

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTSACACIA STUDY GROUP NEWSLETTER No. 86
February 2003

Dear members

Happy New Year and a wish for a rain cloud to settle over you. I know some of you have received good falls in the last month but many have missed the storms. At Booie we are in that category and are hoping for better luck with the next trough to pass through.

A result of the drought is that I am running out of insects to photograph. The disappearance of insects from the acacias is quite dramatic. Some grasshoppers and mealy bugs are fairly common but leaf eaters such as caterpillars and various beetles and their larvae are very rare. The lack of Processionary Caterpillars is most striking. This presumably indicates the severity of the drought. There had to be some plus.

One of the frequent complaints I hear about acacias when I am pushing their excellence is their short life span. Of course this does not apply to all acacias but the most spectacular and therefore frequently cultivated largely fit into this category. I am at present watching a number of acacias planted in my early years at Booie approaching their use by date. This is almost invariably as a result of insect attack. Even though I knew this early demise was coming when I planted them I still feel a pang of disappointment at losing old friends and can understand the turn off this would be for those not converted to the beauties of acacias. On the positive side these short lived acacias are usually very fast growing and I can now look forward to young, vigorous, replacement plants rapidly filling the gaps and probably flowering in their first year. When I look at the ugly dead looking sticks of pruned and limed roses in winter I wonder how their growers can complain about the short absence of an acacia plant.

Leon Steinhardt has recently sold the property at Laidley where he was growing, at last count, over 200 species of acacias and is moving to a house block. As he still wishes to be associated with acacias he approached the Esk Shire Council in SE Queensland about the possibility of planting acacias on vacant council land. The council is very enthusiastic about the idea and has suggested that he plant along a recently completed Rail Trail which runs from Fernvale to Lowood, a distance of about 10 kilometres. This trail follows the route of the old rail line and is designed for hikers, cyclists and horse riders. It incorporates the old rail reserve and widens out to about 50 metres in places. It has some very interesting features such as an old, wooden rail bridge, magnificent sandstone cliffs and views of the Brisbane River. This is a marvellous opportunity to showcase a diversity of acacias both in habit and leaf and phyllode shape. The soil varies from infertile sandy to clay and is crossed by some creeks and drainage lines. A number of mature acacias are already present. These include *A. concurrens*, *disparrima*, *harpophylla*, *implexa*, *podalyriifolia* and *salicina*. The main plantings will be of acacias from SE Qld with a few of the more spectacular central Qld species. The council is happy to look after the plants once they are in the ground. It is hoped to involve as many people as possible in the project particularly with growing the plants and walking the trail to assist with maintenance. Any ASG members would be most welcome. The trail starts with a large area behind a popular park in Fernvale on the main Brisbane Valley Road. This will be the first area planted and with that location it is sure to attract plenty of visitors. With the degree of enthusiasm this project is generating it should become a really worthwhile contribution to the acacia scene.

Bruce Maslin (of ‘Wattle’ disc etc ‘fame’) is involved in the development of a ‘World Wide Wattle’ website. This is a joint project between CALM, CSIRO and the Dalwallinu Shire. The intention is that this site will eventually become a primary source of information on acacias, not only Australian but also worldwide. Bruce writes that he would be more than happy to incorporate the ASG photo library and issues of the newsletters that are in electronic format plus articles from previous ones if this is something that members think would be a good idea. He is also open to making the site available for anything else that the group might want. This is an excellent opportunity to promote the growing of acacias. Any comments or ideas would be greatly appreciated.

From Letters and Emails

Lyn Thompson, the Study Group Liaison Officer for the NSW APS included some interesting details of her family association with wattles.

My Thompson family has, since their arrival in Australia in 1851 until quite recently, had interests in the tanning industry. The town of St Mary’s, now an outer western suburb of Sydney, on the banks of South Creek, had numerous tanneries in the second half of the 19th century with decreasing numbers in early years of the 20th century until the last closed at the end of World War II.

The industry developed because of the suitability of the acacias for tanning which grew along the creek. The best species I understand were the ferny leafed ones, *A.mearnsii*, *decurrens*, *parramattensis* etc.

Documentation records that whilst good for tanning in the short term, the local species were not considered as good for high class tanning as the South African species which were subsequently imported. The most significant tanner was Andrew Thompson whose tannery was then the largest in the southern hemisphere. His attractive late Victorian house still stands; it is called “Mimosa” from the South African material he used and the term which was always used in his time.

