

ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS**ACACIA STUDY GROUP NEWSLETTER No. 81****November 2001****Dear members**

First of all I must point out that the last newsletter (August) was actually number 80 not 79 as it was labelled. I badly need a proof reader.

Congratulations to members Warren and Gloria Sheather on their success in the Gardener of the Year Award promoted by ABC TV's 'Gardening Australia' Programme.

My thanks to the members who have contributed to this newsletter and in particular to Warren and Gloria who have contributed a coloured plate. I am quite happy to continue using photos from SE Qld but it does give a limited view of the huge range of wattles in Australia so their contribution is much appreciated. In some cases the plates are not as detailed as they could be because of their small size. However the originals are stored and can be printed out at any size if required. I have tried coloured photocopies this time. This is cheaper than printing and the reproduction seems to be excellent if the machine is serviced regularly. Unfortunately some of the copies this time have faint horizontal lines.

As I newcomer to putting together Study Group newsletters I assumed that I needed permission to use parts of members letters. I have only recently realised that is not the way things are done and anyone who writes can expect to appear in print. My apologies to members who have written of interesting experiences and not had them included in the newsletter. No one will escape in the future.

An article on how to describe your soil is included in this newsletter. Obviously this a huge subject and the article only gives a superficial coverage but it is useful in the comparison of growing conditions when it is combined with climatic data. I am sure the majority of members have a good knowledge of their soil but I was certainly caught out with my present block of land. I made quite a few assumptions when I first started planting and a large number of plants suffered before I realised my mistakes. A major one was the assumption that because the land was on a ridge and the soil was shallow it was well drained. The sandy topsoil overlies an impervious clay layer and the transition between the two layers is very abrupt. After about 6 inches of rain the topsoil becomes saturated and moves like a stiff jelly as you walk on it. The water continues to flow through this layer above the clay for days and dry area plants don't appreciate that at all. I have a strip of well drained soil through the middle of the block and it is now being intensively used for plants from arid areas.

News from members letters**Pat Barry – Brisbane**

Pat Barry sent a cutting from the Brisbane City Council Newsletter 'The Regenerator' which discusses the replanting of an inner city site with a number of butterfly host species including ' a number of acacias which are hosts for a variety of blue and jewel butterflies'.

Pat writes – ' My butterfly book mentions *A.flavescens* and *A.holosericea* as host plants for jewel butterflies in the S.E. Qld Region.

It would be interesting to hear from landowners and gardeners which other Acacias attract butterflies in their area. Another good reason for using Acacias in regeneration areas?'

Arthur Dench – Werombi

I am endeavouring to include in my garden a number of acacias, many hopefully, that I shall raise from seed obtained from your seed bank. Thank you for your prompt reply to my request for seeds.

In my garden *A.macradenia* (zig zag wattle) has been a picture – now a 2 x 2m near perfect specimen. *A.glaucoptera* (clay or flat wattle) is showing great promise after 9 months. A row of some 15 *A. spectabilis* (mudgee wattle) is now in full bloom but could be better if planted on their own with more room and sun. Undoubtedly they grow better with friable and improved soil but whether this is detrimental to their longevity is something to observe in the future. They suffered at first with an infestation of processionary caterpillars. These were easy to eradicate – a hoe type fork exposed them inside their protection of a massed web then a spray of Woolworths Household Fly Spray did the trick.

As time progresses I shall let you know of my garden's successes, failures, aspirations and experiments that I may carry out.

Bob O'Neill – Wandin

Bob O'Neill describes a heated propagation unit he has used during the Victorian winter.

It is approximately 6 x 3ft. The bottom heat unit is a tray with bottom drainage and heating cables clipped to a light mesh covered with coarse sand. I purchased the frame and the steel mesh to fit from the previous user but it required repairs. The heating cable had been prepared to the required length so I had to clip it to the mesh. A sheet of polystyrene was first fitted to the base to reduce heat loss. Drainage holes were cut in the sheet. The heating system was installed by an electrician using an earthed 240 volts supply controlled by a thermostat. There are two spray units controlled by an evaporation device which cost \$200. Coarse sand is used to cover the heating cables to a depth of approximately three inches. It cost me all up about \$600. Capacity for me would be about 1400 cuttings at a time, which is in the realm of the keen amateur but definitely not professional. Other commercial systems may be purchased that cater for much smaller requirements. The thermostat is set at 25 degrees. Exposed surface temperature reaches 25 degrees on a mild day, during a cold night dropping to 8 degrees, which really surprised me. I find that the advantage of the heated system is that I can take cuttings at all times of the year but on the other hand poor hygiene can cause considerable losses.

