may prevent the accumulation of seed by killing plants prior to their first flowering. Fire should therefore be prevented from occurring in the area at least in the short term. A fire management strategy will be developed to determine fire control measures and fire frequency.

Action: Develop and implement a fire management strategy
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $3,000 in the first year and $1,000 in subsequent years

7. Undertake weed control

Weeds are a major threat to both populations, especially in subpopulations located on rail and road reserves. The following actions will be implemented:

1. Selection of appropriate herbicides after determining which weeds are present
2. Controlling invasive weeds by hand removal or spot spraying around *Acacia sciophanes* plants when weeds first emerge
3. Scheduling weed control to include spraying at other threatened flora populations within the district

The tolerance of associated native plant species to herbicides at the site of *Acacia sciophanes* is not known and weed control programs will be undertaken in conjunction with research.

Action: Undertake weed control
Responsibility: CALM (Merredin District, CALMScience) through the MDTFRT
Cost: $800 per year

8. Rehabilitate gravel pit at subpopulation 2a

The gravel pit at subpopulation 2a should be rehabilitated in order to provide a buffer area around *Acacia sciophanes*, encourage recruitment of associated flora (to attract pollinators) and provide habitat in which the translocation of plants may take place (see recovery action 12).

Action: Rehabilitate gravel pit at subpopulation 2a
Responsibility: CALM (Merredin District) through the MDTFRT

Cost: $9,100 in second year

9. Monitor populations

Monitoring of factors such as weed invasion, habitat degradation, and population stability (expansion or decline), pollinator activity, seed production, recruitment, and longevity is essential. CALM will inspect both populations annually.

Action: Monitor populations
Responsibility: CALM (Merredin District) through the MDTFRT
Cost: $1,600 per year

10. Collect seed and cutting material

Seed has been collected from population 1. Additional seed will be collected as required. Cutting material will also be collected for the BGPA's stock garden.

Action: Collect seed and cutting material
Responsibility: CALM (Merredin District, TFSC) and BGPA, through the MDTFRT
Cost: $2,900 per year

11. Promote awareness

The importance of biodiversity conservation and the need for the long-term protection of *Acacia sciophanes* in the wild will be promoted through the local print and electronic media and through poster displays. An information sheet that includes a description of the plant, its habitat type, threats and management actions has been produced. Formal links with local naturalist groups and interested individuals will also be encouraged.

Action: Promote awareness
Responsibility: CALM (Merredin District, Corporate Relations) through the MDTFRT
Cost: $400 per year

12. Start translocation process

As both populations of *Acacia sciophanes* are relatively small and are threatened by accidental destruction and fire, translocation is essential for the long-term conservation of the species. Although translocations are generally undertaken under full Recovery Plans, it is possible to select sites and develop a translocation proposal within the time frame of an IRP. This will be coordinated by the MDTFRT. Information on the translocation of threatened animals and plants in the wild is provided in CALM Policy Statement No. 29 *Translocation of Threatened Flora and Fauna.* All translocation proposals require endorsement by the Director of Nature Conservation.

Action: Start translocation process
Responsibility: CALM (CALMScience, Merredin District) through the MDTFRT
Cost: $4,400 in the third year

13. Write a full Recovery Plan

At the end of the second-year of this IRP, the need for further recovery will be assessed. If *Acacia sciophanes* is still ranked Critically Endangered at that time, a full Recovery Plan will be developed which prescribes actions required for the long-term recovery of the species and will come into operation from the end of the third year.

Action: Prepare a full Recovery Plan
Responsibility: CALM (WATSCU, Merredin District) through the MDTFRT
Cost: $16,600 in the third year

4. TERM OF PLAN

This Interim Recovery Plan will operate from December 2000 to November 2003 but will remain in force until withdrawn or replaced. It is intended that, if the taxon is still ranked CR, this IRP will be replaced by a full Recovery Plan after three years.