Bob O’Neil

I had a batch of wattle seeds sown a few months ago and a number of these have grown roots out the bottom of the tubes and are at least 5-6 inches tall, planting size to me. About 25 plants have already been planted in the past six weeks and I have spots to put out another 10-12 plants in the next week. These plants will have deepish holes prepared for them to allow for roots to grow down, will be well watered initially and will be mulched with a couple spades of mulch. To date I have had a high success rate of planting wattles in the summer in this manner, with losses often coming when wet feet would appear to be a problem that dry area wattles cope with poorly.

The following article by **Bruce Maslin** about the proposed name changes in *Acacia* will also appear in the Australian Plants Magazine so it may seem a bit of an over kill printing it here as well. There are a few reasons for doing this. Firstly, it is worth reading twice to keep up the level of support for Bruce and his colleagues. Secondly, this newsletter is emailed to some groups who do not belong to any of the Australian Plants Societies but are very interested in acacias and their promotion. Thirdly a number of people tell me that they read the Study Group newsletters but often don’t get around to Australian Plants.

Proposed Name Changes in Acacia

By B.R. Maslin (Dept of Conservation and Land Management, Perth, W.A.)

Two articles on the impending split of *Acacia* and the generic name changes that will subsequently occur recently appeared in the public arena, one in Nature Australia (Low 2002) and the other in the Sydney Morning Herald (Woodford 2002). The article by James Woodford was balanced and well written, however, because of space constraints he was not able to deal with the issues in the detail

that I would have liked. I am therefore taking this opportunity to provide these details and also to provide additional information that may help clarify matters concerning this important issue.

As will be discussed below there is a growing consensus among specialists that a formal division of *Acacia* into a number of segregate genera is necessary and is likely to take place in the near future. When this happens it will trigger the need for several new generic names and one of the very important issues is what group should the name *Acacia* be applied to. If the normal provisions of the International Code of Botanical Nomenclature (Greuter et al. 2000) are followed then the name *Acacia* would be applied to a relatively small cosmopolitan group of Acacias which is very poorly represented in Australia. It would then follow that the majority of the 955 species of *Acacia* that occur in this country would require another generic name, and it has been proposed that the name *Racosperma* be used. Such a change involving this large and important iconic Australian genus (which is our official floral emblem) has understandably caused concern to a number of people. The Code, however, does make provisions for minimizing the impact of such changes in certain cases, and it is these provisions that Tony Orchard (Australian Biological Resources Study, Canberra), Judy West (Centre for Plant Biodiversity Research, Canberra) and I are attempting to invoke. Basically we are proposing that, in the interest of nomenclatural stability, the genus *Acacia* be reclassified (see discussion below). One of the consequences of this action, if successful, would be that the names of most Australian species of *Acacia* will not change. However, as discussed below, this is not our only motivation for taking this action.

Acacia is the second largest genus in the family Leguminosae, with about 1350 species currently recognized. These species are distributed throughout tropical and warm temperate areas of the world, with the largest concentrations occurring in Australia (about 955 species), but there are also high numbers in the Americas (about 185 species), Africa (144 species) and Asia (89 species).

The current classification of *Acacia* recognizes the genus as comprising three subgenera, namely:

1. Subgenus *Acacia*: about 160 species which are widely distributed in Africa (73 species), the Americas (about 60 species), Asia (36 species) and Australia (9 species). The Australian species are mostly confined to the tropical north of the continent, only *A. farnesiana* extends southwards through more arid areas but it is not likely that this species is a true native of Australia.
2. Subgenus *Aculeiferum*: 231 species which are also widely distributed in the Americas (125 species), Africa (69 species), Asia (43 species) and Australia (2 species). The Australian species are confined to northern Queensland.
3. Subgenus *Phyllodineae*: 960 species which are largely confined to Australia (less than 20 species occur outside the continent where they extend eastwards to some islands of the Pacific, north to the Philippines and west to Madagascar).

Therefore, by far the largest numbers of species occur in subgenus *Phyllodineae* and these are mostly confined to Australia. The other two subgenera are uncommon in Australia; they have cosmopolitan, pan-tropical distributions where they occur roughly in equal numbers, furthermore, in some areas of Africa and the Americas species of these two subgenera can be found growing together.

