PILBARA LAND REHABILITATION GROUP

NEWSLETTER NO. 5

FEBRUARY 1994

Co-ordinator: Mary Fletcher
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Karratha 6714
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CO-ORDINATORS NOTE:

Thanks again to Stephen van Leeuwen (CALM) who almost single handed has produced all the articles for this Newsletter. Included with the Newsletter is Stephen's Taxon Note 2. I have kept this separate from the Newsletter so it can be filed with Taxon Note 1.

NEXT PLRG MEETING

The location for the next meeting is not known at this time. It will not be at Rudall River. Rudall River is happy to host a meeting of the PLRG but not in April. The new exploration team will have only just arrived and they would prefer a little more time to orientate themselves. We have tentatively agreed that we will hold our second meeting there latter in the year. I am currently chasing up a couple of other options and will write and let you know when we have confirmed a date and location.

AMIC ENVIRONMENTAL WORKSHOP

The AMIC Environmental Workshop will be held in Karratha in late October, 1994. The organising committee will meet in late February to discuss the theme of the workshop and consider various options for conference tours.

RANGE REGENERATION TRIALS BY THE DEPARTMENT OF AGRICULTURE

The Department of Agriculture has been conducting range regeneration trials for the last four years. Trials have compared cultivation techniques in 15 trial areas throughout the Pilbara. The trials included trench and disk cultivations, disking, pitting and ripping treatments. The most successful treatments have been ponding and trenching.

Ponding dishes were constructed along the NW Coastal Highway near Karratha, on clay soils of low to moderate salinity and direct sown with about 20 native perennial species. After 18 months there were 3 perennial plants per square meter ranging from 10 to 100 cm in height . The most successful species were *Acacia victoriae, A. bivenosa, Enchylaena tomentosa* and *Cassia helmsii.*

The Roebourne Plains soils which were cracking clays, highly saline and alkaline from 10 to 100 cm depth, grew only *Sclerolaena sp., Eragrostis xerophila* and salt tolerant annuals.

Ponding trenches have been the most successful treatment on the non saline alluvial clay soils that occur on extensive river flood plains. In Sept 1993, over 80% of the trench cultivations on the Ethel Creek and Yarraloola trial plots had achieved 60-80% foliar cover, 5-20% cover of perennials and 15 to 30 perennial plants of 3 to 6 species per 100 square meters of cultivation. The uncultivated area within the same stock exclosure grew 0-10% cover of ephemerals and no perennials.

The most successful perennials were buffel grass, birdwood grass, plains grass, bardie bush, cassias , snakewood and *Psoralea* (the latter two on one site only). The soils were light medium to silty clays which were neither saline or excessively alkaline. It would seem that successive periods of prolonged overgrazing combined with drought killed the perennials resulting in some sheet erosion and a smooth soil surface that gave no protection from wind and did not provide seed traps or channels for water to penetrate. Rainfall does not soak more than a few centimetres, even though the soil is not hard setting. Ponding cultivations have allowed the water to soak in and a succession of plants, culminating in deep rooted perennials, have established. These in turn trap more water, thus breaking bare scald syndrome.

The interesting points that have emerged from the trial so far are:

1. Success of regeneration is very dependent on soil type.
2. Perennials will only establish where there is effective ponding and water penetration
3. Direct seeding is effective on some sites provided that the right species for the soil type are chosen.
4. Trench cultivations are superior to opposed disc and can give good results even if there is an 18 month drought before good rains. The experience of some station managers has shown that with good machinery, trench cultivations are faster and cheaper to construct than was originally thought.
5. Destocking alone will not regenerate scalded clay soils

AN ANONYMOUS CONTRIBUTION

Prince Charles accepted the offer to unveil the plaque at Nullagine. He appeared on the day in appropriate attire - light trousers and short sleeve shirt, but with an unusual head dress of fur, looking like a cross between Boris Yeltsen and Davey Crocket. After the ceremony all retired to the Conglomerate for a drink. Late in the day a local remarked "Great speech Charlie, but what's with the strange head gear?" The Prince explained that prior to his visit, he wasn't sure of appropriate customs in the area so enquired to a higher authority. "I'm unveiling a plaque at Nullagine Mater, what should I wear?"
She replied " Nullagine? Wear the fox hat!"

(Think about it.)

News from the WA Flora Industry Advisory Committee

At the last meeting of WAFIAC, held on the 25 November, discussion was held on a request from the seed picking industry for short-term training licences. CALM noted that advice on this matter was still being received from Crown Law. In the meantime, the Department would be prepared to issue short-term Scientific Flora Licences to individuals operating under the supervision of a licenced seed picker, providing that it was for training only, with no commercial component to the operation. As pointed out by seed industry representatives, there would always be a commercial component to such picking. These representatives also queried what CALM considered to be a commercial operation, ie. how much seed could be collected before it was considered a commercial operation. A wildflower pickers' representative indicated that a training licence was essential if the seed picking industry was to professionally develop. It was suggested that trainees should at least be able to recoup their licencing fee. Further discussion indicated that most committee members thought a short-term scientific licence was inappropriate and that all pickers should be required to take out Commercial Purposes Licences when picking commercially. The possibility of creating a third type of licence to cover training which involved commercial rewards, was also raised. The Chairman concluded the discussions by advising that CALM would continue to issue Commercial Purposes Licences to cover commercial activities and would further review the issue of short-term training licences upon receipt of Crown Law advice.

A recent review of the State's Flora Management Program was favourably considered by ANCA (Australian Nature Conservation Agency), who will continue to allow the overseas export of the State's flora. The reviewing officers were generally satisfied with the level of industry management but considered that the State's Flora Management Program did not accurately reflect this level of management. CALM is currently producing a revised management plan to address their concerns. ANCA also requested the preparation of comprehensive background documents detailing the conservation status and ecology of each species harvested, with management guideline recommendations. The responsibility for this task will fall largely upon the industry and those proponents who wish to export flora overseas. It was noted that only small amounts of seed were exported overseas and that the industry expects this operation to continue on an unrestricted basis. The Chairman noted that seeds are not currently covered by the Commonwealth Wildlife Protection (regulation of Exports and Imports) Act, however, this was likely to change.

Stephen van Leeuwen

Annie Ilett moves East

Annie Ilett, the Education Officer for Greening Australia has moved across the Nullarbor and taken up a position with the Department of Environment, Sport & Territories. Annie's new position involves advising on environmental education policies, programs and legislation, where she hopes to implement a more co-ordinated approach between land management authorities and education departments. Annie can be contacted on ☎ (06) 274-1747, 🖷 (06) 274-1970 or by ✉ at Education Policy & Projects Unit, Department of Environment, Sport & Territories, PO Box 787, CANBERRA, ACT 2601.

Stephen van Leeuwen

Guidelines for seed collection in the Pilbara mining industry

Progress on the preparation of guidelines for seed collection in the Pilbara mining industry has been somewhat restrained over the past few months as a result of the Christmas holiday period. To mid February preliminary draft information has been complied by Nic and myself, however, this has not yet been circulated to other members of the sub-committee for scrutiny. With my recent return to work and Nic's imminent return from secondment to the Perth office, it is hoped that a working draft will be circulated to the sub-committee by April. At this time a working copy will also need to be circulated to CALM's policy group for perusal to ensure that recommendations are in keeping with regulatory requirements and current Departmental policies. A draft should then be available for presentation to the group in time for our next meeting.

Stephen van Leeuwen

Pilbara Regional Herbarium Seed Viability Service

The Science and Information Management Group of CALM has given tentative approval for the establishment of a seed viability testing service within the Pilbara Regional Herbarium. However, before I can present a formal proposal to the PLRG and CALM, as well as seek the endorsement of Karratha College, I need more information on what exactly the PLRG are expecting from the service. I specifically need feedback on what the group understand as viability and how they would like to see it tested. An accurate appreciation of the PLRG's expectations will significantly enhance my ability to produce an acceptable proposal.

