



Association of Societies for Growing Australian Plants

ACACIA STUDY GROUP NEWSLETTER

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From The Leader

Dear Members,

At this time of the year we all seem to be holding our breath thinking 'Rain to be - or not to be?' Well, in my part of this hot great southern land we have had a few heavy showers but nothing that really soaks into the ground and fills all those dams.

Many gardens in the area are suffering and of course the interest in native plants is growing like never before. This is also quite exciting for me when visitors to my garden are astounded at how lush and green it looks. The first question inevitably is, "Do you water?" I very proudly hold my head up and say "No! You simply need the *right* plants for a true green Australian garden." (This is the part where I ramble on for quite a while about our beautiful, hardy, tough but humble wattles.) The only plants that get hand watered (collected shower water) are my 1 month old babies but once they're off, so is the water. It is truly remarkable to see how these precious plants were created so perfectly to cope with this extremely harsh environment growing and flourishing at just a hint of rain.

In a small garden setting, of course, it is necessary to be vigorous with trimming. After all the beautiful flowers of August/September, each one was meticulously trimmed. Some very hard, some very light. About a week after my trimming I was feeling sorry for them all, since it was quite hot and dry, wondering as I do each year if maybe I went a little overboard with the trimming. But like every year, two months later they are so lush and full of new growth it literally brings a tear to my eye. (I know, I know, they *do* call me crazy)

Now with the fire season on our front door this has prompted me to think very hard about which Acacia species

are best for more protection. Yes, that's right! Some Acacias are actually fire retardant! The APS Vic. Growing Australian newsletter of March 2006, was entirely dedicated to fire victims and their stories. One remarkable story that immediately caught my eye was that of Neil Marriott. Here is a little excerpt.

... "By now the fire was on all sides of the house and we were really battling to keep it at bay. Garden after garden was being engulfed with flames 30 to 40 feet into the air. We discovered to our great dismay that most grevilleas are highly flammable whereas most acacias proved to be truly fire retardant! Where grevilleas erupted into flames not one of the local acacias burnt, most notable being the Black Wattles *Acacia mearnsii*, which were barely singed. . . "

Incredible. This was also the start of new research into fire resistant wattles. There will be an article at a later date about this phenomenon.

Otherwise everyone please have a great time in the summer holiday period and play it safe especially with the sun. Glowing white skin is much more beautiful than wrinkly, dry brown skin. If you do have to work outdoors during the day don't forget your hat and sunscreen. Cheers.

Esther Brueggemeier

Feature Plant – *Acacia leprosa*

Acacia leprosa – Cinnamon Wattle

Acacia leprosa is a beautiful plant that has also been the subject of some confusion and controversy. First of all it is called the Cinnamon Wattle because the leaves, not flowers, release a beautiful cinnamon like fragrance especially in hot weather. It is regarded as a particularly hardy large shrub or small tree tolerating frost to -7 degrees and can be cultivated throughout much of Australia. The Cinnamon Wattle is naturally found scattered down through eastern Australia.

Four main variants are recognised.

Variant	Population
1. Typical variant	<i>Appears to be uncommon and scattered.</i> N of Monto Qld Near Mittagong and Mt Werong NSW Warri Yallock, Marysville and Orbost, Vic.
2. Dandenong variant	<i>Locally common in Victoria.</i> Dandenong Ranges and western foothills from Ringwood to Woori Yallock and S to Dandenong township, also occurrences at Myrmiong Ck. A specimen from the Grampians is possibly also this variant.

3. Seymour variant	<i>Appears to be rare.</i> Restricted to the vicinity of Seymour on the Goulburn R., Vic.
4. Large phyllode variant	<i>Scattered in Victoria.</i> Trentham E to Buxton and Orbost, with a single occurrence at Mt Tayar, NSW.

Acacia leprosa is mostly confused with *Acacia verniciflua* (Varnish Wattle). Generally, one distinguishing factor was how many main nerves were found per phyllode. (*A. leprosa* 1-nerved, *A. verniciflua* 2-nerved). Recent studies, though, have shown that this is not the most useful character for classification as both species were found to have one-nerved, two nerved or both within a single plant! Therefore, studies are continuing and we will try to keep you up to date.

Acacia leprosa 'Scarlet Blaze'

History and Discovery

In 1995 a group of bushwalkers calling themselves 'Warrandyte Wanderers' were on a track near the Wilhelmina Falls in the Black Range State Forest north-east of Melbourne. On a small side track one of them noted a single red-flowering specimen of the distinctive large phyllode variant of *Acacia leprosa*, Cinnamon Wattle, amongst the usually yellow-flowering ones.



Scarlet Blaze, photo by Tony and Brenda Moore

Not really understanding the full significance of what they had discovered, one of the ladies picked a piece and took it for identification. She passed it on to someone with an interest in Australian plants who was eventually persuaded to pass the specimen on to the National Herbarium of Victoria at the Royal Botanic Gardens in South Yarra.

Bill Molyneux, co-owner with Sue Forrester of Austriflora, was phoned and asked if he knew of an intense red-flowering wattle. He went in to have a look and confirmed that it was *Acacia leprosa*, incredibly with red flowers.

Because the original discoverer wasn't readily contactable, it was difficult to determine where the plant had been collected. Bill therefore contacted David Cameron, a botanist then working at the Warrandyte State Park Office. Since David's role includes the assessment of conservation status of the Victorian flora, Bill felt that David's involvement was particularly relevant.

David knew one of the members of the bushwalking group who agreed to take the two to the site in the company of the local ranger. At the same time, because this plant was so rare, David decided that it should be propagated as a matter of urgency and for Bill Molyneux to take a small number of cuttings to be passed on to the Royal Botanic Gardens nursery and, as a backup, possibly one other propagator.

When the four of them arrived at the location they were stunned to find that the plant had been all but stripped! Evidently someone who knew where it was, had been there recently and taken most of the available cutting material. Therefore the original plant that the bushwalker reported as almost "8 feet high and spreading" was now a twiggy skeleton less than 6 feet high and 2 feet across. David decided that they should take a small number of whatever cuttings remained in an attempt to rescue the plant from oblivion. (When I confirmed these details with David, that the plant had been severely cut back before they saw it, I couldn't help but notice the frustration and abhorrence in David's voice to the rapping of the plant.)

Since it was highly unlikely that this plant would have survived following such an ordeal, 12 cuttings were taken on that day, six of which went to the Royal Botanic Gardens nursery and six to the Carawah Nursery in Hoddles Creek. From these original 12 cuttings, only 3 tubes survived and these were all then held at the Royal Botanic Gardens so they could eventually be potted on. These three little tubes became the foundation for all the stock we now have. Therefore it can truly be said that the rescue operation was a success!