Acacia was originally described by Philip Miller in 1754. Miller's concept of the genus was very broad and it included 24 species that occurred in Africa and America (many of these species are now shown to belong to genera other than *Acacia*). What is particularly relevant to the present discussion is that one of the species included in Miller's paper, *A. nilotica* (which occurs in Africa and Asia), was subsequently selected as the type species for the genus *Acacia*. This means that under normal circumstances the name *Acacia* should be applied to the group in which *A. nilotica* occurs. The significance of this will become apparent from the discussions below. Subsequent to Miller's publication there were almost 30 new genera described for various segregates of *Acacia*, but only one of these genera, *Faidherbia* (which contains a single species that grows in Africa and western Asia) is currently accepted. The genus *Racosperma* which is discussed below is also one of the 30 genera that were subsequently described.

The first significant re-arrangement of the long-established classification of *Acacia* that had been laid down by George Bentham in the mid-nineteenth century was done by Jacques Vassal in 1972. Vassal's new classification recognized the three subgenera listed above. In arriving at his scheme Vassal took into account information derived from his study of seeds, seedlings and stipules and also the pollen work done by his colleague Phillip Guinet. In 1986 Pedley re-assessed the classification of *Acacia* in the light of Vassal's work and other data, and proposed that three genera (corresponding to Vassal's three subgenera) be recognized, namely:

1. *Acacia* (= subgenus *Acacia*)
2. *Senegalia* (= subgenus *Aculeiferum*)
3. *Racosperma* (= subgenus *Phyllodineae*)

While many botanists agreed that *Acacia* included a number of more or less disparate groups, it was considered imprudent, in 1986, to accept a generic status for these as proposed by Pedley and therefore this classification was not widely adopted by either the botanical or non-botanical community. Of primary concern was the widespread nomenclatural disruption that would ensue from splitting this enormous cosmopolitan genus. On taxonomic grounds it was considered that the evidence presented by Pedley to substantiate his recognition of three genera was inconclusive and/or incomplete. It was generally considered that there was a need to acquire additional critical information upon which informed decisions could be made concerning the generic status of *Acacia*. Also, there was a recognized need for broad-based comparative studies of *Acacia* that would include genera from tribes such as the Ingeae and Mimosae. These issues are discussed in Maslin (1989; see also Pedley 1987 & 1989 where he defends his scheme).

Subsequent to 1986 a considerable amount of work has been undertaken to re-assess the generic status of *Acacia* by examining in detail the classification and phylogeny (evolution) of the group. Of particular relevance are the cladistic analyses of Chappill (1995) and Chappill & Maslin (1995), and the exciting new molecular information that is being generated by Joe Miller and his colleagues (e.g. Miller & Bayer 2001, Luckow et al. in press). These were broad-based studies that included not only species of *Acacia* and *Faidherbia* but also genera from related taxonomic groups. The results of this work clearly show that *Acacia* as currently defined must be divided into a number of genera. What is not clear, however, is how many genera should be recognized. Although these new studies lend general support to the Vassal/Pedley fragmentation of *Acacia* into three groups, some of the data suggests that the dismemberment should go even further, and that at least five genera should be recognised (see Maslin et al. in press). The number of genera that might ultimately be recognized from within what is currently defined as *Acacia* is independent of what names are applied to these genera.

Although there is consensus among specialists that the formal division of *Acacia* will take place in the near future a major impediment remains: when the genus *Acacia* is divided, and the provisions of the International Code of Botanical Nomenclature are followed, then very large numbers of new combinations (names) will be needed at the species and infraspecific level. Under the scenario with *A. nilotica* treated as the type species of the genus it would mean that the name *Acacia* would be applied to the smallest group, namely, subgenus *Acacia*. This subgenus contains about 160 species, representing only 12% of the genus as presently defined. The largest group, subgenus *Phyllodineae*, would need a new name (Pedley has proposed that it be called *Racosperma*); this group contains 960 species (representing 71%). The third subgenus, *Aculeiferum*, would become known as *Senegalia* (although it is probable that this group will ultimately be subdivided into additional genera, however, this issue does not concern us here); subgenus *Aculeiferum* contains 231 species (representing 17%). These proposed name changes therefore involve almost 1 200 species (representing 87% of the genus as presently defined) and it would mean that most of the approximately 955 Australian species would require a new generic name. This is the option favoured by Pedley.