Areas in which I require feedback are:

- The method(s) to be employed to determine viability. (Seed viability can be determined by a number of methods, for example, through embryo viability tests using enzymatic stains or by germination trials. If germination trials are an acceptable method, should seed dormancy mechanisms, if present, be transgressed resulting in a unrealistic viability estimate or should dormancy be included giving a realistic result, especially if the seed is to be sown in the near future.
- How comprehensive should the service be with reference to investigating viability results and their subsequent reporting? Should the service suggest/provide explanation for poor viability results (eg. insect predated, immature seeds, existence of dormancy mechanisms, etc) or is such information useless and irrelevant? Should the service just provide results on seed viability or should it report on other matters like estimates of the number of viable seed per unit weight, optimum germination temperature, etc? Should the service also provide a mechanism whereby the viability of particular seed lots can be monitored over time?
- How should the service be structured and operated? Should it be a subsidised service where the initial and ongoing capital costs are furnished by industry and the clients pay only a nominal fee for the service, covering CALM's running costs, or should it be developed as a commercial enterprise where CALM provides all the capital and operating costs, thus charging clients in accordance to the Government's recoupable works policy?

These are just a few of the questions I require feedback on prior to preparing a proposal. If you have any suggestions please contact me at CALM on 868 290 with your ideas. Alternatively, pass them onto me at our next meeting where I will hopefully present some of the options available and outline their pros and cons.

Stephen van Leeuwen

Germination and establishment characteristics of *Themeda triandra* (Kangaroo Grass)

An article titled **"The germination and establishment of *Themeda triandra* (Kangaroo Grass) as affected by soil and seed characteristics"** was recently presented in volume 41 of the Australian Journal of Botany. The article was written by B. Sindel, S. Davidson J. Kilby and R. Groves from the CSIRO Division of Plant Industry. Their research was funded by the New South Wales Roads and Traffic Authority to assist with the re-establishment of natural grassland communities along transport corridors. The hypotheses they examined were designed to determine the effect of depth of sowing, soil type, soil microtopography, presence of mulches, seed condition and the interactions between these factors on the germination of Kangaroo Grass. Results and recommendations presented in this paper may be of interest to members of the PLRG and could perhaps assist with some Pilbara rehabilitation projects.

Before presenting a summary of their research findings it is important to note the Kangaroo Grass in the Pilbara is also *Themeda triandra*. The name previously applied to the Kangaroo Grass in this region was *T. australis*, however, this name is now considered to be synonymous with *T. triandra*. As *T. triandra* is the older name, under the rules of the Code of Botanical Nomenclature it must become the accepted name.

The main highlights of this paper for the land management practitioner, together with the authors recommendations, are outlined below:

- Kangaroo Grass can be propagated vegetatively from tussocks, although this technique is only feasible for small areas.
- Kangaroo Grass is well known to have very low seed fertility and quickly lose seed from flowering spikes, ie. poor seed retention.
- The hygroscopic awn makes harvesting and seed cleaning very difficult.
- High levels of seed dormancy exist in fresh seed. Dormancy falls with time of storage, up to at least 12 months, when it is minimal. Dormancy can be reduced in seeds less than 12 months old by the addition of gibberellic acids (growth hormones), storage at high alternating temperatures or through cold stratification.
- Light has little effect on germination of non-dormant seed. Under laboratory conditions maximum germination is achieved with a day/night temperature regime of 30/20 or 35/25°C. In the field, Kangaroo Grass is unlikely to germinate until temperatures reach 18°C. Germination is also significantly reduced at low soil moisture potential.
- Intact 2 year old seed used in this study achieved a maximum germination of only 51% when sown on the soil surface. This was increased to 57% when sown at a depth of 1 cm. In both instances, percentage germination was higher when awns were removed (results refer to glasshouse trials).
- Soil type had no significant effect on Kangaroo Grass germination or emergence up to 28 days.
- Seed germination on the soil surface was up to 14 days slower than that for seed buried to 1 cm, however, below this depth germination reduced significantly (from 66% at 1 cm to 44% at 3 cm). The time taken for seedlings to emerge and the percentage of germinated seedlings which failed to emerge after one month, increased with the depth of sowing.
- When sown on the soil surface, seeds with awns (intact) had a much higher germination rate than those sown below the soil surface. When buried, the opposite was true, with de-awned seeds germinating the quickest. This implies that the long awns of Kangaroo Grass are a very efficient mechanism for locating microsites and burying seed for subsequent germination. Quick deposition of seeds in microsites also reduces their exposure to predation and loss of viability induced by exposure to temperature extremes.

- Once broadcast, awned seeds were highly mobile and within 3 days more than 50% were lodged in cracks, under stones or buried in the soil. Seeds with their awns removed remained on the soil surface and failed to become buried or lodged. Therefore, if seeds are to be broadcast over the seedbed, one of the aims of seedbed preparation should be to maximise the number of microsites for entry and lodgement of seed by providing some form of surface roughness, with obstructions to seed movement to assist with seed protection.
- If sowing Kangaroo Grass seed by broadcasting on pre-prepared seedbeds then intact awned seeds are recommended. As awned seeds of *Themeda* which come into contact with one another tend to become tangled, the only practical way of handling the seed is to keep them mixed or 'diluted' in the *Themeda* chaff, which is collected at the time of seed harvest. The seeds and chaff can then be broadcast, or mixed with water and sprayed onto the soil surface.
- If seeds are de-awned during harvest, then sowing at 1 cm or less below the soil surface would maximise germination and establishment. Sowing below this depth may be warranted under limited moisture conditions, but germination percentages will be reduced.
- In the case of some revegetation work, the steep slopes of an area may prevent the use of conventional sowing techniques, in which case surface sowing of awned seeds is recommended. On more level sites, clean seed (de-awned) sown below the soil surface is recommended.
- High nutrient levels increased early seedling growth in some instances, however, it was argued that the presence of weedy species and other grasses may result in the competitive advantage of nutrient addition (fertilisers) being negated. The application of fertilisers at sowing was therefore not recommended.
- Moisture stress significantly reduced the germination potential of Kangaroo Grass and therefore, the addition of a mulch sufficient to maintain high moisture contents within the top few centimetres of the soil profile may be justified. However, the addition of a mulch should not impede the movement of awned seeds into safe microsites thereby reducing germination. Mulch addition should occur after broadcasting of the seed.

The publication details for this paper are:

Australian Journal of Botany 41: 105-117 (1993)

If you require a copy you can write to B.M. Sindel at Division of Plant Industry, CSIRO, GPO Box 1600, Canberra, ACT 2601 and ask for a reprint.

Stephen van Leeuwen

1994 Workshop on Rehabilitation of Arid and Semi-arid Areas

Secretary
Goldfields Land Rehabilitation Group
PO Box 2412
BOULDER WA 6432

The Goldfields Land Rehabilitation Group promotes good environmental management practices in the Goldfields by providing a source of expertise and resources for land rehabilitation; providing information and education to the public on revegetation and environmental management, and identifying areas where rehabilitation knowledge is limited and research will be beneficial.

Poster Displays are welcomed.
Please contact the organisers.

Further Information about this workshop can be obtained by contacting one of the following:

Greg Barrett, Posgold - Kaltails Project
☎ (090) 93 2755 Fax: (090) 93 1936

John Robinson, Dept. of Minerals & Energy
☎ (090) 21 9411 Fax: (090) 21 3612

Doing it better!

1994 Workshop on Rehabilitation of Arid and Semi-arid Areas

Doing it better!