Sadly, but not unexpectedly, a short time later the ranger reported that the original plant had died. It later transpired that the excessive number of cuttings taken illegally apparently all failed to strike.

Through my conversation with Bill it became evident that stories currently circulating regarding the discovery and propagation of the Red Wattle quite misrepresent the truth. Bill said that he has heard rumours that it was supposedly Bill himself who raided the plant and killed it! Nothing could be further from the truth. Bill was, in fact, instrumental in the rescue operation. It is indeed a sad reflection on the rumour mill that such misrepresentation of the truth could develop.

Bill was subsequently engaged by the Royal Botanic Gardens as a qualified person for Breeders' Rights to undertake the assessment of the Red Wattle's eligibility for protection under plant breeders' rights. The Red Wattle's eligibility was confirmed and it was therefore promptly registered. It was also during this process that Bill was

asked whether Austraflo should be one of the companies to be considered for commercialisation of the Red Wattle. Because of the possibility of a potential conflict of interest, Bill declined and instead became involved in the selection of an appropriate nursery to undertake commercial propagation of the Red Wattle.



Scarlet Blaze, Photo by Esther Brueggemeier ©

Cultivation Notes

Since the successful launch onto the horticultural market the Red Wattle has turned out to be quite drought tolerant, requiring only occasional deep watering once established. It is relatively easy to grow as long as it doesn't get over-watered, which we have a tendency to do with rare plants. The Red Wattle also prefers a well-drained, moist soil in full sun to dappled shade. From personal experience, the ones planted in full sun grew faster and flowering was delightfully abundant.



Gentle weeping habit, Photo by Esther Brueggemeier ©

This plant is rather versatile too, being used well as a soft screen or a specimen. If anyone has a hankering towards Japanese-style gardens, then this is the perfect soft tree for you because of its gentle weeping habit (see photo above).

A light trimming immediately after flowering will encourage beautiful new growth.

Now and the Future

This amazing discovery and rescue should prompt us to think seriously about certain issues. Without the diversity of our flora and fauna the environment cannot survive and we may have nothing left to pass on to our children. Big and fast money certainly cannot bring true happiness. I, personally, have planted many Red Wattles (amongst others) for nothing. Yes, the true profits came when I saw these amazing plants thriving and flowering whilst attracting all the birds and insects that you can imagine. This area has become a beautiful haven for them. I really don't want to sound like a sales-person, but surely we can do our part for the environment and look at planting some rare flora in our own garden.

For those of you who used to be regular customers at Austriflora, whilst it ran as a major wholesale/retail nursery in Montrose for many decades, you may be wondering what they are doing now. Well, here's a yummy smackerel of information for you!

Bill Molyneux and Sue Forrester now operate from a home-based office in the heart of the Yarra Valley at a beautiful place called Dixons Creek. Whilst very busy sourcing, developing and licensing new varieties of native plants Australia-wide, they are also active in environmental issues and botanical research. I'm also the lucky duck who knows that they are about to name three new wattle species of ancient alpine origin from Gippsland. There is a paper on them which will be published in *Muelleria*, the house journal of the National Herbarium of Victoria, very soon.

An extra bonus is their beautiful bed and breakfast cottage which I can vouch for. (See all details on their website at www.austriflora.com). My husband and I spent a weekend there and came back relaxed and revived. Definitely worth visiting so put it on your 'Things to do . . .' list.

At this point I would also like to thank both Bill Molyneux and David Cameron for their kind support and knowledge in bringing this article together.

Esther Bruggemeier

Scarlet Blaze – Bruce Clark's Experiment

Thanks to Bruce Clark, a former Leader of the Acacia Study Group, for sharing with us some of his recollections in relation to Scarlet Blaze. Bruce writes as follows:

"I attended a meeting of the Maroondah Group and heard Gwen Elliot speak and include slides of the red variation of *Acacia leprosa*. This plant was registered as 'Scarlet Blaze' and selected as Victoria's Federation floral emblem.

There were some observations of how this plant had the 'red' pigment in different parts of the flower than *Acacia*

purpureapetala, the only other known reddish wattle. I speculated on what might eventually be achieved if fertile seed could be obtained from 'Scarlet Blaze' and the possibilities of various shades being obtained.

Yellow in flowers is often xanthophyll and I had no knowledge of what effect dyes would have on it so I experimented. Early in the autumn all I had out was *Acacia iteaphylla*. There wasn't any choice. Into a strong solution of rose food colouring went three stems of it. Next morning some flowers had a distinct orange-red colour while others appeared to be as yellow as ever and over several days that was how the stems remained."

Growing 'Scarlet Blaze' from seed

As referred to in Bruce Clark's letter, some years ago he raised the question as to what colour flowers would result if seeds collected from Scarlet Blaze are propagated. This same question has also been asked by other people.

We now have two reports setting out results of experiments that have been carried out.

Study Group member Brendon Stahl (Deans Marsh, Vic) reports that he propagated two plants, one of which had red flowers and the other plant did not flower. Brendon also reports that his first Scarlet Blaze grew to 3m in 3 years, and the wind then got to it and eventually killed it – he notes that he should have pruned it and staked it.

We also have a report from an APS member from South Australia (not a Study Group member) who collected and had propagated a number of Scarlet Blaze seeds. We are advised that the outcome was that the flower colour of these plants varied from yellow to orange red, with most tending to be various shades of orange red. A couple of the colours (apricot and a darker red) were particularly attractive.

Contributions from Readers

Acacias and Smells

Brendon Stahl comments on the smell question that has been referred to in our previous newsletters:

"I like the smell of Acacia roots and particularly at planting time.

I have also experienced the smell of the leaves of *Acacia dodonaeifolia*, the hop-leaved wattle, as you approach the plant. I cannot explain what it smells like, but it is a strong smell."

From Sue Bradford

New member Sue Bradford (Caboolture, Qld) comments as follows:

“I have many *Acacia* spp growing on our few acres but some never set seed. Are there any secrets to get cuttings to grow?”

I have a hybrid I bought from Thais a few years ago at a stall she had but it never sets seed – maybe that’s because it’s a hybrid. She said she thinks one parent is *A. uncifera*. I think the other is *A. conferta* but with bigger brighter yellow flower balls. It flowers at the same time as *A. conferta*.

A few months ago, at our propagation group, we put in a tray of cuttings – 48 in all. Forty six died – one looks sick and the other will be tubed next Tuesday. So now that spring is here, we’ll try again.”