There is, however, an alternative possibility, one that would minimize the disadvantageous nomenclatural impacts associated with dismemberment of the genus. It is a formal process, sanctioned by the International Code of Botanical Nomenclature, and involves conserving the name

Acacia with by selecting a new type species to replace *A. nilotica*. It is this approach that Tony Orchard, Judy West and I are pursuing. Arguments have to be formally published and then judged by an international group of specialists (i.e. the Committee for Spermatophyta) who will decide on the merits of our case. Our case has been submitted to the journal *Taxon*, but has not yet been published. I am hoping that this will occur in the not too distant future and that this matter will be resolved sometime during 2003. Essentially our argument is that it makes considerable sense to retypeify *Acacia* with a type from the largest group (i.e. subgenus *Phyllodineae*) because this would result in the fewest name changes worldwide. This approach is entirely consistent with the intent of Article 14 of the International Code of Botanical Nomenclature which aims to provide the means by which the interests of nomenclatural stability may be best served. If our proposal is accepted by the Committee for Spermatophyta the results would be:

1. Fewer name changes would be required worldwide: only about 160 species in subgenus *Acacia* would need to be changed to *Vachellia*, compared with 960 species of subgenus *Phyllodineae* that would need to be changed (perhaps) to *Racosperma*.
2. The name *Acacia* would be retained for the largest group, namely, subgenus *Phyllodineae*. Although species of this group predominate in Australia they occur worldwide as weeds, as plants of commerce, and they are also used in a variety of social and environmental programs (McDonald et al. 2001).
3. Least disturbance would be caused to the large international trade and industries that are built upon Australian *Acacia* species. A majority of the species of commerce are contained in this group; they are grown in over 70 countries worldwide, where they cover around two million hectares in commercial plantations (see Midgley & Turnbull, in press). Also, within Australia *Acacias* are part of the nursery trade and many species are currently being assessed for wide-scale commercial planting in the southern agricultural regions as new woody crop plants aimed at salinity control (see Maslin & McDonald, in prep.).
4. In areas of Africa, Asia and the Americas where species of subgenus *Acacia* and subgenus *Aculeiferum* co-occur in large numbers, it will be less confusing (or certainly no more confusing) if all taxa change their names simultaneously, rather than just half. That is, *Acacia* as a formal generic name would disappear from these areas (species of subgenus *Acacia* would become *Vachellia*, and most species of subgenus *Aculeiferum* would become *Senegalia*). The common name *Acacias* could obviously continue to be used informally for the whole complex. It is worth noting here that in some areas of the world species of subgenus *Acacia* and subgenus *Aculeiferum* (*Senegalia*) grow side by side (i.e. they are sympatric) and if the current classification is retained it might be expected that in such cases some confusion would reign for a substantial time, while users determine which *Acacias* are 'real' *Acacia* and which are *Senegalia*. In Africa this sympatry is illustrated, for example, in Acocks (1988: 46, fig. 30) where *A. erioloba* and *A. hebeclada* (both *Acacia*) are photographed with *A. mellifera* (*Senegalia*) as components of Kalahari Thornveld vegetation. It is important to remember here that regardless of whether or not our proposal to retypeify *Acacia* is accepted, more than half the species that occur naturally outside Australia will have to change their generic name (most will become known as a *Senegalia*).

Racosperma is the name that Pedley proposes be used for most Australian species following dismemberment of *Acacia*. This of course would only become an issue if the Committee rejects our argument to retypeify the genus. Nevertheless, if the name *Racosperma* were to be adopted for the Australian species there is an issue relating to the gender of this name that will lead to confusion and nomenclatural instability at and below the species level. The name *Racosperma* has a neuter gender so if this name is adopted then the endings of the names of most current species, subspecies and varieties will have to change. For example, *Acacia pycnantha* would become *Racosperma pycanthum*, *Acacia axillaris* would become *Racosperma axillare*, and so on. This will add substantially to the costs of herbaria and other institutions that have to update records because it will not be a simple 'global replace' of *Acacia* to *Racosperma*, each taxon will have to be considered individually. Furthermore, a potential source of confusion will be introduced, through those (non-classically aware) who interpret *Racosperma* as feminine and try to match the termination

accordingly. Thus *Racosperma angustum* would be the correct form of the name of the species, but inevitably many will "correct" this to *Racosperma angusta*. This would be repeated across nearly 1000 new combinations.