May 19 - 20, 1994

WMC Conference Centre
44 McDonald St
Kalgoorlie-Boulder
Western Australia

Registration Form

Programme

PRE-WORKSHOP EVENT : WEDNESDAY 18TH MAY, 1994

4.00 - 4.30pm **Official Opening of the Goldfields Reference Herbarium:** by Dr Neville Marchant, Director of the Western Australian Herbarium. At Kalgoorlie College (Williams House) Cnr Wilson & MacDonald Sts, Kalgoorlie

4.30 - 5.30pm **Registration and Drinks** (Williams House)

DAY ONE: THURSDAY 19TH MAY, 1994

7.00 - 8.00am **Registration**

8.00 - 8.15am **Welcome and Opening Address:** John Robinson President, Goldfields Land Rehabilitation Group

Session One - Environmental Management & Rehabilitation in Arid Environments

(Chairperson: Gerry Bradley, Environmental Technology Dept, Kalgoorlie College)

8.15 - 8.40am **Minesite Rehabilitation and Long Term Monitoring:** Gay Bradley, Kalgoorlie Consolidated Gold Mines

8.40 - 9.05am **Environmental Education of the Minesite Workforce:** Colin Woolard, Western Mining Corporation & Rob Howard, Kalgoorlie Consolidated Gold Mines

9.05 - 9.30am **Management & Protection of Rare Flora & Fauna in the Goldfields:** Andrew Chapman, Department of Conservation & Land Management.

9.30 - 9.55am **MORNING TEA**

9.55 - 10.20am **Minesite Rehabilitation and Management - A Perspective from India:** Eddy Wajon, Kinhill Engineers

10.20 - 10.45am **The Arid Zone Botanic Garden:** John Zwar, Western Mining Corporation

10.45 - 12.20pm ***Tour of Kalgoorlie Consolidated Gold Mines "Super Pit" & surrounds***

12.20 - 1.30pm **LUNCH**

Session Two - Soils, Mined Materials & Erosion Control

(Chairperson: Mark Cannon, Department of Minerals & Energy)

1.30 - 1.55pm **Goldfields Soils - Development, Characteristics and Relevance to Mine Rehabilitation:** Trevor Stoneman, Soil Consultant

1.55 - 2.20pm **Geochemical Characterisation of Mine Overburden & Implications for Rehabilitation:** Graeme Campbell, Campbell & Associates

2.20 - 2.45pm **Physical Characterisation of Mine Material & Engineering Requirements to Provide Long Term Stability of Open Pits & Waste Dumps:** Doug Blandford, Blandford & Associates

2.45 - 3.10pm **Erosion Control Techniques for Quarries and Arterial Services in the Goldfields:** John Miragliotta, Main Roads Department

3.10 - 3.30pm **AFTERNOON TEA**

Session Three - Government Regulation

(Chairperson: Greg Barrett, Posgold - Kaltails Project)

3.30 - 3.55pm **Government Regulatory Directions of Mining in Western Australia:** Keith Lindbeck, Department of Minerals & Energy

3.55 - 4.30pm **Open Forum**

Evening Entertainment at Hannans North Tourist Mine (Optional)

5.30 - 6.30pm **Tour of the Hannans North Tourist Mine (Underground)** Goldfields Heritage Displays and Gold Room Demonstration

7.00 - 7.30pm **Pre-dinner Drinks**

7.30pm **Traditional Bush Tucker Dinner,** with entertainment by local Bush Band

DAY TWO: FRIDAY 20TH MAY, 1994

Session Four - Seed Technology & Soil Microbes

(Chairperson: Rob Howard, Kalgoorlie Consolidated Gold Mines)

8.30 - 8.55am **Defining and Achieving Adequate Mycorrhizal Fungi in Revegetation:** David Jasper, University of Western Australia

8.55 - 9.20am **Provincial Seed Collection for Minesite Rehabilitation:** Stephen van Leeuwen, Dept of Conservation & Land Management

9.20 - 9.45am **Seed Germination & Dormancy in Goldfields *Eremophila* Species:** Guy Richmond, Curtin University of Technology.

9.45 - 10.15am **MORNING TEA**

10.15 - 12.20pm ***Tour of Kanowna Belle Gold Mine***

12.20 - 1.20pm **LUNCH**

Session Five - Saline Environments & Rehabilitations

(Chairperson: Colin Woolard, Western Mining Corporation)

1.20 - 1.45pm **Gypsum as an Ameliorant for Revegetating Salt Affected Ore Refining Residues:** S Samaraweera, R Bell, G Ho, S Beaton and C Arnold, Murdoch University.

1.45 - 2.10pm **Salt Tolerant Plants for Revegetation in the Goldfields Using Tissue Culture Techniques:** Ian Bennett, Edith Cowan University

2.10 - 2.35pm **Mechanisms of Salt Tolerance in Goldfields Plants:** Greg Barrett, Posgold - Kaltails Project.

Session Six - Siting, Design and Rehabilitation of Tailings Dams

(Chairperson: John Robinson, Department of Minerals & Energy)

2.35 - 3.00pm **Site Selection & Preparation for Tailings Storage Facilities:** Ian Lewis, Department of Minerals & Energy

3.00 - 3.20pm **AFTERNOON TEA**

3.20 - 3.45pm **Tailings Dam Rehabilitation - Experiences from South Africa:** Jack Van Wyk, Potchefstroom University

3.45 - 4.10pm **Design Alternatives, Decommissioning and Rehabilitation of Tailings Dams:** Doug Blandford, Blandford & Associates

4.10 - 4.35pm **Co-disposal of Tailings & Mine Overburden in the Goldfields - A Research & Development Initiative:** Gary Johnson Dominion Mining Limited

4.35 - 5.15pm **Open Forum**

5.15 - 6.15pm **DRINKS IN FOYER**

Registration Form

What you are entitled to:

Registrants are entitled to lunches and morning and afternoon teas during the workshop, bus travel on the tours and a copy of the workshop proceedings.

Fees

Registration is $150. Full time students with proof of enrolment may attend for $30 (no proceedings).

Travel & Accommodation:

All travel and accommodation arrangements are the responsibility of the registrant. Accommodation enquiries may be made through the Kalgoorlie-Boulder Tourist Centre on (090) 21 1966.

Please complete this slip and return with the appropriate fee to the address overleaf by 30 April, 1994.

Name: .....

Position: .....

Organisation: .....

Address: .....

.....

.....

Telephone: .....

Facsimile: .....

I enclose payment for:

- ☐ $150 registration fee
- ☐ $30 for full-time students (This student fee does not entitle the registrant to Proceedings)
- ☐ .....Tickets to Hannans North Tourist Mine Tour @ $12.50 head (Indicate number)
- ☐ .....Tickets to Traditional Bush Tucker Dinner @ $45.00 head drinks incl. (Indicate number)

CONTRIBUTIONS TO THE FLORA OF THE FORTESCUE BOTANICAL DISTRICT - PILBARA REGION

TAXON NOTE 2 FEBRUARY 1994

Stephen van Leeuwen
Conservation & Land Management
PO Box 835
KARRATHA WA 6714
(091) 868 290

Taxon Note 2 presents information on the occurrence of 25 species from two genera within the Pilbara Region. The genera treated are *Acacia* and *Melaleuca* with 20 and 5 taxa respectively.

The genus *Acacia* belongs to the family Mimosaceae and is represented by about 1 200 species mostly in tropical, subtropical and arid regions of Africa, Asia, America and Australia. In Western Australia the genus is represented by about 500 species. Members of this group are generally called wattles. This edition of Taxon Notes presents information on several *Acacia* species groups which have recently been revised.

The *A. bivenosa* group is now represented by 13 taxa, four which are new to science. Four members of this species group occur in the Pilbara (*A. ampliceps. A. bivenosa, A. ligulata, A. sclerosperma* subsp. *scleropserma*). Mulga and species within the *A. aneura* group are now recognised by ten taxa which generally occur throughout the arid zone. Six of these taxa, three of which are new, occur in the Pilbara (*A. paraneura, A. minyura, A. ayersiana* var. *latifolia, A. aneura* var. *aneura, A. aneura* var. *conifera, A. aneura* var. *macrocarpa*). The *A. coriacea* complex has recently been revised resulting in the recognition of four taxa, three of which occur in the Pilbara (*A. coriacea* subsp. *coriacea, A. coriacea* subsp. *pendens, A. coriacea* subsp. *seriophylla*). *Acacia victoriae* has also recently been treated, culminating in the recognition of eleven taxa, four of which occur in the Pilbara (*A. victoriae, A. synchronicia, A. glaucocaesia, A. aplanoclada*). Finally the form of *A. holosericea* which grows in the Pilbara has been recognised as a distinct taxon, *A. colei,* and formally described.