A note from Warren and Gloria Sheather on growing acacias from cuttings appears below, and we are hoping to include in our next newsletter an article on this subject.

In relation to acacias setting seed, does anyone have any observations in relation to this?

Growing Acacias in Northern New South Wales (from Warren and Gloria Sheather)

Our garden is situated west of Armidale on the Northern Tablelands of NSW at an altitude of 900 metres. The garden is about 11 years old and established on an old sheep camp and consists of densely planted natives from almost every Australian state. Acacias figure prominently in our horticultural endeavours and at present we have between 50 and 60 species with new wattles added on a regular basis.

We try to create a bushland effect by planting densely with a wide range of varieties. Usually two or three plants are placed in the one hole. Acacias seem to appreciate the close proximity of other plants. In our harsh, windswept environment the plants shelter and support each other. The density of the vegetation has also meant that the garden has become a haven for small birds. So far our bird list includes 87 species.

The majority of our plants, including Acacias, are grown on site from seed or cuttings (see below).

The garden is mulched with chipped green waste from the local Council. We also use the ground covering *Myoporum parvifolium* as living mulch.

We use many local wattles in our garden as well as species from other areas. The Northern Tablelands is home to about

67 species and many of these have great horticultural potential.

These are two examples. *Acacia diphylla* and *Acacia ingramii* grow in the gorge country, east of Armidale. They are either tall shrubs or small trees. *Acacia diphylla* has broad phyllodes and yellow rod flowers. *Acacia ingramii* has narrow phyllodes and bright yellow ball flowers.

Acacia covenyi (from Warren and Gloria Sheather)

In the last newsletter Isobel Guldberg, from Oberon NSW, had a query about pruning *Acacia covenyi*.

The plant Isobel mentioned was rather tall and we wonder if the specimen is a hybrid between *Acacia covenyi* and another wattle.

We have a number of large wattles that were grown from seed collected from one of our *Acacia covenyi*. This plant was grown from seed collected from the wild population inland from Moruya on the South Coast of NSW.

Our specimens have bright yellow flowers. The phyllodes have the same colour as *Acacia covenyi* but their shape is somewhere between *Acacia covenyi* and *Acacia vestita*. There are *Acacia vestita* plants close to the *Acacia covenyi*. We feel that our seed grown plants are hybrids of these two species. To obtain “true” *Acacia covenyi* we now grow plants from cuttings.

We heard recently that the Mole Station Nursery near Tenterfield, NSW had problems with commercial *Acacia covenyi* seed. Plants grown from this seed appear to be hybrids.

Cuttings (from Warren and Gloria Sheather)

We are having success growing Acacias from cuttings. The cuttings are about 10 centimetres long. We use semi-hardwood material. Soft tips are pinched out. Long phyllodes are cut in half. Cuttings are dipped in red Clonex hormone gel and placed in a mix of 2 parts coco peat and one part river sand.

Our propagating bench has intermittent mist and bottom heating. We have most success with Acacias that have phyllodes rather than those with bipinnate foliage.

So far we have had success with *A. ashbyae*, *A. boormanii*, *A. covenyi*, *A. cultriformis*, *A. flexifolia*, *A. lineata* and *A. guinetii*. Work is continuing on other species.

If cuttings are taken from mature plants then they will usually bloom some years before seed grown plants of the same species.

***Acacia guinetii* (from Warren and Gloria Sheather)**

Acacia guinetii was featured in the last Newsletter and mention was made of the difficulty of collecting seed and low germination success.

This is one bipinnate wattle that we have propagated from cutting (see method above).

Acacia guinetii was featured on the 7.30 Report some years ago when the species was considered to be rarer and more threatened than it is now. We have been seeking *Acacia guinetii* for some time and were fortunate to find plants for sale in a Bunning's nursery.

Cuttings were taken from the purchased plant and they took root in about three weeks.

The original plant is surviving and thriving in a well-drained garden bed.

Acacia peuce

In our September newsletter, Annie Didcott referred to having visited a lovely stand of this plant just outside Boulia, Queensland (as well as two other less flourishing stands).

The stand at Boulia is referred to in a recent (2005) publication, A Field Guide to Plants of the Channel Country Western Queensland, by Rhondda Alexander (see page 8 below).

This book includes the following note:

“This tree is quite rare in Australia. The timber is very hard and heavy, and was used in the production of clubs by Aborigines. It is featured strongly in Aboriginal mythology. Since the big Channel floods in the 1970s and 1990s, the trees south of Boulia are rapidly spreading southwards between the Hamilton and Burke Rivers.”

In a recent communication with Rhondda, she notes that she has not been in the Boulia area for about 5 years, but would imagine they have not moved much at the moment as there has not been a good flood for over seven years. Rhondda also notes that since sheep have been removed from the area in discussion, and there are only cattle, this has helped the trees to flourish as well, as cattle do not crop like sheep do.



Wattle we plant for Scavenging Chooks: Part 2

by Ian Simons, Helidon, Queensland

Planting a forest of perennial plants to provide food for the complete diet of resident scavenging chooks is a desirable goal. An obvious component of the forest is native plants, including wattles (acacias).

The first article on wattle seeds as food for scavenging chooks (ASG Newsletter 98, September 2007), looked at the instinctive preferences exhibited by the birds.

A large flock of chooks at Helidon, Queensland was presented with the seeds of various wattle species at different times. Samples presented were usually about 5g. Their eating response was recorded.

Results were given in the first article. Also, acacia species were suggested for further testing.

Such further testing has now been done.

The results of all tests completed to date, are given in the following TABLE 1. The levels of chook preferences for seed are indicated. Four (4) levels are used

- not eaten
- ate reluctantly
- ate
- ate avidly.

It is surprising that *A. tumida* and *A. saligna* scored low preferences. Both species were expected to show more promise, the former being quoted in a reference, as “producing ... protein rich seeds for poultry feed”: whilst seeds of the latter were fed to chickens in experiments in Cyprus.

Acacia salicina (Sally wattle)

Acacia salicina is the native wattle. It is endemic on the Helidon block. It grows into a sizeable tree which can bear a huge crop of seeds during November. It has the added advantage of producing a “tip crop” of seeds, which grows at the end of the branches.

This “tip crop” appears in September: a period when there is a paucity of other naturally available chook food.

Even though the chooks gave it a low preference (TABLE 1), they do eat the seeds.

The evidence is readily seen. One rather large tree drops seeds on both sides of the poultry pen fence. The seeds with their distinctive bright red arils can be seen covering the ground outside the pen. Inside, few seeds show. The chooks have eaten them.