Bob and Dot O'Neill have a large number of acacias and other natives on their 8 acre property "Katandra Gardens" in the Yarra Valley/Dandenongs. For further information see:

<http://www.katandragardens.com.au>

Brendon Stahl – Birregurra

Our APS group, Colac/Otway created a native display on the 6th of October at St. Mary's Garden Expo in Colac. I was requested to be one of the guest speakers on the day and spoke about the Centenary of Federation in relation to wattles. Topics covered were the formation of the Wattle Club, Wattle Day, use of wattle's colours as national sporting colours, *Acacia pycnantha* as the national floral emblem, wattles being part of the coat of arms, and the insignia of the Order of Australia being based on an individual ball of wattle flowers.

I then spoke of the uses of wattles, how the aborigines used them and the benefit of wattles to sugar gliders, butterflies, birds, apiarists, and eucalypts. This included encouragement for more people to grow wattles.

Four Small Acacias.

from Warren and Gloria Sheather

Not all Acacias are medium to tall shrubs. Many species have a maximum height of a metre or so and are small enough to be accommodated in most gardens.

Acacia flexifolia is one of our favourite wattles. Small bent phyllodes and lemon yellow flowers characterise this species. The flowers appear in late winter and we regard this wattle as a herald of spring. *Acacia flexifolia* is a native of the Western Slopes and Plains in New South Wales and extends to central Victoria. There is also a small population west of Armidale. Propagate from seed and cuttings.

Acacia lineata is a spreading shrub with small, tightly clustered phyllodes and masses of golden yellow flowers in spring. Some of our specimens have spreading branches up to a metre long. In spring the foliage is hidden by the mass of flowers. *Acacia lineata* is a native of the Central and Southwestern slopes of NSW. There are also populations in Victoria, Queensland and South Australia. Propagate from seed and cuttings.

Acacia dawsonii is a native of the Northern Tablelands of NSW, northeastern Victoria and possibly southern Queensland. *Acacia dawsonii* is a small shrub with upright branches, long narrow phyllodes and golden flowers. Each inflorescence has 4 to 8 individual flowers. We have been observing a population east of Armidale for at least 20 years. In that time this wattle has advanced west towards Armidale. The population has increased at least four fold. In spring the roadside glows with the flowers of metre high *Acacia dawsonii*. Propagate from seed.

Finally we have *Acacia imbricata*. We bought a cutting grown plant about two years ago. The plant is now 50 cm tall and has many upright stems with no definite trunk. Each stem is covered with masses of golden yellow spring flowers. Flowering commences at the base of each stem and flows towards the top. *Acacia imbricata* comes from South Australia. The species name refers to the overlapping phyllodes. Propagate from cuttings to retain the desirable characteristics.

Seed Bank

Please don't forget about the Seed Bank when your acacias set seed. Any contributions will be gratefully received. I'm not sure that I will have much to collect myself as the birds, parrots in particular, are getting in ahead of me. They tend to remove the pods before they are mature and are quite wasteful. While the seeds are removed from many pods others are just nipped off and dropped. The photo shows pods picked up under *A. bancroftii*.



The following are additions to the Seed Bank –

Acacia alcockii	leptalea
alleniana	limbata
applanata	lineariifolia
aulacophylla	marramamba
baxteri	megalantha
beauverdiana	obtecta
cabbagei	olsenii paraneura
camptoclada	parvipinula preissiana
coriacea var sericophylla	ptychoclada
cupularis decora	quadrilateralis
deficiens	quadrimarginea
demissa	quadrisulcata
dimidiata	sabulosa
enervia ssp explicata	sibina
gemina	sphacelata
gonocarpa	synchronicia
hamiltoniana	tetraptera
hexaneura	triquetra
hilliana	tropica
huegelii	verricula
hystrix	wanyu
intricata	wickhamii
jensenii	wildenowiana
johnsonii	williamsonii

Also a number of other species now have seed of 2001 vintage in the Bank.

This seed is from a number of sources including commercial.