Conclusion

Name changes will occur as a result of the fragmentation of *Acacia*, and in such a large and ecologically dominant genus these changes will have significant worldwide impact. Regardless of what decision the Committee for Spermatophyta makes regarding our proposal to reclassify *Acacia* there will be those who will be disadvantaged by the coming name changes, and this is certainly unfortunate, but is unavoidable. The purpose of our proposal, however, is to minimize deleterious effects worldwide.

If most Australian Acacias have to change their generic name (perhaps to *Racosperma*) it will impact very considerably on this country, apart from the nomenclatural disruption and financial costs that have already been alluded to. *Acacia* is by far the largest vascular plant group in Australia, representing about 18.5% of the whole flora. These species are ubiquitous within the continent and are especially conspicuous in arid and semi-arid regions where they often dominate the landscape. *Acacia* features in virtually all floristic and ecological papers written over the past two centuries and there is a huge literature on the genus. Although a new generic name will not make this existing information inaccessible or useless, it will require that some publications at least will need to be revised. The best examples of this are the recently published Flora of Australia volumes and the associated interactive electronic key, WATTLE. These are major works, expected to be the key references to the majority of the species in the genus/genera for years to come. Finally, *Acacia* features strongly in folklore and traditions within Australia, and one species (*A. pycnantha*) is legislated as the national flower (green and gold, based on the predominant colours of most Acacias, are the national colours).

References

- Acocks, J.P.H. (1988). Veld types of South Africa. Memoirs of the Botanical Survey of South Africa No. 57. (Cape Town.)
- Chappill, J.A. (1995). Cladistic analysis of the Leguminosae: the development of an explicit phylogenetic hypothesis. In M. Crisp, and J.J. Doyle (eds) Advances in Legume Systematics 7: Phylogeny, pp. 1–9. (Royal Botanic Gardens, Kew: London.)
- Chappill, J.A. and Maslin, B.R. (1995). A phylogenetic assessment of tribe Acacieae. In: M. Crisp and J.J. Doyle (eds) Advances in Legume Systematics 7: Phylogeny, pp. 77–99. (Royal Botanic Gardens, Kew: London.)
- Greuter, W. et al. (2000). International Code of Botanical Nomenclature. (Koeltz Scientific Books: Koenigstein, Germany.)
- Low, T. (2002). Wattle become of *Acacia*? Nature Australia, Spring 2002 issue, pp.28-29.
- Luckow, L., Miller, J.T., Murphy, D.J. and Little, D.P. (in press). A molecular analysis of the Mimosoideae. Advances in Legume Systematics 10. (London.)
- Maslin, B.R. (1989). Wattle become of *Acacia*? Australian Systematic Botany Society Newsletter 58: 1–13.
- Maslin, B.R. and McDonald, M.W. (in prep.). Evaluation of *Acacia* as a woody crop option for southern Australia.
- Maslin, B.R., Miller, J.T. and Seigler, D.S. (in press). Overview of the generic status of *Acacia* (Leguminosae: Mimosoideae). Australian Systematic Botany.
- McDonald, M.W., Maslin, B.R. and Butcher, P.A. (2001). Utilisation of Acacias. In A.E. Orchard & A.J.G. Wilson (eds) Flora of Australia Volume 11A, Mimosaceae, *Acacia* part 1, pp. 30-40. (ABRS/CSIRO Publishing.)

Midgley, S.J. and Turnbull, J.W. (in press) . Domestication and use of Australian Acacias: an overview. Australian Systematic Botany.

Miller, J.T. and Bayer, R.J. (2001). Molecular phylogenetics of Acacia (Fabaceae: Mimosoideae) based on the chloroplast MATK coding sequence and flanking TRNK intron spacer region. American Journal of Botany 88(4): 697–705.

Pedley L (1987). In defence of Racisperma. Bulletin of the International Group for the Study of Mimosoideae 15: 123–129.

Pedley L (1989). Racisperma again. Australian Systematic Botany Newsletter 59: 1–2.

Woodford, J. (2002). Wattle they call it? Icon with a name that came out of Africa. The Sydney Morning Herald, Weekend Edition Nov. 9-10 2002, page 9.