TABLE 1: CHOOK SEED PREFERENCES

<i>Acacia ampliceps</i>	Salt Wattle	Not eaten/ ate reluctantly
<i>A.aneura</i>	Mulga	Ate avidly
<i>A.baileyana</i>	Cootamundra wattle	Ate avidly
<i>A.binervia</i>	Coast myall	Ate
<i>A.celastrifolia</i>	Grey myrtle wattle	Ate reluctantly
<i>A.colei</i>	Cole’s wattle	Ate avidly
<i>A.confluens</i>	Wyrilda	Not eaten
<i>A.coriacea</i>	Wirewood, Desert oak	Not eaten
<i>A.craspedocarpa</i>	Hop mulga	Not eaten
<i>A.cyclops</i>	Western coastal wattle	Not eaten
<i>A.dealbata</i>	Silver wattle	Ate avidly
<i>A.deanei</i>	Dean’s wattle	Ate
<i>A.decurrens</i>	Black wattle	Ate avidly
<i>A.drummondii</i>	Drummond’s wattle	Ate
<i>A.elata</i>	Mountain cedar wattle	Ate
<i>A.falcata</i>	Burra	Ate
<i>A.farnesiana</i>	Cassie, mimosa wattle	Not eaten
<i>A.fimbriata</i>	Brisbane golden wattle	Ate avidly
<i>A.floribunda</i>	White sallow wattle	Not eaten/ ate reluctantly
<i>A.holosericca</i>	Soapy wattle	Ate
<i>A.implexa</i>	Lightwood, hickory wattle	Not eaten/ ate reluctantly
<i>A.lanigera</i>	Woolly wattle	Not eaten
<i>A.ligulata</i>	Dune wattle, wirra	Ate avidly

<i>A.macradenia</i>	Zig-zag wattle	Ate reluctantly
<i>A.mearnsii</i>	Black wattle	Ate reluctantly
<i>A.melanoxydon</i>	Blackwood	Not eaten
<i>A.neriifolia</i>	Oleander wattle	Ate
<i>A.pendula</i>	Weeping myall	Ate reluctantly
<i>A.perangusta</i>	Eprapah wattle	Ate
<i>A.podalyriifolia</i>	Queensland silver wattle	Ate/ate avidly
<i>A.prominens</i>	Gosford wattle	Ate reluctantly
<i>A.pycnantha</i>	Golden wattle	Ate avidly
<i>A.reinodes</i>	Wirilda wattle	Not eaten/ ate reluctantly
<i>A.rhodophloia</i>	Minni ritchi	Not eaten
<i>A.salicina</i>	Cooba, sally wattle	Ate reluctantly
<i>A.saligna (A.cyanophylla)</i>	Golden wreath wattle	Ate
<i>A.simsii</i>	Heathlands wattle	Ate/ate avidly
<i>A.sophorae</i>	Coastal wattle, sallow wattle	Not eaten/ ate reluctantly
<i>A.stenophylla</i>	Munumula	Not eaten
<i>A.torulosa</i>	Thancoupie	Not eaten
<i>A.tumida</i>	Pindan wattle	Not eaten/ ate reluctantly
<i>A.vestita</i>	Hairy wattle	Not eaten
<i>A.victoriae</i>	Bramble wattle	Ate reluctantly

Conclusion

Wattles in the ‘ate avidly’ category are gradually being incorporated into the chooks’ food forest at Helidon = long term program.

These wattles are listed in TABLE 2 below.

TABLE 2: WATTLES IN ‘ATE AVIDLY’ CATEGORY

Species name	Common Name
<i>A.aneura</i>	Mulga
<i>A.baileyana</i>	Cootamundra wattle
<i>A.colei</i>	Cole’s wattle
<i>A.dealbata</i>	Silver wattle
<i>A.decurrens</i>	Black wattle
<i>A.fimbriata</i>	Brisbane golden wattle
<i>A.ligulata</i>	Dune wattle, wirra
<i>A.podalyriifolia</i>	Queensland silver wattle
<i>A.pycnantha</i>	Golden wattle
<i>A.mearnsii</i>	Provides seeds for birds.
<i>A.simsii</i>	Heathlands wattle

Further, in view of its value in providing an early spring crop, the endemic Sally Wattle is encouraged to grow and multiply.

A Response to the Wattles and Chooks article

We have provided copies of the above article, by Ian Simons, as well as Ian's previous article (ASG September 2007 Newsletter), to Tony Rinaudo from World Vision Australia. In recent years, World Vision has been working to promote the use of Australian acacias in agro-forestry projects in a number of African countries, and Tony has been at the forefront of this research.

Tony has provided some feedback in relation to Ian's articles. He notes that in Niger, seeds of *A. colei*, *A. torulosa* and *A. tumida* are all cooked and used for human consumption. The raw bran of *A. colei* seed was given to chickens, but at the time he was in Niger they didn't have enough seed of the other species to do experiments on chickens. However, he would not have expected that there would be any difference between raw *colei*, *torulosa* and *tumida* for chicken feed (which is contrary to the results of Ian's research which showed that of these three species, only *A. colei* was eaten avidly by his chickens).

Tony comments that Ian's results are interesting and he is not sure how to explain it. He notes that, sometimes, different provenances of the same species may make a difference. He remembers being surprised at the reaction of Aborigines to *A. coriacea* planted in Niger. It is one of their favourites and can be eaten steamed in the jacket like a bean – but they wouldn't touch this one because it was so bitter compared to the one they were used to.

In relation to *A. torulosa*, Tony notes that when he was looking into this species, he was warned that there could be a severe reaction to the dust when cleaning *torulosa* pods. They received the following notice from Dr Lex Thomson:

"The dust from the resin of mature *A. torulosa* pods is INCREDIBLY NOXIOUS."

As it turns out, they never experienced this, so either there may have been some provenances which have this effect, or there was an environmental influence, or the person processing *torulosa* may have been allergic. But certainly, they never had a problem in Niger and they have been testing a number of provenances.

Tony notes that with World Vision he works in a range of environments including the highlands of Ethiopia, Rwanda and Uganda. In these areas some of our Australian temperate/ mediterranean climate acacias have already been introduced and do well. For example, *A. saligna* is very widely planted in Ethiopia, a country with a population of 5+ million who are chronically poor every year, yet nobody is aware that the seed is edible. *A. dealbata*, *A. mearnsii* and others are also grown there, but he does not know anything about their seeds.

Some Acacia Reading

A Field Guide to Plants of the Channel Country Western Queensland

By Rhondda Alexander

Published by The Channel Landcare Group 2005

This 324 page field guide to plants of the Channel Country has separate sections relating to Trees, Shrubs, Grasses, Sedges, Forbs and Mistletoes. It includes 288 species of which 22 are acacias. Each species is allocated a full page and all are illustrated with full colour photographs.