The genus *Melaleuca* is represented by about 150 species and is almost endemic to Australia. Over 120 species are thought to occur in Western Australia with five being recorded in the Pilbara (*M. argentea, M. cardiophylla, M. eleutrostachya, M. lasiandra, M. linophylla*). Species within this group are commonly referred to as paperbarks.

Important nomenclatural changes to note are;

- *A. synchronicia* is the most common form of *A. victoriae* in the Pilbara.
- *A. colei* is the Pilbara form of *A. holosericea*. The latter has only been recorded from one locality in the Pilbara.
- *M. leucodendra* is not represented in the Pilbara. The taxon referred to as this species is actually *M. argentea*.

The revelation that *M. leucodendra* does not occur in the Pilbara again highlights the value of local seed collecting. For example, if a Pilbara land management practitioner ordered seed of *M. leucodendra* for the rehabilitation of a riverine area adjacent to tall paperbarks, which he assumed were *M. leucodendra*, the potential exists for that practitioner to receive seeds from the true *M. leucodendra*. As this species is restricted to tropical Australia, generally growing in heavy soils in very moist situations, it is possible that seeds/seedlings of this species would fail

to establish as a result of differences in climatic and edaphic characteristics (particularly moisture & humidity). However, if the practioner specified that the seeds be sourced locally, even if it was incorrectly described as *M. leucodendra*, the practitioner would receive seed of *M. argentea* which would probably succeed in the rehabilitation as it is adapted to the local soils and more arid climatic conditions.

If you have any questions or require further information on any of the species presented in this contribution please do not hesitate to contact me.

Please note that the information presented has been obtained from taxonomic revisions and treatments and therefore may not be entirely accurate for some data fields for the Pilbara region. Fields dealing with vernacular names may differ from what we are familiar with in this region. Similarly, as journal space is often limiting in such taxonomic revisions and treatment, distributional data, especially with reference to 1:250 000 maps sheets, may not be up to date and reflect the actual distribution of the taxon. Rather, such distributional data is usually only representative of the species distribution. It is hoped, however, that the main aim of identifying and enumerating those taxa which occur in the Pilbara region is realised.

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CONTRIBUTIONS TO THE FLORA OF THE

FORTESCUE BOTANICAL DISTRICT-PILBARA REGION

TAXON NOTE 2 **FEBRUARY 1994**

Acacia ***ampliceps*** **Mimosaceae**

Authority : Maslin

Reference : Nuytsia 1(4); 315 (1974).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. (1981) Fl. Cent. Australia. pg. 120 Fig. 159L.

Previous Name : *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Bushy shrub or tree to 7m, branchlets yellowish, phyllodes variable, usually linear to elliptic, to 25 by 3 cm, phyllodes with one nerve, inflorescence globular, white to creamy yellow, heads 20-50 flower heads, pods to 9.5 cm, constricted between seed.

Habitat : Typially found along watercourses in gritty soil where it often forms dense stands.

Distribution : Widespread in tropical & semi-arid parts of Western Australia & Northen Territory. Not common in desert regions. In W.A. found from Shark Bay north throughout the Pilbara & into the southern Kimberleys.

1: 250 000 map sheet	*Flowering Period*
Marble Bar	July
Nullagine	
Port Hedland	June
Roy Hill	August
Turee Creek	

Comments : Allied to A. salicina but distinguished by larger inflorescence with more flowers & narrower legume.

Reference: Chapman, A.R. & Maslin, B.R. (1992) Acacia miscellany 5. A review of the A. bivenosa group (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 249-83.

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Acacia **_aneura_** **Mimosaceae**

Authority : F. Muell. ex Benth.

Reference : Linnaea 26: 627 (1855).

var. _aneura_

Infra authority :

Infra reference :

Illustration : Whibley, D.J.E. (1980) pg. 214, Fig 11,J.

Previous Name : *Introduced/Naturalised:*

Common Name : mulga, narrow leaf mulga *Aboriginal Name :*

Description : Shrub or small tree to 5 m, branches erect, bark dark grey, phyllodes to 11 cm, terete to narrow linear, grey-green, inflorescence oblong to 25 mm, pod to 50 mm often resinous, always flat, grey-green, gold brown on maturity, seed to 6 mm oval.

Habitat : Growing in red sands, sandy loam or gravel soils. Often is dominant species in arid regions forming extensive woodlands.

Distribution : Very widespred throughout all mainland states except Victoria. In W.A. reaches it northern limits in the central Pilbara extending south through the Ashburton, Gascoyne & Murchison into the Goldfields & adjacent desert regions.

1: 250 000 map sheet *Flowering Period*

Balfour Downs
Mount Bruce
Roy Hill
Wyloo
Yarraloola

Comments : Typical mulga recognised by the prescence of glandular epidermal hairs, flat pods & narrow phyllodes which are less than 3 mm wide. The species is palatable & grazed by stock. It has become an important fodder plant to the pastoral industry.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia ***aneura*** **Mimosaceae** **New taxon**

Authority : F. Muell. ex Benth.

Reference : Linnaea 26: 627 (1855).

var. ***conifera***

Infra authority : Randell

Infra reference : J. Adelaide Bot. Gard. 14(2): 122-23 (1992)

Illustration : Boomsma, C.D. & Lewis, N.B. Native forest & woodland vegetation of South Australia. Bulletin 25, pg 46.

Previous Name : *Introduced/Naturalised:*

Common Name : Christmas tree mulga, conifer mulga *Aboriginal Name :*

Description : Shrub or small tree to 5 m, branches horizontal, young growth viscid, bark grey & flakey, phyllodes rigid to 10 cm, terete to narrow linear, phyllodes & stem silvery hairy, inflorescence oblong to 25 mm, pods to 25 mm, not winged, seeds to 6 mm, oval.

Habitat : Usually found growing on sandy loamy soils or in rocky skeletal soils on rocky ridges.

Distribution : Collected from Western Australia & Northern Territory over a very scattered distribution. In W.A. recorded from the central Pilbara, coastal Gascoyne, northern Goldfields & Gibson, Great Victoria & Great Sandy Deserts.

1: 250 000 map sheet *Flowering Period*

Roy Hill

Comments : Most specimens of this taxon have short, terete phyllodes which are more rigid than typical A. aneura. The pods are flat, without wings indicating a close relationship with A. aneura var aneura. The scientific name refers to the coniferous growth habit.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia ***aneura*** **Mimosaceae** **New taxon**

Authority : F. Muell. ex Benth.

Reference : Linnaea 26: 627 (1855).

var. ***macrocarpa***

Infra authority : Randell

Infra reference : J. Adelaide Bot. Gard. 14(2): 121-22 (1992)

Illustration : Randell, B.R. (1992) J. Adelaide Bot. Gard. 14(2), pg 113, Fig. 1K, L.

Previous Name : *Introduced/Naturalised:*

Common Name : Yellow pod mulga, large-pod mulga *Aboriginal Name :*

Description : Shrub or small tree to 5 m, bark grey & fissured, phyllodes to 10 cm, terete to narrow linear, grey-green, phyllodes & stem silvery hairy, inflorescence oblong to 25 mm, pods to 100 by 20 mm, not winged, flat, yellowish when mature, seed to 9 mm, oval.

Habitat : Growing in red sand or loam on flat terrain, or rarely recorded along stony watercourses.

Distribution : Restricted to a few areas in central Western Australia. Recorded from the Ashburton & Gascoyne regions from the Kennedy Range area to near Meekatharra. A disjunct outlier recorded in the Great Sandy Desert east of Balfour Downs.