Seed Bank

Hazel Kelly has begun trials on the vigour of seedlings from old and recent seed with three species of acacias from the Seed Bank - *A.gittinsii*, *glaucoptera*, *juncifolia*. One batch of seed from each species trialled is 20 years old and the other was collected in 2001. Hazel's preliminary results are very well presented and the trial is continuing. Any other takers?

Some time back **Stephen Shugg** sent some seed of *A.gunnii* and I forwarded it out to a couple of members. Stephen has grown some of the seed himself and is not sure that it is *A.gunnii*. This was the only seed of *gunnii* sent out from the seed bank. If you are growing some please check them out. I would like to emphasise again that it can never be assumed that the name on a seed packet is correct particularly with commercial seed. Even in the Study Group Seed Bank some species have quite different looking batches of seed. If I send these out I will send seed from the different batches separately and warn the recipient. If these are grown and identified it helps to sort out the Seed Bank.

Lyn Thompson sent a few seeds of *Acacia blayana*. These are attractively packaged in a colourful envelope by NSW APS member John Blay for sale at markets etc. The envelope gives propagating instructions as well as a description of the plant and its preferred growing conditions. A marvellous way to introduce people who like to 'grow their own' to different natives!

The species is described as a handsomely shaped tree with golden flowers and very attractive bluish-silver foliage. It is extremely fast growing and prefers heavy or humus rich soils. It can withstand heavy frost and snow.

According to the 'Wattle' disc this species has a limited distribution in southern coastal NSW in Wadbilliga National Park at 200 – 600 m altitude in skeletal, rocky soils or in tall open forest.

Does anyone have conditions that might suit this tree? I would love to try it myself but not in my conditions.

New Members

Olive Fowler Box 226 P.O., Camden, NSW 2570

Olive is a member of the Macarthur Group and also helps at the Mt Annan Botanical Gardens where there is a very good wattle garden.

Aileen Phipps 62 Scylla Road, Oyster Bay, NSW 2225

Aileen is a member of the A.P.S. Sutherland Group and also works for the local Joseph Banks Native Plant Reserve maintained by the council. She sent an attractive coloured brochure produced for the reserve which includes a self guided walk. The reserve comprises 2.2 hectares of typical Hawkesbury sandstone country. There are 10 species of acacias growing in the reserve and it is hoped to add some of the smaller growing species.

Aileen's group has sent a \$50 donation to the Acacia Study Group which is greatly appreciated.

Christine Wadey 49 Allison Cres, Nth Eltham, Vic 3095
Christine is a rejoining member.

Black and White Photos – coloured in email

Plates 1 and 2

This is the larva of a moth *Neola semiaurata* feeding on *A.gittinsii*. It is about 6cm long and an orange fawn colour with black and white trimmings. In **Plate 1** it had been feeding and is at rest. In **Plate 2** it is disturbed and has thrown back its head and opened an eyespot near the tail as well as protruding a pink/purple forked structure from below its head. The eyespot is below the dorsal spike near the end of the larva and in the undisturbed larva appears as a black slit. In the disturbed larva it has opened out to an elongated spot and makes the rear end of the larva look like another head.

This caterpillar feeds on a number of acacias and some dodoneas from central Qld to southern NSW. The adult is a medium sized moth with dark grey patterned fore wings covering bright yellow hind wings.

I never have the heart to destroy these caterpillars even though they consume quite a bit of foliage. They are such fascinating insects.

Plate 3 This looks like a mealy bug but is actually one of the good guys. It is the larva of an insignificant ‘lady bird’ beetle (*Cryptolaemus montrouzieri*) known as the ‘mealy bug destroyer’. The beetle is only about 4mm long and is orange/brown with near black wing covers. The larva grows to about 14mm and mimics its prey in that it is covered in waxy filaments. It can be distinguished from mealy bugs by its larger size, longer waxy threads and its greater mobility. This one was quite active. Both adults and larvae eat all stages of mealy bugs. They are so successful that they are now available commercially as a form of mealy bug control and have been exported to the USA in this role. Though some ‘lady bird’ beetles and their larvae are leaf eating pests the majority eat aphids, mealy bugs, scales and other small insects. This larva was on a wattle but can be found where ever suitable mealy bugs are present.