Copies may be obtained from the author Rhondda Alexander, and the price is \$20 plus postage, which represents amazingly good value.

Rhondda's contact details are:

Rhondda Alexander
18 Currimundi Rd
Currimundi, Qld 4551
Phone (07) 54376481

Cheques should be made in favour of Channel Landcare Group.

Yellow Wattle – a poem by Ian Campbell

Ian is a grandson of A J Campbell who was involved in the formation of the Wattle Day League in 1911 and who in 1921 was author of the book Golden Wattle. Ian has written a poem, Yellow Wattle, based on a review of his grandfather's book.

This poem can be found at www.pinkertonforest.com (follow the links to European heritage).

How a Continent Created a Nation

By Libby Robin

Published by UNSW Press 2007

Our thanks to Ian Campbell for drawing our attention to this book which includes a few references to the historical importance of the wattle in Australia.

The book refers to early campaigns to promote the wattle as the national flower, the formation of the Wattle Day League, eventual adoption of wattle as the national floral emblem in 1988, declaration of National Wattle Day in

1992, and the recent successful fight to retain the name Acacia for Australian wattles.

Ian also refers to another book, *The Colonial Earth*, by Tim Bonyhady (Melbourne University Press 2000) which credits A J Campbell and R S Sugars with possibly being the first people in Australia to recognise how photography could stimulate public interest in environmental issues (pages 122 – 123).

Another reference provided by Ian is the essays by Francis Ebury, Melbourne University College of the Arts, on his late grandfather's photography of nature.

The Acacia Name Change Debate (again)

Study Group members will recall the decision taken in Vienna at the 2005 International Botanical Congress to retain the name Acacia for Australian acacias. Two papers have recently appeared that argue that the process to vote on the name changes in Vienna was not appropriate and unfortunately they aim to reopen the old debate.

If any Study Group member is interested in reading these papers and would like a copy, please advise Esther or Bill and we can provide copies to you. The two papers referred to are as follows:

G Moore (2007) The handling of the proposal to conserve the name *Acacia* at the 17th International Botanical Congress – an attempt at minority rule (*Bothalia* 37,1: 109-118)

Paul van Rijckevorsel (2006). *Acacia: what did happen at Vienna?* *Anales del Jardin Botanico de Madrid* 63(1), 107-110

The next International Botanical Congress is to be held in Melbourne in 2011 and it is here that the issue could be raised again.

Nitrogen Fixation in Acacias By John Brockwell, Suzette D Searle, Alison C Jeavons and Meigan Waayers Published by Australian Centre for International Agricultural Research, 2005

Over the past two decades scientists have learnt a great deal about acacias and their symbiotic micro-organisms and the development of methods to exploit efficient symbioses. These developments are summarised in this review.

A pdf version of this 132 page book can be downloaded free from the following website:

<http://www.aciar.gov.au/publication/MN115>

Alternatively, the actual book can be purchased via that website for \$25 including postage and handling in Australia.

Muelleria - special edition January 2008

A special edition of *Muelleria* will be published in January 2008, containing 9 *Acacia* papers plus a short introduction. These are papers that were presented at the Scientific Day at last year's FJC Rogers Seminar, *Acacia 2006 - Knowing and Growing Australian Wattles*.

One of Australia's rarest wattles - *Acacia handonis* by Val Hando, Chinchilla, Qld

At the recent Biennial Conference in Newcastle, I briefly met Bill Aitchison from the Acacia Study Group, and he asked me if I would write an article on Hando's Wattle, *Acacia handonis*, one of Australia's rarest wattles that grows in Barakula Forestry north of Chinchilla in Queensland.



Val Hando, at the recent ASGAP Conference

When I first saw this lovely wattle with its extra large flower balls in July 1973, I collected specimens of it and sent one to the Queensland Herbarium for identification. It was identified as a known but undescribed species of *Acacia*. It was found growing on a stony ridge and other wattles in this area included *Acacia conferta*, *A. complanata*, *A. julifera* and *A. juncifolia*.

When visiting the forestry on the 15th of November 1978, I found this wattle was in fruit. The most unusual pods had a covering of what appeared to me to be fine sawdust so I collected two specimens and later sent one to the Queensland Herbarium. Imagine my surprise when a short time later I received a letter from Les Pedley, a senior botanist at the Queensland Herbarium who specialises in Acacias. He said that this wattle was definitely a new species and he would like to name it after me. I was amazed for not in my wildest dreams did I ever expect to be honoured in this way.

The description of this wattle by Mr Pedley was published in "Austrobaileya" Volume 1 Number 4. This is the official journal of the Queensland Herbarium. Mr Pedley describes this wattle as extremely rare as it is found only on one sandstone ridge in the Barakula Forestry and to date has never been found anywhere else. It is an attractive spreading shrub with fine, crowded phyllodes 25-40 x 3-4mm, the extra large golden-yellow blooms appear in July-August and the pods are present in November.



Acacia handonis, photo by Val Hando

This very rare wattle is located in the Barakula Forestry north of Chinchilla on the Western Darling Downs. If you are visiting southeast Queensland and would like to see this wattle the directions are as follows.

From Chinchilla take the Auburn Road on the western outskirts of the town. From the grid into the Forestry drive a further 20.8km until you come to a minor break on the right. This is easily missed so if you come to the sign Little Hellhole Creek you have missed your turnoff. Go back about half a kilometre and you will find it. *Acacia handonis* is located on the ridge 5km east of the Auburn Road.

After it had been named I collected seeds from the forestry. They were treated with boiling water and planted next day. Although they grow only on sandstone ridges I found they grew just as well in sandy loam and they required very little watering. They normally live for about 10 years in cultivation.

Over the years my husband and I grew many wattles on our farm where we had a native garden and again in our much smaller garden in Chinchilla. The soil in both locations are loam to sandy loam. Even when the wattles were not watered they almost always grew much larger than they did in the bush. Last July *Acacia handonis* reached a height of 2 metres by nearly 3 metres wide and was smothered in blossom.

Acacia handonis is listed as vulnerable, that is the plants are not presently endangered but are at risk over a long period. There has certainly been a decline in the number of plants over the last few years, no doubt due to the very dry seasons we have been having. Hopefully the numbers will increase if seasons improve.