1: 250 000 map sheet *Flowering Period*

Newman

Comments : Apparently differes from A. aneura var. aneura in its much larger seeds and longer fruit. Can not be distinguished without fruit. The scientific name 'macrocarpa' refers to the large fruit (pods) displayed by this taxa.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia ***aplanoclada*** **Mimosaceae** **New taxon**

Authority : Maslin

Reference : Nuytsia 8(2); 290-93 (1992)

Infra authority :

Infra reference :

Illustration : Maslin, B.R. (1992) Nuytsia 8(2) pg. 291 Fig. 2.

Previous Name : *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Slender, wispy single stemmed shrub to 5 m, bark smooth, reddish grey, phyllodes narrow linear to 45 cm by 2 mm, midrib obscure, inflorescence globular, 70-90 flower heads, golden, peduncle to 2 cm, pods narrowly oblong to 7 cm, seeds oblong to 5 mm.

Habitat : Growing on rocky spinifex hills with scattered eucalypts & acacias.

Distribution : Restricted to the Fortescue Botanical District where it has only been recorded from the Nullagine area.

1: 250 000 map sheet *Flowering Period*

Nullagine August

Comments : This species is distinguished from other members of the A. victoriae group by its long phyllodes which are perhaps the longest in the group. The scientific name refers to the species open wispy growth habit which makes it hard to detect in the field.

Reference: Maslin, B.R. (1992) Acacia miscellany 6. A review of the Acacia victoriae and related species (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 285-309.

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Acacia ***ayersiana*** **Mimosaceae** **Name change**

Authority : Maconochie

Reference : J. Adelaide Bot. Gard. 1(3): 182 (1978).

var. ***latifolia***

Infra authority : (J. Black) Randell

Infra reference : J. Adelaide Bot. Gard. 14(2): 124-26 (1992).

Illustration : Cunningham, G.M. et al. (1981) pg. 346, 347, Fig. 10, P. (illustrated as A. aneura var. latifolia).

Previous Name : *Acacia aneura var. latifolia* *Introduced/Naturalised:*

Common Name : broad-leaf mulga, umbrella mulga *Aboriginal Name :*

Description : Shrub or tree to 10 m, bark grey & fissured, phyllodes to 7 cm by 10 mm, falcate, covered with simple hairs, veination sometimes reticulate, inflorescence oblong to 30 mm, pods to 60 by 25 mm, sparsely hairy, resinous, seeds small to 8 mm, oval.

Habitat : Found growing in red sand or loam & occasionally on rocky areas or along watercourses. Generally found growing in conjunction with other taxa from the mulga group in woodland or shrub communities.

Distribution : Found growing in all mainland states except Victoria. Most common in Queensland & New South Wales. In W.A. occurs from the Goldfields through the Murchison & Gascoyne & into the Ashburton. Isolated occurrence in the Pilbara near Pannawonica.

1: 250 000 map sheet *Flowering Period*

Mount Bruce

Turee Creek

Comments : A very variable taxon identified chiefly by the structure of its phyllodes. These are longer than those of A. minyura and broader than those of A. aneura. It is a very palatable species often lopped to provide stock fodder during droughts.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia **_bivenosa_** **Mimosaceae**

Authority : DC

Reference : Prodr. 2: 452 (1825).

Infra authority :

Infra reference :

Illustration : Craig, G.F. Pilbara Coastal Flora: 59 (1983).

Previous Name : *Acacia elliptica* *Introduced/Naturalised:*

Common Name : two-nerved wattle *Aboriginal Name :*

Description : Dense rounded or spreadiing shrub to 3 m, stem much branched, bark smooth. light grey, phyllodes narrowly elliptic to oblong-elliptic, glabrous, to 5 cm by 2.5 mm, usually two-nerved, inflorescence globular, deep golden, 16-23 flower heads, pod 8 cm.

Habitat : Growing in a variety of soils, including coastal sands and red sandy loams. Often recorded on rocky hillsides & gullies in scrub, open scrub & open woodlands often in association with spinifex.

Distribution : Recorded in Western Australia, Northern Territory & Queensland. Most records are from above the 25 S parallel. In W.A. the distribution is centred on the Pilbara with occurrences in the southern Kimberleys.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Marble Bar	September
Mount Bruce	May
Barrow Island	
Newman	July
Nullagine	
Onslow	
Port Hedland	October
Pyramid	
Roebourne	November
Roy Hill	June
Turee Creek	August
Yanrey	
Yarraloola	
Yarrie	

Comments : Closely related to A. ligulata which is also common in the arid zone. A. bivenosa is distinguished from A. ligulata by having longer peduncles & straight or slightly incurved mucro (point) on phyllodes. A. bivenosa is also typically 2 nerved.

Reference: Chapman, A.R. & Maslin, B.R. (1992) Acacia miscellany 5. A review of the A. bivenosa group (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 249-83.

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Acacia ***colei*** **Mimosaceae** **New taxon**

Authority : Maslin & L. Thomson

Reference : Aust. Syst. Bot. 5(6): 737-42 (1992).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. & Thomson, L.A.J. (1992) Aust. Syst. Bot. 5(6): pg. 733, Fig. 1A-D.

Previous Name : *Introduced/Naturalised:*

Common Name : Cole's wattle *Aboriginal Name :*

Description : Spreading shrub to 4 m, ascending branches or single bole, branches acutely angular or terete, new shoots pale yellow, phyllodes ascending, straight with shallow recurved apices to 20 cm, inflorescence a spike to 6 cm, pod strongly curved & open.

Habitat : Found growing in red-brown stony clay, deep sand, red sandy loam & fine-textured clays & silty clay. Sometimes recorded from margines of saline drainage systems. Frequently forms dense stands along dry watercourses. Responds well to disturbance.

Distribution : Widespread in northern Australia from western Queensland through the central Northern Territory & into semi-arid & tropical Western Australia. In W.A. found from the Hamersley Range & Abydos Plain north into the Kimberleys.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Balfour Downs	
Marble Bar	
Mount Bruce	
Nullagine	
Port Hedland	
Pyramid	
Yarraloola	
Yarrie	

Comments : Distinguished from A. holosericea in having straighter phyllodes & a less coiled pod. The two species rarely occur together. Used by aborigines as a food source as well as in the manufacture of soap. Grown in west Africa for fuelwood & food (seed).

Reference: Maslin, B.R. & Thomson, L.A.J. (1992) Re-appraisal of the taxonomy of Acacia holosericea, including the description of a new species, A. colei, and the reinstatement of A. neurocarpa.

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Acacia **_coriacea_** **Mimosaceae**

Authority : DC.

Reference : Prodr. 2: 451 (1825).

subsp. _coriacea_

Infra authority :

Infra reference :

Illustration : Maiden, J.H. (1920) Forest Fl. New South Wales 7(4): Fig. 242L-T.

Previous Name : *Introduced/Naturalised:*

Common Name : wirewood, dogwood *Aboriginal Name :*

Description : Bushy shrub or tree to 3 m, occasionally semi-prostrate & wind pruned, bark thin fibrous & hard, phyllodes silvery grey-green, erect to 22 by 1 cm, straight or curved, inflorescence globular, peduncles (stalk) to 10 mm, pod twisted & coiled.

Habitat : Recorded most commonly from coastal dunes & beach sands, infrequently in red sand or in laterite & limestone soils.

Distribution : Occurs in north-western Australia along the coast & offshore islands from Dirk Hartog & Dorre Islands north to Port Sampson. Disjunct outliers have been collected from the Tanami Desert in Northern Territory.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Dampier	June
Dampier	July
Barrow Island	
Yarraloola	

Comments : Closely related to A. coriacea subsp. pendens from which it differes in having erect phyllodes & branches & narrower phyllodes. First collected in 1801 during the Baudin expedition, probably from the Dampier Archipelago.

Reference: Cowan, R.S. & Maslin, B.R. (1993) Acacia miscellany 9. The taxonomic status of Acacia coriacea (Leguminosae: Mimosoideae: Section Plurinerves). Aust. Syst. Bot. 9(1), 83-90.