Describing the land upon which acacia's grow.

by Peter Zund

(Peter is a Soil Scientist at present involved with soil mapping for DNR in Queensland.)

When comparing Acacia's or any other plants across Australia, it is essential to give a good description of the environment they grow in. Climate and soil are the two main environmental factors. This article attempts to set a simple soil description standard, which Acacia enthusiasts can use across Australia.

The main soil attributes required to compare sites across Australia are, soil depth, colour, texture (clay %), pH, landscape position and parent material of the soil. To be able to describe these attributes adequately, we need a good view of the soil profile. Select an observation point as close as possible to your *Acacia* plants. Soils can change rapidly over short distances.

Soil Observation

To get a good observation of your soil, you could try one of the following:

Road cuttings: By far the best, where available, usually found in hilly country. You may need to clean up the face, by removing soil smearing marks and plants, cut back with a spade.

Root mounds: Good in highly disturbed country; they are found where large fallen trees have pulled up the soil caught in its roots. *Root mounds* often show the various soil layers, prior to the land being disturbed.

Post holes, phone cable trenches, and building foundation works: Good for observing soils when they are open. Alternatively, samples of subsoils are often left behind on the surface surrounding existing fence posts. These can be used to map subsoil changes across a property.

Termite mounds: indicate how subsoils change across a property as well. If none of the above are available:

Hand auger holes: Auger to at least one metre, lay out soil in order on a plastic trap. Check depth as you auger and mark with sticks at 30cm intervals. If you have to auger soils, pick the wet time of the year when soils are softer.

Shallow pits: dig to about half a metre (when soils are moist). Remove any smear marks by breaking off soil from top down.

Soil Description

Soils are usually made up of a series of layers sitting on weathering rock or sediment. We should describe each layer separately noting the depth, colour, texture and pH.

Parent Material

Rock or sediment from which soil is derived from. For example sandstone, granite or slate. Local geology maps may help. Local libraries may have a copy.

Landscape position

Record where in the landscape your site is. This will influence soil drainage and wetness. Describe as:

On hillslopes or sloping plains:

Lower slope – often where water seepage occurs

Upper slope – upper third of slope but not on crest.

Crest

Mid slope – if none of the above.

On level plains:

Scroll – banks, ridges

Swale – depressions

Flat – none of the above.

Soil Depths

Measure the extent of each layer within the soil until you reach the *parent material* (see above).

Soil Colour

Record the dominant colour of each layer. Some soils are mottled with other colours. Record only the most abundant colour. Describe as red, brown, orange, yellow, grey or black. To confirm colours, compare with coloured paper.

Soil Texture

To estimate the texture of a soil (amount of sand, silt and clay in soil), take a handful and moisten it with water a little at a time. Knead the soil and continue to moisten the soil until you have a ball of soil that is moist all the way through, but not wet. Work the soil by pressing between your thumb and forefinger to produce a 'ribbon'. Check the length of the *ribbon* you are able to form before it breaks. Also note the feel of the soil, is it sandy, sticky, or silky (like plasticine). From the table below determine texture.



Photo No 1 shows a moistened soil sample rolled into a ball.

Photo No 2 shows the soil ball being flattened out into a ribbon.

Photo No 3 shows the soil ribbon starting to break up.

Texture	Behaviour of moist soil	
Sands	Ball Feel Ribbon	Nil to slight coherence Sandy, nil to very slight stickiness Very short, less than 10mm
Sandy loams	Ball Feel Ribbon	Can be handled reasonably without breaking up Sandy with some stickiness To about 15mm
Loams	Ball Feel Ribbon	Smooth or spongy, coherent Slightly sandy, silky, moderately sticky To about 25mm
Sandy clay loams	Ball Feel Ribbon	Coherent, not quite plastic Slightly sandy, moderately sticky About 25 to 40mm
Clay loams	Ball Feel Ribbon	Coherent, plastic Smooth to silky About 40 to 50mm
Light clays	Ball Feel Ribbon	Plastic, easily worked/deformed Sticky About 50 to 70mm
Medium to heavy clays	Ball Feel Ribbon	Smooth, plastic, difficult to work/deform Very sticky To about 75mm

After Draft Management Planning Core Workshop, QDPI. 1996.

Soil pH

Using a simple pH field kit available from home gardening supplies for approximately \$20, measure soil pH for each layer.