Val Hando

Notes:

- (1) Val has provided two plant lists to the Study Group, one being of Acacias of the Chinchilla and Murilla (Miles) Shires, and another being a Plant List of Handonis Road, Barakula Forestry. We plan to include the Acacia list in a future Newsletter, but if you would like a copy of either list please advise Esther or Bill.
- (2) *Acacia handonis* was one of the species that was propagated and sold at the acacia seminar held in Melbourne in August last year. We have records of 4 of those plants and reports that all are doing well. John Thompson has two plants in his garden in Melbourne's sand belt region – he reports that they were only planted out during winter, both are still alive and are growing slowly but steadily. Trevor Blake has a plant that is thriving in Ringwood, it is growing in clay loam, about 40cm x 40cm, on a slight slope which helps drainage, and ¾ sun position. There is also a plant at the public Maranoa Garden which also appears to be healthy although growing slowly.

Wattle Grow

In our previous (September 2007) newsletter, we referred to the success that Helen van Riet has had with some recent plantings of wattles in her Wangaratta, Victoria, garden.

The article noted that one of Helen's explanations for this success was that, after planting, she sprinkled a teaspoon of Wattle Grow around the base of each plant, and scuffed it into the soil.

Wattle Grow Granular Inoculant is a Bradyrhizobium based inoculant designed to effectively form nitrogen fixing nodules on the roots of a wide range of acacia species.

Most reports that we have had in relation to the use of Wattle Grow have involved the inoculant being applied at the seeding stage, either in the nursery or in large scale direct seeding projects.

Wattle Grow is manufactured and distributed by Becker Underwood Pty Ltd, and they have been helpful in providing answers to various questions that we put to them.

Q. Does it sound logical from your point of view that by applying the Wattle Grow in the manner that our Wangarrata member applied it (ie by scuffing it into the soil at the base of each plant after they were planted) that this would contribute significantly to the growth rate of her wattles, as she believes it has?

A. Yes this is completely logical. Wattle Grow is what is classed as a beneficial biological. The product actually has a symbiotic relationship with the plant and inoculates the root with root nodules.

In basic terms this allows the plant to actively capture otherwise useless nitrogen gases from the atmosphere and convert it to a useable format for the plant. If the plant is fixing more than it requires it then deposits surplus nitrogen into the soil, aiding soil fertility. The plant is basically fertilizing itself with a nitrogenous based fertilizer.

Applying it to the surface and then watering the product in would have a very high success rate especially on potted plants, and especially with direct seeding.

Q. Your directions for use list 22 species of Acacia that the Inoculant can be applied to. In Australia there are roughly 1000 species of Acacia. Are we correct in assuming that no testing has been carried out as to the effectiveness of Wattle Grow with the other species, but that there is a reasonable likelihood that it would be effective with a reasonable number of these other species? Or is it very specific as to which species it will be effective with? (Note: The 22 species referred to are acinacea, aneura, baileyana, buxifolia, cardiophylla, dealbata, deanei, decora, decurrens, floribunda, implexa, iteaphylla, mearnsii, melanoxyton, paradoxa, pravissima, pycnantha, retinodes, salicina, saligna, stenophylla and vestita).

A. I realize that there are numerous species of acacia not listed on our label however there is only so much field trial data we can perform (and therefore you are correct in assuming that little to no testing has been carried out on these other species). Unfortunately, rhizobia can be quite specific and may not nodulate other species as effectively and for this reason any species of acacia off the label would not be guaranteed by Becker Underwood. Having said that, there is a pretty good likelihood that Wattle Grow will effectively nodulate other species.

Q. What is the use by period for Wattle Grow?

A. The expiry for Wattle Grow is 3 months and this date is set from the date of manufacture.

There are a few people, being some Acacia Study Group members and a few other APS members, who are interested in sharing in the purchase of some Wattle Grow. The minimum quantity that can be purchased is 15kg, and the

cost (delivered to suburban Melbourne) is \$138.74 (so that each kg is a shade under \$10).

If any Study Group member is interested in joining in this purchase, or would like further information, please contact Bill Aitchison. Note that for people outside of Melbourne, we may need to be careful in relation to the delivery arrangements from Melbourne. Becker Underwood advise that "as to deterioration of the product during transport – this is certainly something that may affect product viability. Obviously extreme temperatures (anything above 28°C) would impact negatively on viability. Generally, as long as product is not mailed out over a weekend it should be OK."

Note that Wattle Grow does go a long way – the prescribed application rate in direct seeding is 15kg of granules per 5000 linear metres, of row, or 3 grams per linear metre of row.

Bill Aitchison

Acacia Myths

At a recent social event, Sue and I were talking to an acquaintance who advised that he is an avid gardener, but does not have a single native plant in his garden.

He asked us what plants we might suggest if he were to include some natives in the garden, especially plants that might attract birds.

We suggested correas, and he thought this was a good suggestion.

Similarly, we suggested grevilleas and eremophilas, and he was receptive to these suggestions.

We then suggested some acacias, but he rejected this suggestion on the basis that he is not looking for big trees – so we have some education to carry out.

What other myths relate to acacias?

Bill Aitchison

Welcome

A special welcome to the following new members and subscribers to the Newsletter:

Sue Bradford, Caboolture, Qld
Allan Carr, Bribie Island, Qld
Dr Christian Kull, Monash University, Vic
Michael McCuaig, Wurtulla, Qld
Dr Dan Murphy, Moonee Ponds, Vic
Tracey Perrott, Cannons Creek, Vic

Study Group Membership

Acacia Study Group membership for 2007/08 is as shown below. If you have not yet paid your membership, we would appreciate it if you could forward your subscription as soon as possible. If you do not wish to renew your membership, could you let us know so that we can adjust our membership records.

The annual membership fee is as follows:

\$5 (newsletter sent by email)

\$8 (hardcopy of newsletter posted in Australia)

\$12 (hardcopy of newsletter posted overseas)

Subscriptions may be sent to:

ASGAP Acacia Study Group Leader

Esther Brueggemeier

28 Staton Crescent

Westlake, Victoria 3337

Subscriptions may also be paid directly to our Account at the Bendigo Bank. Account details are:

Account Name: ASGAP Acacia Study Group

BSB: 633-000

Account Number: 130786973

If you pay directly to the Bank Account, please advise Esther by email (wildaboutwattle@iprimus.com.au)

Seed Bank

A listing of our Seed Bank was included in Newsletter 98 (September 2007).

We have run out of a few species faster than expected, and we will be looking at getting hold of more seed over the next few months, but if you have spare seed, please don't forget about the seed bank and kindly send some our way.

We have had requests for seed of *Acacia elachantha* and *Acacia purpureapetala*— is anyone able to help with seed of these species?