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Acacia ***coriacea*** **Mimosaceae** **New taxon**

Authority : DC.

Reference : Prodr. 2: 451 (1825).

subsp *pendens*

Infra authority : Cowan & Maslin

Infra reference : Aust. Syst. Bot. 9(1): 86-7 (1993)

Illustration :

Previous Name : *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Tree or shrub, to 6 m, bark thin, fibrous & hard, branchlets & phyllodes gracefully pendulous, phyllodes green to silvery grey-green, to 27 cm by 5 mm, shallowly to strongly recurved, inflorescence globular, peduncles to 10 mm, pods twisted & coiled.

Habitat : Found mainly growing along rivers & creeks on sandy & stony soils in semi arid regions. Also on stable sand dunes & less commonly on red sand & gravel in fringing woodlands. Often forms pure stands along large watercourses.

Distribution : Restricted to north-western Australia, predominatly being found inland from the coast in the Pilbara. The species range extends from Goscoyne Junction north to the De Grey River and inland to the Oakover River. Infrequent on islands in the Dampier area.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Marble Bar	July
Mount Bruce	March
Barrow Island	May
Roebourne	
Turee Creek	April
Wyloo	
Yarrie	

Comments : Closely related to typical A. coriacea from which it predominatly differs in bark characteristics, habit and the presecence of pendulous phyllodes. Commonly cultivated in gardens in the Pilbara region.

Reference: Cowan, R.S. & Maslin, B.R. (1993) Acacia miscellany 9. The taxonomic status of Acacia coriacea (Leguminosae: Mimosoideae: Section Plurinerves). Aust. Syst. Bot. 9(1), 83-90.

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Acacia ***coriacea*** **Mimosaceae** **Name change**

Authority : DC.

Reference : Prodr. 2: 451 (1825).

subsp ***seriophylla***

Infra authority : (F. Muell.) Cowan & Maslin

Infra reference : Aust. Syst. Bot. 9(1): 87-8 (1993)

Illustration : Cunningham, G.M. et al. (1981) Pl. W. New South Wales pg. 358

Previous Name : *Acacia seriophylla or A. coriacea var. angustior* *Introduced/Naturalised:*

Common Name : Desert Oak *Aboriginal Name :*

Description : Shrubby somewhat gnarled tree to 7 m, bark grey, thick & spongy, phyllodes light green, often pendulous to 33cm by 12 mm, inflorescence globular, peduncles to 20 mm, occasionally to 32 mm, pods straight or curved, not markedly twisted or coiled.

Habitat : Growing in near coastal areas of red sand and in fine textured red loamy alluvial soils on open plains. Also in rocky, sandy loam skeletal soil. Often in spinifex country where it can be found growing in pure stands along drainage lines.

Distribution : All mainland states excluding Victoria. Rare on offshore islands in north-western Western Australia but common inland through central Northern Territory and extending into northern South Australia, New South Wales & central Queensland.

1: 250 000 map sheet	*Flowering Period*
Bedout Island	June
Roebourne	May
Roy Hill	April

Comments : A well defined taxon distinguished by its habit & bark characteristics. Found along the De Grey & Oakover drainage systems & Hamersley Range in the Pilbara.

Reference: Cowan, R.S. & Maslin, B.R. (1993) Acacia miscellany 9. The taxonomic status of Acacia coriacea (Leguminosae: Mimosoideae: Section Plurinerves). Aust. Syst. Bot. 9(1), 83-90.

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Acacia **_cowleana_** **Mimosaceae**

Authority : Tate

Reference : Rep. Horn Scoi. Exped. 3: 187 (1896).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. & Thomson, L.A.J. (1992) Aust. Syst. Bot. 5(6): pg. 735, Fig. 3A-C.

Previous Name : *Introduced/Naturalised:*

Common Name : Halls Creek wattle *Aboriginal Name :*

Description : Shrub or tree to 4 m, branchlets slightly or prominently angled, phyllodes shallowly falcately recurved (sickle-shaped) to 20 by 2 cm, nerves running parallel, inflorescence to 4 cm, pod straight to shallowly curved.

Habitat : Growing in red sandy loam or gritty soils on stony ground. Sometimes along margins of drainage lines.

Distribution : Occurs throughout central semi-arid Australia from western Queensland through central Northern Territory & into the southern Kimberly and Pilbara regions in Western Australia. In Pilbara recorded from Abydos Plains and Hamersley Plateau.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Mount Bruce	
Onslow	
Pyramid	
Roy Hill	
Yarraloola	

Comments : Closely allied to A. colei from which it is distinguished by the shape of its pods & nervature of the phyllodes. A. colei's pod is stongly & openly curved & nervature is anastomosing (forming a network). Grows sympatrically with A. colei in the Pilbara.

Reference: Maslin, B.R. & Thomson, L.A.J. (1992) Re-appraisal of the taxonomy of Acacia holosericea, including the description of a new species, A. colei, and the reinstatement of A. neurocarpa.

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Acacia **_glaucocaesia_** **Mimosaceae**

Authority : Domin

Reference : Biblioth. Bot. 89: 252 (1926)

Infra authority :

Infra reference :

Illustration : Maiden, J.H. & Blakely, W.F. (1928) J. Roy. Soc. W. Australia. 13, 12 Pl. 3 Fig. 12-18.

Previous Name : *Acacia glabriflora* *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Dense glabrous shrub to 6 m, branchlets terete, phyllodes elliptic to lanceolate, rounded to obtuse, to 2.5 by 1.3 cm, glaucous, rarely green, inflorescence racemose, prolific, globular to 4 mm, pale yellow, 35-50 flower heads, pod narrow to 4 cm.

Habitat : Grows in sandy loam on flood plains where it commonly forms monospecific stands.

Distribution : Restricted to north-western Western Australian, where it has been recorded in the Fortescue and Canning Botanical Districts. Recorded from scattered localities between the Fortescue & De Grey Rivers in the West Pilbara with disjunct outlier at Salt Creek.

1: 250 000 map sheet	*Flowering Period*
Dampier	August
Port Hedland	September
Yarraloola	July

Comments : Closely allied to A. victoriae from which it differs by having more numerous inflorescences, shorter, broader phyllodes & a less prominent midrib. A. glaucocaesia is not pruinose. Both species have not been observed growing together.

Reference: Maslin, B.R. (1992) Acacia miscellany 6. A review of the Acacia victoriae and related species (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 285-309.

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Acacia **_holosericea_** **Mimosaceae**

Authority : Cunn. ex Don.

Reference : Gen. Syst. 2: 407 (1832).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. & Thomson, L.A.J. (1992) Aust. Syst. Bot. 5(6): pg. 7363, Fig. 4A-E.

Previous Name : *Introduced/Naturalised:*

Common Name : Candelbra wattle *Aboriginal Name :*

Description : Shrub or small tree to 4 m, branches & phyllodes ascending & erect, branches acutely angular, phyllodes straight to 20 by 5 cm, sometimes silvery, inflorescence to 4 cm, pod tightly & often somewhat irregularly coiled.

Habitat : Often found growing in disturbed areas and along watercourses. Recorded from red sandy loam, gritty sand and fine textured clay soils.

Distribution : Found through tropical and semi-arid parts of Australia, from the east coast of Queensland through the Gulf to central Northern Territory and the Kimberleys in Western Australia. In the Pilbara only recorded from one location (Hamersley Gorge).

1: 250 000 map sheet *Flowering Period*

Mount Bruce

Comments : Most closely allied to A. colei from which it differs in the shape of the phyllodes, which is straighter, & the pod, which are tightly and irregularly coiled.

Reference: Maslin, B.R. & Thomson, L.A.J. (1992) Re-appraisal of the taxonomy of Acacia holosericea, including the description of a new species, A. colei, and the reinstatement of A. neurocarpa.

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Acacia ***ligulata*** **Mimosaceae**

Authority : A. Cunn. ex Benth.

Reference : London J. Bot. 1: 362 (1842).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. (1981) Fl. Cent. Australia. pg. 120 Fig. 159J.