Growth of Acacia's is affected by the soils' effective rooting depth, water retention capacity, drainage and fertility. From our site descriptions we can now evaluate how our soils rate for each of these soil conditions. This is the subject of the next part of this soils article.

Soil Description Sheet

Site Details

Location:.....

Species.....

Type of observation (*circle*): road cutting, root mound, auger hole, pit, other.

Other.....

Parent material:.....

Landscape Position: *Pick from one list only*

Hillslopes and sloping plains

- Lower slope
- Mid slope
- Upper slope
- Crest

Plains

- Scroll (bank, ridge)
- Swale (depression)
- Flat

Soil Description:

Layers	Depth (cm)	Colour	Texture	pH	Notes
<i>Example</i>	<i>0-30</i>	<i>Grey</i>	<i>Sandy loam</i>	<i>5</i>	<i>Lots of mottles</i>
Surface					
Subsoil 1					
Subsoil 2					

Part 2 – What does it all mean?

Interpreting your soils growing condition is the subject of this part of the discussion on soils and Acacia's. Sometimes different soils have similar growing conditions, for example a deep sand from Western Australia and a shallow sandy surfaced soil with a heavy clay subsoil from coastal Queensland could both be consider as having a low water retention capacity, making them droughty soils and suitable for Acacia's from arid regions.

By working through the table below and then filling out the soil condition statement below that, you should be able to describe the soils condition. The table has five questions about your soil, each question relates to one or more soil attributes, as described on your soil description sheet, find the attribute description which best describes your soil and then note the associated growing condition in the statement below the table.

Question	Soil Attribute	Attribute description	Growing Condition
1. Effective soil depth	Depth to rocky layer	<30cm	Shallow
	Depth to clay subsoil 1	Medium to heavy clay layer at a depth of <30cm	Shallow
	None of the above		
2. Soil reaction	pH	< 5.5	Acid
		5.5-8.5	Neutral
		>8.5	Alkaline
3. Drainage	Colour of subsoil 1 and landscape position	Red, Brown, Orange	Well drained
		Yellow	Imperfectly drained
		Grey	Poorly drained
		Black colour and upper to mid sloping or scrolls on plains	Well drained
		Black colour and flat plains or swales	Poorly drained
4. Water retention capacity	Texture of surface layer and effective soil depth	Sand, sandy loam	Low
		Loams, sandy clay loam, clay loams	Moderate
		Loams, sandy clay loam, clay loams and shallow soil growing condition as per Q1.	Low
		Light to heavy clays	High
		Light to heavy clays and shallow soil growing condition as per Q1.	Moderate

After having selected the appropriate conditions, form a statement of your soils growing condition by inserting the growing conditions into the sentence below,

_____ ¹, _____ ², _____ ³, *drained soil with a* _____ ⁴, *water retention capacity on* _____ parent material .

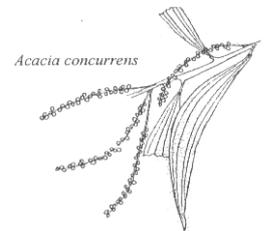
For example:

Shallow ¹, **acid** ², **poorly** ³, *drained soil with a* **low** ⁴, *water retention capacity on* **granite** parent material .

Along with your soil description and statement on growing conditions you should also discuss your climate.

The Moth *Gnamptoloma aventiaria* (Geometridae)

The following article is reproduced from the newsletter of The Butterfly and Other Invertebrates Club with the permission of the author, John Moss. It illustrates another reason why acacias tend to have a poor seed set. For those who are not into butterflies, Lycaenids belong to a group of butterflies which includes Blues, Coppers, Azures and Hairstreak



During a survey, by Bob Millar and the writer, of lycaenid larvae feeding on flowerbuds of the wattle *Acacia concurrens*, near Landsborough South-East Queensland in May 2000, a small but interesting geometrid larva was found.

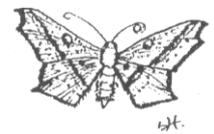


Larva – enlarged x5

This “looper” cryptically shaped and patterned in green and yellowish-brown was as difficult to see on the blossoms as were the larvae of the four species of lycaenids encountered. The lycaenids were *Prosotas felderi*, *P. dubiosa*, *Sahulana scintillata* and *Nacaduba biocellata* (Felders, Small Purple, Glistening and Double-spotted Lineblues) – which all had very similar larvae shaped and coloured like the flower buds on which they were feeding. These will be the subject of another article.