Key to *Acacia* species in Tasmania

by Alan M. Gray

Our thanks to Alan Gray for providing the latest version of his key to the Tasmanian acacia species. Alan has suggested that Study Group members may like to try it out and test it, and if any difficulties or anomalies become apparent, he would very much appreciate being contacted with relevant details. His contact details are:

Alan M Gray

c/o Tasmanian Herbarium

Private Bag 4

Hobart, Tasmania 7001

Email: Alan.Gray@tmag.tas.gov.au

Please note that copyright in relation to the key remains with the Tasmanian Herbarium, and the key should not be reproduced without permission.

The large genus *Acacia* is represented in Tasmania by 22 species and six sub-species. Two species i.e. *A. implexa* and *A. uncifolia*, which also occur on the mainland of Australia, are known only from the largest of the Bass Strait Islands i.e. King and Flinders Islands. These species do not occur naturally on the Tasmanian mainland; however, by virtue of the fact that the Bass Strait islands are geographically (and politically) part of Tasmania, they are regarded as 'Tasmanian'. Four species, *A. pataczekii*, *A. riceana*, *A. axillaris* and *A. derwentiana* are endemic, i.e. they are confined solely to Tasmania.

Five other species, i.e. *A. baileyana*, *A. decurrens*, *A. floribunda*, *A. paradoxa* and *A. pycnantha*, included in this key, are considered to be established and/or spreading from cultivation sufficiently so as to be regarded as naturalised, or becoming so. It is somewhat ironic that one of the establishing non-Tasmanian species, *A. pycnantha* is the floral emblem of Australia. In Tasmania it is regarded as a potential environmental weed!

The following key is presented as a means by which all of the native species and some introduced and establishing species in Tasmania may easily be identified, using characters not requiring the use of a lens. However flowering and, in some cases, fruiting material may be required to identify some specimens.

KEY TO SPECIES

Key to species

1. Plants with prominent spiny stipules *A. paradoxa* (Intr.)
 Stipules absent, minute or membranous2

2. Adult leaves compound, pinnately divided.....3
 Adult leaves reduced to phyllodes.....7

3. Leaves bright green, dark green or bronze4
 Leaves silvery or grey.....6

4. Pinnae 2 - 6 pairs; pinnules 10 - 18 pairs, 5 – 10 (-15)mm long, 1.5 – 4mm wide, dark green above, paler below, with a single elongated gland on the rachis at or a little below the basal pinnae. Flowers cream, ‘mulberry’ scented, flowering May-July; pod broadly oblong, 3 - 10 (-12)cm long, 10 - 12 (-15)mm wide, scarcely or not constricted between the seeds *A. terminalis*

 Pinnae usually many more than the above, pinnules much narrower and manifestly more numerous than the above; rachis of the leaves with a raised gland at least at the base of each pair of pinnae. Flowers yellow to golden yellow, never flowering May – July; pod cylindrical to narrowly oblong, 3 – 15cm long, 4 – 8mm wide, variously or not constricted5

5. Pinnae 5 – 15 pairs with a gland on the rachis at the base of each pair of pinnae; pinnules (10-) 15 – 45 pairs, distinctly widely spaced, not or hardly touching, 5 – 10mm long, 0.5 – 1mm wide, both surfaces glabrous; pulvinus distinct, 2 – 4mm long; leaves bright to dark green, three distinct, decurrent ridges extending below the petiole giving the branchlets an angular appearance. Flowers deep golden yellow, flowering Aug. to Oct.; pod cylindrical - narrowly oblong, 3 – 10cm long, 5 – 8mm wide, constricted between the seeds *A. decurrens* (Intr.)

 Pinnae 10 - 20 pairs with numerous raised glands scattered randomly along the rachis; pinnules 15 - 25 (-75) pairs, crowded and usually touching; leaves dark green to bronze, densely hoary puberulous below, less so or glabrous above; pulvinus indistinct; branchlets only shallowly ridged below the petioles. Flowers pale to creamish yellow, flowering Dec. – Jan; pod flat, narrowly oblong, constricted between the seeds.....*A. mearnsii*

6. Leaves and stems silvery-grey, hoary; pinnae 10 – 20 pairs, the lowest pair spreading or sub-erect, not deflexed, a single small gland on the rachis at the base of each pair of pinnae; pinnules 15 – 25 (-75) pairs, 3 – 5mm long, 0.5 – 1.5mm wide. Flowers golden yellow, flowering Aug. – Oct.; pod flat, broadly oblong, not or scarcely constricted between the seeds
*A. dealbata*

 Leaves and stems silvery-grey, pruinose-glaucous, glabrous; pinnae 3 – 5 pairs with the lowest pair deflexed, with a single large gland on the rachis at or slightly below each pair of pinnae, sometimes absent from the lower 1 – 2 pairs; pinnules 3 – 5 (-7)mm long, 0.5 – 1.5mm wide. Flowers bright yellow, flowering Jun. – Sept.; pod broadly oblong, scarcely constricted between the seeds*A. baileyana* (Intr.)

7. Phyllodes ± rigid with a sharp or pungent apex.....8
 Phyllodes ‘leathery’, not or scarcely rigid; apex blunt, acute or mucronate but not sharp or pungent, glabrous, shining, with prominent venation..... 15