Previous Name : *Introduced/Naturalised:*

Common Name : dune wattle, umbrella bush *Aboriginal Name :*

Description : Bushy spreading shrub or tree to 5 m, bark grey, smooth, phyllodes to 10 by 2 cm, narrow linear to elliptic, spreading & erect, thick, dark green to glaucous, 1-nerved, inflorescence globular, deep golden to 9 mm, 19-24 flower heads, pod straight to 9 cm.

Habitat : Found growing normally on sandy soils especially in red dune country. Often associated with mulga or mallee communities.

Distribution : Widespread in central & southern arid Australia occurring in all mainland states. In W.A. occurs in the Great Sandy Desert south onto the Nullarbor Plain & west into the wheatbelt & across to Shark Bay.

1: 250 000 map sheet *Flowering Period*

Nullagine

Comments : A. ligulata is commonly confused with A. salicina & A. rostellifera. The distinguishing characteristics of A. ligulata are the length of the phyllodes, which are shorter, phyllode texture, which is generally thicker, & pod shape which is straight.

Reference: Chapman, A.R. & Maslin, B.R. (1992) Acacia miscellany 5. A review of the A. bivenosa group (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 249-83.

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Acacia ***minyura*** **Mimosaceae** **New taxon**

Authority : Randell

Reference : J. Adelaide Bot. Gard. 14(2): 126 (1992).

Infra authority :

Infra reference :

Illustration : Randell, B.R. (1992) J. Adelaide Bot. Gard. 14(2), pg 113, Fig. 1Q, R.

Previous Name : *Introduced/Naturalised:*

Common Name : desert mulga *Aboriginal Name :*

Description : Multi-stemmed shrub or tree to 3 m, growing points with dense glandular hairs, resinous, phyllodes to 2.5 cm by 10 mm, elliptic to falcate, densely resinous, inflorescence oblong to 20 mm, pod flat to 30 by 16 mm, sparsely hairy, seed small, oval.

Habitat : Growing in red sand or sandy loam, sometimes over laterite or ironstone. Generally growing in association other members of the mulga group.

Distribution : Recorded from the west coast of Western Australia across to northern South Australia & central Northern Territory. In W.A. recorded from the Pilbara south through the Ashburton & Gascoyne into the Goldfields and central deserts.

1: 250 000 map sheet *Flowering Period*

Newman
Roy Hill
Turee Creek

Comments : Easily recognised by its short broad phyllodes with their dense resin cover, multi-stemmed habit & flat winged pods. An important source of resin for aborigines.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia ***paraneura*** **Mimosaceae** **New taxon**

Authority : Randell

Reference : J. Adelaide Bot. Gard. 14(2): 116-17 (1992).

Infra authority :

Infra reference :

Illustration : Fox, J.E.D. (1986) pg. 31.

Previous Name : *Introduced/Naturalised:*

Common Name : Weeping mulga *Aboriginal Name :*

Description : Shrub or small tree to 10 m, branches & phyllodes pendulous, bark grey, upper branches red, often very resinous, phyllodes terrete to 20 cm long, inflorescence oblong to 20 mm, pod flat to 90 by 15 mm, resinous when mature, seeds small to 6 mm, oval.

Habitat : Usually found growing on sandy flats or on rock gibber plains

Distribution : Found over extensive areas of arid Western Australian & the Northern Territory. In W.A. found from Cue, through the Gascoyne & into the Ashburton & Pilbara Regions. Extends into the Little Sandy, Gibson and southern Great Sandy Desert Regions.

1: 250 000 map sheet	*Flowering Period*
Balfour Downs	
Marble Bar	
Mount Bruce	
Newman	
Nullagine	
Pyramid	
Robertson	Year round
Roy Hill	
Turee Creek	

Comments : A very distinct taxon easily recognised by it long flexible phyllodes & unique pods which are winged, flat & covered with predominantly reticulate veins. A graceful tree with considerable horticultural potential. Allied to A. aneura var. aneura.

Reference: Randell, B.R. (1992) Mulga. A revision of major species. J. Adelaide Bot. Gard. 14(2): 105-32.

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Acacia *sclerosperma* **Mimosaceae**

Authority : F. Muell.

Reference : S. Sci. Res. 2(7): 150 (1882).

subsp. *sclerosperma*

Infra authority :

Infra reference :

Illustration : Chapman, A.R & Maslin, B.R. (1992) Nuytsia 8(2) pg. 271 Fig. 5A.

Previous Name : *Acacia spondiosperma* *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Dense spreading rounded shrub to 4 m by 4m, bark smooth, light grey, phyllodes narrow linear to narrowly elliptic, to 14 cm by 17 mm, 4-nerved, inflorescence globular, deep golden to 11 mm, 15-25 flower heads, pods moniliform to 12 by 2 cm, woody.

Habitat : Growing on coastal dunes and inland along creek banks & on flood plains in sand, limestone, loam and clay. Often forming thickets or in scrub & woodland associations.

Distribution : Restricted to the arid zone of Western Australia occurring throughout the Carnarvon, Fortescue and Ashburton Botanical Districts. Extending south into the Irwin & Avon Districts. Occurs throughout the Murchison & Pilbara districts east to Telfer.

1: 250 000 map sheet	*Flowering Period*
Dampier	
Balfour Downs	
Marble Bar	
Mount Bruce	
Barrow Island	
Newman	October
Nullagine	
Onslow	June
Port Hedland	May
Pyramid	August
Robertson	
Roebourne	April
Roy Hill	September
Turee Creek	October
Wyloo	

Comments : Distinguished from A. sclerosperma subsp. glaucescens, which has narrow elliptic phyllodes to only 6 cm long. The phyllodes in this taxon are also glaucous.

Reference: Chapman, A.R. & Maslin, B.R. (1992) Acacia miscellany 5. A review of the A. bivenosa group (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 249-83.

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Acacia ***synchronicia*** **Mimosaceae** **New taxon**

Authority : Maslin

Reference : Nuytsia 8(2); 302-305 (1992).

Infra authority :

Infra reference :

Illustration : Maslin, B.R. (1992) Nuytsia 8(2) pg. 303 Fig. 6.

Previous Name : *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Spreading shrub or tree to 3 m, single stemmed, bark greenish-grey, fissured, branchlets terete, phyllodes variable, oblong to narrow elliptic or linear to 3 by 1.3 cm, inflorescence globular, golden 40-70 flower heads, pods narrowly oblong to 5 cm.

Habitat : Growing on watercourses and on alluvial flats in often rocky country. Also in sand, clay or loam over limestone & quartz. Abundant at localities where it has been recorded. Generally growing as emergent from spinifex.

Distribution : Restricted to Western Australia where it grows from Shark Bay north to Port Hedland and east to Rudall River. Also common in the Kimberley Region from Fitzroy Crossing east to the border.

1: 250 000 map sheet	*Flowering Period*
Dampier	September
Balfour Downs	
Mount Bruce	
Barrow Island	August
Newman	
Nullagine	
Onslow	
Port Hedland	November
Pyramid	
Roebourne	October
Turee Creek	
Wyloo	
Yarraloola	December
Yarrie	

Comments : The scientific name refers to the synchronous initiation of phyllodes & inflorescences on new shoots. Most closely related to A. victoriae, from which it differs in inflorescence, phyllode and seed characteristics.

Reference: Maslin, B.R. (1992) Acacia miscellany 6. A review of the Acacia victoriae and related species (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 285-309.

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Acacia victoriae **Mimosaceae**

Authority : Benth.

Reference : T. Mitch., J. Exped. Trop. Australia 333 (1848)

Infra authority :

Infra reference :

Illustration : Maslin, B.R. (1992) Nuytsia 8(2) pg. 306, Fig. 7.

Previous Name : *Acacia coronalis* *Introduced/Naturalised:*

Common Name : Bramble wattle, elegant wattle *Aboriginal Name :*

Description : Shrub or tree to 5 m, phyllodes variable, linear to narrowly oblong, to 5 cm by 8 mm, straight or incurved, green, grey-green, midrib prominent, inflorescence globular, 15-30 flower heads, creamy white to pale yellow, pods to 8 cm by 16 mm.