Plate 4 This is a colony of wattle tick scales. They are quite distinctive in appearance, about 7mm long, whitish or brown and globular in shape. These are best removed as soon as they are sighted by squashing or rubbing off. This is easily done by hand while numbers are small though the large size of the scales makes it a bit messy and a rubber glove is useful. If left, they reproduce rapidly in warm weather and can smother small branches in a short period and become very hard to eliminate. As with all bugs that produce honeydew as a byproduct of their plant sucking habit the first obvious sign of their presence is ants. These bugs occur on a number of different acacias in subtropical and temperate regions. This colony was on *A.implexa*.

Plates 5 and 6

Have you ever wondered what hatches from the clumps of eggs you find on your acacias? In this case (**Plate 5**) it’s a batch of bugs (Family Pentatomidae) which are just moving away from their egg shells (towards the bottom of the photo). **Plate 6** is a much older version (about 20mm) but still a nymph as the wings have not yet developed. The bugs in this family are known as ‘stink bugs’ for reasons that become obvious if they are molested. A few are predatory but the majority are plant suckers and can cause wilting and death in new shoots by a combination of the injection of toxic substances in their saliva and feeding. However they are rarely present in large numbers and easily removed. These were feeding on *A.gittinsii*.



1.



2.



3.



4.



5.



6.

Coloured plates

Plates 1 and 3 *A.vestita* – Hairy wattle, Weeping wattle or Boree

A very attractive species with small grey green phyllodes on weeping branches. The flowers are small, golden and prolific. It grows up to 4 m with a 3m spread.

According to the ‘Wattle’ disc it occurs on the western part of the Great Divide from near Dunedoo south to Yass, also further south from Delegate to Bega. It usually grows on rocky hillsides in *Eucalyptus* woodland or open forest.

The Study Group archives indicate that it has been grown successfully in a variety of soils from sandy loam to heavy clay and in areas from Tas to NSW. Rainfalls varied between 650 and 1500ml and temperatures down to minus 8 degrees were tolerated.

This is a widely cultivated, adaptable species.

The plant shown is about 2.5 metres high and about 4 years old. It is growing on a ridge in shallow, sandy loan over granite in inland SE Qld at Booie. The soil is subject to water logging after heavy rain but dries rapidly. The species has proved very drought hardy in these conditions.

Plates 2 and 4 *Acacia cardiophylla* – Wyalong wattle

This is one of the very attractive acacias with true leaves. The leaves are small and the flowers though not large are plentiful and golden in colour.

It grows to about 3 metres with a similar or wider spread if grown in the open

According to the ‘Wattle’ disc it occurs on the central and south western slopes and south western plains of NSW. It grows in Mallee communities, on open plains, foothills or ridges, especially in moist situations and on stream banks, in red sandy loams or gravelly clays.

According to the Study Group archives it has been grown successfully in sand near a beach, sandy loam, sandstone, clay loam, alluvial clay and grey clay. It has been grown from Biloela in Qld to a number of places in Tasmania and has coped with temperatures down to minus 6 degrees and some snow. Rainfalls have varied from 420 to 1225mm per year.

This is obviously a very popular and adaptable species but reports of its success in clay soils come from areas of winter rainfall.

The plant shown here is one of a group, about nine years old and 3 m tall grown at Booie. They are growing in very shallow sandy loam over light clay and granite. They have proven very drought hardy and not yet succumbed to insect attack. They managed to flower well even in the present drought but I have never collected a large quantity of seed from them even in good seasons.

Plates 5 and 6 *A.lineata* – Streaked wattle

One of my favourites because of its small size, dense, bushy growth habit, attractive small phyllodes and heavy flowering. It grows to about 2 metres with at least a similar spread and produces masses of small golden flowers.

According to the ‘Wattle’ disc it has a scattered occurrence from the Eyre Peninsular in SA, through NW Vic and NSW to near the Carnarvon Ra. in SE Qld. It grows in a variety of habitats.

The Study Group archives indicate that it has been successfully grown from SA and Tas. to SE Qld in a variety of soils from sand to clay including calcareous sands. Rainfall has varied from 420 to 1500ml per annum and temperatures from minus eight degrees to 47 degrees.

Again a very popular and adaptable species.

The plant shown here is a young one growing in inland SE Qld at Booie. Its flowering, in this photo, has been reduced by drought. It is growing in very shallow soil over granite that is subject to rapid drying and also water logging. My original six plants became too lush after a couple of weeks of water logging and were flattened by subsequent very heavy rain. They didn’t die but lost a few branches. They seem to be remarkably free of insect attack.



1.



2.



3.



4.



5.



6.