8. Phyllodes in loose or crowded whorls, ‘spoke-like’9
 Phyllodes alternate or scattered, not whorled 10

9. Phyllodes lanceolate, fairly stout, in well spaced whorls, spreading. Flowers in dense cylindrical spikes or elongated ovoid heads. Widespread shrub or small tree.....
..... **A. verticillata subsp. verticillata**
Phyllodes slender, narrowly lanceolate, spreading or somewhat reflexed, whorls distant and 'unevenly' dispersed. Flowers in small ovoid heads. Spindly shrub of sandy heaths in the north and east..... **A. verticillata subsp. ovoidea**
Phyllodes in crowded whorls, thick, stout; flowers in dense elongated spikes Large shrub, usually coastal **A. verticillata subsp. ruscifolia**
10. Phyllodes usually 3-4 times as long as broad, ± triangular..... **A. gunnii**
Phyllodes usually more than 3-4 times as long as broad, not triangular 11
11. Phyllodes alternate or clustered in fascicles. Flowers in loose cylindrical spikes 12
Phyllodes alternate, never clustered in fascicles. Flowers in spherical heads, sometimes with only 2 - 3 (-6) flowers..... 13
12. Phyllodes in distinct fascicles, extending to the ultimate branchlets; phyllode L/B ratio usually 5 - 6/1. Flowers usually distributed along the entire rachis **A. riceana**
Phyllodes mostly alternate, sometimes clustered on short lateral branchlets, but rarely on the ultimate branchlets; phyllode L/B ratio usually 8 -10 (-20)/1. Flowers in loose cylindrical spikes, flowers usually absent from the lower 1/2 - 1/3 of the rachis. Small shrub, found mainly on the banks of the River Derwent and some tributaries **A. derwentiana**
13. Flowers 2 - 3 (-6) in short sub-spherical heads, usually much shorter than the phyllodes; phyllodes straight, spreading or sub-erect. Uncommon shrub or small tree of river banks or damp shrubberies in the central east and eastern midlands **A. axillaris**
Flowers numerous (15 - 20), sessile or on peduncles shorter than the phyllodes; phyllodes narrowed or constricted at the base, distinctly one-veined, erect, spreading or recurved, occasionally with 2 – 3 phyllodes clustered on very short lateral branchlets; branches cylindrical, reddish, lenticular-scaly. Erect shrub of the east, north-east and central plateau.....
..... **A. siculiformis**
Characteristics not as above 14
14. Phyllodes widest at the base, the bases not decurrent; branches cylindrical, smooth, brownish. Flower heads occurring singly..... **A. ulicifolia**
Phyllodes with decurrent bases giving the smaller, ultimate branchlets an angular appearance. Flower heads usually in pairs or 3 (-5) together **A. genistifolia**
15. Phyllodes approximately 3 times as long as broad 16
Phyllodes much more than 3 times as long as broad 17
16. Phyllodes often yellowish green and with conspicuous, thickened, reddish margins and midrib. Flowers reddish in bud, (1-) 2 – 6, sessile, on small axillary branchlets which may be leafless or bearing one to three small leaves towards the apex, giving the appearance of a small axillary panicle. Small shrub, 0.5 – 1 (-2)m; never gregarious **A. myrtifolia**
Phyllodes grey-green, never reddish, Flowers not reddish in bud, 12 – 15 in axillary racemes which are longer than the phyllodes. Shrub 1 – 3m, confined to a few localised areas in the north-east; often gregarious due to suckering **A. patczekii**
17. Phyllodes with a single longitudinal midvein..... 18
Phyllodes with two or more longitudinal veins 21
18. Phyllodes green or dull green but not glaucous 19
Phyllodes glaucous to sub-glaucous 20

- 19 Phyllodes lanceolate-oblongate, conspicuously curved, often \pm pendulous on a supple pulvinus and with a conspicuous gland near the base of the phyllode. Flowers golden yellow in spherical heads, forming racemes which are shorter than the phyllodes. Shrub or small tree 2 - 4m, introduced and spreading from populated areas, common on the Queens Domain, Hobart..... *A. pycnantha* (Intr.)
Phyllodes narrowly elliptical-oblong, 3 - 5 times as long as broad, scarcely curved, dull green. Flowers in spherical heads, on 1 - 2 (-3) axillary peduncles. Small shrub, sometimes gregarious due to suckering *A. stricta*
- 20 Flowers in short, compact racemes, fragrant; at first enclosed within large, conspicuous bracts; phyllodes broadly linear, blunt to acute, the bases decurrent giving all stems an angular or winged appearance. Small, spindly shrub to c. 1 (-1.5)m. Common in damp, sandy heaths *A. suaveolens*
Flowers in loose racemes, not enclosed in bracts; older branches cylindrical, reddish; phyllodes linear to narrowly elliptic, apex distinctly uncinat. Shrub to 4m, local on King and Flinders Is., becoming naturalised on Tasmanian mainland *A. uncifolia*
- 21 Phyllodes with two conspicuous longitudinal veins, surfaces bright, pale green, sticky or resinous, appearing as if 'varnished'. Flowers in small, dense spherical heads on short peduncles, 2 - 3 per axil *A. verniciflua*
Phyllodes with more than two distinct longitudinal veins, never sticky or resinous. Flowers either in cylindrical spikes or racemes 22
- 22 Flowers in racemes 23
Flowers in cylindrical spikes 24
- 23 Phyllodes with distinct anastomosing veins between the longitudinal veins. Flower heads 2 - 3 (-5) usually in racemes; peduncles 3 - 5mm long; seed surrounded by, and, after the pod opens, suspended on a long orange/reddish funicle; pods and seeds often long persistent
..... *A. melanoxylon*
Phyllodes with anastomosing veins obscure. Flower heads 4 - 7 (-8) in racemes or panicles, peduncles (8-) 10 - 20mm long; seeds with folded white funicle; pods and seeds not long persistent. Shrub or small tree, local on King Is.; occasionally gregarious due to suckering
..... *A. implexa*
- 24 Flowering spikes loose, the axis visible between the flowers at anthesis, flowers pale yellow 25
Flowering spikes dense, the axis not visible between the flowers, flowers golden yellow 26
- 25 Phyllodes rarely crowded, on lax branchlets, soft, thin in texture, bright green, often yellowish or bronze, mostly uniform in size and shape, narrowly elliptic to almost linear, 4 - 7cm long, 3 - 5mm wide, flat to plano-convex in cross section (when fresh); veins 5 - 8, continuous, not anastomosing; apex acuminate or uncinat. *A. floribunda* (Intr.)
Phyllodes often crowded, on erect branchlets, thick in texture, (leathery), greyish green, extremely variable in shape and size, bi-convex in cross section; veins 3 - 5, often discontinuous, weakly or strongly anastomosing; apex acute, mucronate or rounded.
Phyllodes 4 - 6cm x 3 - 6mm, anastomosing veins not prominent; apex mucronate
..... *A. mucronata* subsp. *mucronata*
Phyllodes 5 - 9cm x 8 - 15mm, anastomosing veins prominent; apex rounded
..... *A. mucronata* subsp. *dependens*
Phyllodes 5 - 15cm x 2 - 5mm; only mid vein visible; apex acute... *A. mucronata* subsp. *longifolia*
- 26 Phyllodes 5 - 10cm long, 10 - 35mm wide, obovate, i.e., broadest above the middle and tapering rather abruptly to a blunt or rounded apex, texture thick. Flowers in dense cylindrical spikes obscuring the rachis, golden yellow; pod strongly coiled at maturity. Large spreading shrub of coastal dunes *A. longifolia* subsp. *sophorae*
Phyllodes 5 - 15cm long, 10 - 25mm wide, broadly elliptical-elliptical-lanceolate, usually broadest at the middle, apex rounded-blunt. Flowers as for the above, pod not strongly coiled at maturity.
Erect shrub, not confined to coastal situations *A. longifolia* subsp. *longifolia* (Intr?)