Habitat : Arid & subtropical regions of Australia in a variety of habitats, but commonly in clay or loamy soils on alluvial flats or in sand.

Distribution : Widespread in all mainland states of Australia except Victoria where it occurs only near Mildura. Within Western Australia, the species has been recorded from the Kimberleys south into the eastern Pilbara & down into the Gascoyne & southern Murchison.

1: 250 000 map sheet	*Flowering Period*
Mount Bruce	September
Newman	
Pyramid	August
Roy Hill	July

Comments : A very variable species. The inflorescences are usually longer, slender & more profuse than other members of the group. The western most location in the Pilbara is near Python Pool.

Reference: Maslin, B.R. (1992) Acacia miscellany 6. A review of the Acacia victoriae and related species (Leguminosae: Mimosoideae: Section Phyllodineae). Nuytsia 8(2), 285-309.

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Melaleuca argentea **Myrtaceae**

Authority : W. Fitzg.

Reference : J. & Proc. Roy. Soc. Western Australia 3: 187 (1918).

Infra authority :

Infra reference :

Illustration :

Previous Name : *Melaleuca leucadendra var. angusta* *Introduced/Naturalised:*

Common Name : silver cajeput, silver paperbark *Aboriginal Name :*

Description : Small to medium sized tree to 25 m, pendulous branches, papery bark, young shoots with flattened silvery hairs, leaves narrow-lanceolate to 12 cm by 1.2 mm, grey-green, flowers greenish-cream in loose spikes to 10 cm, stamens to 2 cm, cylindrical fruit.

Habitat : Growing in sandy or gravelly substrates on the banks of drainage channels or along the bed. Common around permanent water bodies.

Distribution : Occurs throughout northern & tropical Queensland & in the north west Northern Territory & Kimberley region of Western Australia. Also extends down into the Pilbara & Ashburton & can be found as far south as the Gascoyne River.

1: 250 000 map sheet	*Flowering Period*
Marble Bar	
Mount Bruce	July
Newman	September
Nullagine	
Pyramid	
Roy Hill	August
Turee Creek	October
Wyloo	June
Yarraloola	
Yarrie	

Comments : Differs from M. leucadendra in having shorter, narrower leaves, which are not as pendulous, & flower spikes which are longer. Stamens are longer and fruiting capsules larger. Scientific name refers to the silvery coloured foliage ('argenteus' - silvery).

Reference: Wrigley, J.W. & Fagg, M. (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. Angus & Robertson: Australia.

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Melaleuca cardiophylla **Myrtaceae**

Authority : F. Muell.

Reference : Fragm. Phyt. Austral. 1: 225 (1859).

Infra authority :

Infra reference :

Illustration : Wrigley & Fagg (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. pg 247.

Previous Name : *Myrtoleucodendron cardiophyllum* *Introduced/Naturalised:*

Common Name : umbrella bush *Aboriginal Name :*

Description : Small to medium size erect shrub to 2.5 m, papery bark, leaves greyish & spirally arranged, heart shaped or ovate to 6 by 4 mm, curled back from stem & with sharp tip, cream or white flowers in clusters of 2-4, stamen to 8 mm in bundles of 40-60.

Habitat : Growing in coastal heaths in loamy or sandy soils associated with limestone.

Distribution : Growing in near coastal areas of Western Australia, from Perth north along the coast to Exmouth & Onslow. Also known from several offshore islands & inland near Wyloo.

1: 250 000 map sheet
Onslow

Flowering Period
December

Comments : Propogated from seed. Easily identifiable by its heart-shaped leaf which is the derivative of the scientific name ('cardia' - heart & 'phyllon' - leaf).

Reference: Wrigley, J.W. & Fagg, M. (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. Angus & Robertson: Australia.

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Melaleuca **_eleuterostachya_** **Myrtaceae**

Authority : F. Muell.

Reference : Fragm. Phyt. Austral. 3: 117-118 (1862).

Infra authority :

Infra reference :

Illustration :

Previous Name : *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Medium to tall shrub that may reach 5 m, papery bark, leaves linear to 1.5 cm with recurved tip, creamy white flowers borne on cylindrical spike on short lateral shoots, spike to 3 by 2 cm, stamens to 8 mm in bundles of 12-16, fruit globular.

Habitat : Grows along watercourses often in limy or gritty sandy soil, which is damp.

Distribution : Occurs in Western Australia from the Shark Bay-Cue area north through the Gascoyne and Ashburton into the Pilbara around Pannawonica and Millstream. Also recorded from the Great Sandy Desert.

1: 250 000 map sheet	*Flowering Period*
Mount Bruce	November
Newman	January
Pyramid	
Turee Creek	December
Yarraloola	

Comments : Can be propogated from seeds & makes an attractive garden plant. Scientific name possibly refers to the lateral flower spikes which do not develop into shoots after flowering is complete ('eleuteros'-free & 'stachys' - spike).

Reference: Wrigley, J.W. & Fagg, M. (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. Angus & Robertson: Australia.

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Melaleuca **_lasiandra_** **Myrtaceae**

Authority : F. Muell.

Reference : Fragm. Phyt. Austral. 3: 115 (1862).

Infra authority :

Infra reference :

Illustration : Wrigley & Fagg (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. pg 275.

Previous Name : *Melaleuca loguei* *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Medium to large rounded shrub to 4 m or small tree to 8 m, papery bark, hairy young branches, narrow elliptical to obovate leaves to 5 cm, covered with silky-hairs, white to cream flowers on terminal spike to 4 cm, stamens to 11 mm in bundles of 6-20.

Habitat : Growing in sandy low lying areas or along drainage lines in rocky gullies.

Distribution : Occurs throughtout northern Australia in the Pilbara & Kimberleys, across the central deserts into central & tropical Northern Territory & into the far west of central Queensland. In the Pilbara, from Port Hedland through the Hamersley Range to Newman.

1: 250 000 map sheet	*Flowering Period*
Balfour Downs	
Marble Bar	
Mount Bruce	
Newman	
Nullagine	
Port Hedland	
Pyramid	
Robertson	
Roy Hill	June
Yarrie	

Comments : Propogated from seed & has a strong tolerance to drought and seasonal inundation. Scientific name refers to the woolly stamens ('lasios' - woolly & '-andrus' - male).

Reference: Wrigley, J.W. & Fagg, M. (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. Angus & Robertson: Australia.

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Melaleuca linophylla **Myrtaceae**

Authority : F. Muell.

Reference : Fragm. Phyt. Austral. 3: 115 (1862).

Infra authority :

Infra reference :

Illustration : Wrigley & Fagg (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. pg 282.

Previous Name : *Myrtoleucodendron linophyllum* *Introduced/Naturalised:*

Common Name : *Aboriginal Name :*

Description : Medium to large shrub to 4 m, papery bark, young shoots and leaves woolly, leaves narrowly elliptical, to 5 cm, tapering to long point, cream flowers borne on terminal or axillary spike to 5 cm, stamens to 5 mm in bundles of 8-15, fruit bell-shaped.

Habitat : Growing in creek beds and wet areas on gritty sand and rocky soils.

Distribution : Restricted to north-western Australian from the coast between Dampier and Port Hedland inland to Wittenoom and Marble Bar. Isolated occurrences in the Ashburton around Paraburdoo.

1: 250 000 map sheet	*Flowering Period*
Dampier	September
Marble Bar	
Port Hedland	
Pyramid	October
Roebourne	
Yarraloola	August

Comments : Easy to propogate from seed. The scientific name refers to the resemblance of the leaves of this species to those of plants in the genus Linum which are more commonly known as flax plants.

Reference: Wrigley, J.W. & Fagg, M. (1993) Bottlebrush, paperbarks and tea tree and all other plants in the Leptospermum alliance. Angus & Robertson: Australia.

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