5. ACKNOWLEDGMENTS

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

Alex Agafonoff	Former Flora Conservation Officer, CALM Merredin District
Brett Beecham	Regional Ecologist, CALM Wheatbelt Region
Karen Bettink	Flora Conservation Officer, CALM Merredin District
Marcelle Buist	PhD Student, WA Herbarium and University of Western Australia
Dave Coates	Principal Research Scientist, CALMScience
Anne Cochrane	Manager, CALM Threatened Flora Seed Centre
Mike Fitzgerald	Project Officer, CALM Merredin District
Sophie Juszkiewicz	Propagator, Botanic Gardens and Parks Authority
Bruce Maslin	Senior Research Scientist, CALMScience
Paul Roberts	District Manager, CALM Merredin District
Amanda Shade	Horticulturalist, Botanic Gardens and Parks Authority
Colin Yates	Research Scientist, CALMScience

We would like to thank the staff of the W.A. Herbarium for providing access to Herbarium databases and specimen information, and CALM's Wildlife Branch for their extensive assistance.

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7. TAXONOMIC DESCRIPTION

Maslin, B. R. (1977). Studies in the genus Acacia (Mimosaceae) No. 6 - Miscellany. *Nuytsia.* 2(3): 145-161. Department of Agriculture of Western Australia.

A diffuse, openly branched, wispy *shrub* to 2.3 m tall, dividing near ground level (or to 0.6 m above) into a number of main trunks; *bark* light grey, smooth but finely fissured at extreme base of trunk; *branches* mostly pendulous, flexuous, terete (but ribbed towards apex), slightly resinous, glabrous to strigillose, light brown towards apex but red-brown with a light grey peeling epidermis with age. *Stipules* caducous. *Phyllodes* coarsely filiform, 90-150 mm long, 1-2 mm wide, ± curved, spreading, very slightly resinous, slightly laterally compressed, prominently 4-ribbed (ribs alternating with 4 equally prominent grooves), ribs yellowish and glabrous, grooves concave subglaucous and glabrous or strigillose; *apex* straight or uncinate, not pungent, brown; *pulvinus* 1-2 mm long, obscurely wrinkled, glabrescent. *Gland* situated on upper rib of phyllode 1-2 mm above pulvinus, lamina tissue slightly swollen around gland, orifice distinct (oblong, ± 0.5 mm long), lip

indistinct. *Inflorescences* simple, normally arising from near base of new shoot, 1-2 per axil; *peduncles* 5-6 mm long, slightly longitudinally sulcate (when dry), glabrous, or strigose at base, resinous; *basal peduncular bracts* caducous, solitary, ± triangular, ± 1 mm long; *receptacles* slightly obloid, glabrous; *flower heads* bright yellow, globular, with 25-31 ± loosely arranged flowers. *Bracteoles* ca. 0.5 mm long (= calyx in length); *claws* linear; *laminae* ovate, puberulous, slightly keeled. *Flowers* 5-merous, slightly resinous; calyx 1/4 length of corolla, very shallowly divided (for ca. 1/6 its length) into broadly triangular ciliolate lobes, tube sparsely puberulous and nerveless; *petals* 2-2.5 mm long, connate for ± 2/3 their length, not reflexed at anthesis, glabrous, very obscurely 1-nerved; *ovary* very shortly stipitate, densely tomentose. *Legumes* linear, to 100 mm long, 1-2 mm wide, ± terete, sometimes twisted, firmly chartaceous, silvery-strigillose; *margins* slightly contracted between seeds (indentations shallowly concave); *marginal nerves* scarcely thickened, broad, glabrous, yellowish. *Seeds* longitudinal in legume, obloid to ellipsoid, 3-3.5 x 1.5 mm, slightly compressed, mottled, a dark brown line extending around periphery, slightly shiny; *pleurogram* 'u'- to 'v'-shaped, open towards the hilum, obscure; *areole* 0.3- 0.4 mm long; *funicle* convoluted, expanded into a pileiform white *aril*.

Distribution: Western Australia: Known only from between Mukinbudin and Bencubbin.

Habitat: Yellow sand in tall dense sandplain scrub with *Acacia longispinea* A. Morrison, *A. resinomarginea* W. V. Fitzg., *A. signata* F. Muell. and *Casuarina acutivalvis* F. Muell.

Flowering period: The specimens at hand are all in flower and were collected from late September to mid-October. Judging from these it is likely that the flowering period would extend from mid-September to November.

Fruiting period: As with *A. anfractuosa* Maslin the previous year's legumes are present on *A. sciophanes* during the next flowering season. Only one collection of specimens with legumes has been made and this was gathered in mid-October. These legumes contained some mature seeds.