The larvae are more easily obtained by shaking or beating flowers over a sheet placed under the tree, but Bob and I found it a challenge and more sporting to find them by peering into flower spikes! (Sceptics may accuse us of not bringing a beating sheet!!)

The adult moth, *Gnamptoloma aventiaria*, is about 25mm across the outspread forewings, and has at least three colour phases – olive green, tan and reddish-brown. As can be seen from Lois Hughes illustration the forewings are unusually scalloped on the outer margin near the apex, whilst both fore and hind wings are quite angular. There is a good colour illustration in Common’s Moths of Australia (1990).



Moth - actual size



Pupa – enlarged x 3

Common records the species distribution from north-western Australia and the Northern Territory, and from Cape York Peninsula to northern N.S.W. It also occurs in India, Sri Lanka, Taiwan and south-east Asia. There is no mention of a host plant in Common, so it appears that this is the first such record for Australia.

A second species of moth larvae (about 12mm long) was also found on flower buds. This species has a most unusual habit of carrying its faecal pellets on the ends of the setae (body hairs) looking much a pin cushion. No doubt this is a very effective way of disguising itself – i.e. the cryptic appearance of dead or discoloured flower buds.

The presence of at least 4 butterfly and 2 moth larvae on this *Acacia* inflorescence is an indication of the species diversity that is often overlooked when we admire the pretty wattle flowers from a distance. I am sure many more species await to be discovered in this and similar situations.

Welcome to new and rejoining members.

Henri de Bono – Parc des Veysieres, 606 Ave Raymond Rolland
83700 Saint Raphael, France

Ki Cornwall – PO Box 230, Eudlo 4554

Marla Eden – 220 New Jerusalem Rd, Oakdale 2570

Hazel Kelly – PO Box 20, Moonbi 2353

Tam Kendall – PO Box 2002, Rangeview 3132

Cottony Cushion Scale – *Icerya purchasi*

(Homoptera, Margarodidae)

By Thais Eisen

See coloured plates 1- 3

This is the scale insect made famous as the subject of a very successful biological control program in America.

It occurs on a range of native plants including species of *Acacia*, *Eucalyptus*, *Grevillea*, *Hakea* and *Pittosporum*. It was accidentally introduced into America in the 1860's possibly on acacias and became a serious pest of citrus orchards. After attempts to eradicate it with DDT it was finally controlled in the 1880's by the introduction from Australia of a natural predator (the ladybird beetle *Rodolia cardinalis*) and to a much lesser extent a parasite (the fly *Cryptochetum iceryae*). Outbreaks have subsequently occurred in tropical and subtropical areas of a number of other countries and have been controlled by the ladybird beetle.

Cottony cushion scales are bugs with sucking mouthparts and the ability to reproduce rapidly. An adult lays several hundred eggs and two to three generations occur per year. In spite of this they don't seem to build up numbers which cause problems in Australia where natural predators and parasites occur. They do secrete honeydew on which sooty mould grows but this disappears when the scales are removed. The scales are soft bodied and easily removed by hand.

Perhaps Hybrid Acacias

from Warren and Gloria Sheather.

See coloured plate 4.

Over 10 years ago we were given seed of *Acacia covenyi* collected from the native population on the Southern Tablelands of NSW. One specimen was planted at Yallaroo about nine years ago. This plant has developed into a tall shrub with attractive foliage and yellow spring flowers. We collected seed from this plant and eventually three specimens, from these seeds were planted. This year they reached maturity and flowered. The flowers are similar to the parent but on close examination it was found that there were variations in the foliage. The foliage, of the seedlings, is different from each other and from the parent. One has small blue-green phyllodes similar in colour to the parent but much smaller. The other two plants have large green phyllodes different in shape to each other and to the parent. We are assuming that these seedlings are the result of liaisons between *Acacia covenyi* and other Acacias in the garden. We haven't reached any conclusions as to the other parents of these plants.

Coloured plates

Plate 1.

Adult cottony cushion scale with an egg sac on *A.maidenii*. The adult is the flattened reddish scale with some waxy covering to the left of the photo. The white fluted mass below and behind it is the egg sac. The two together were over 1cm long. The very small insect on the egg sac is a newly hatched juvenile. This adult is an hermaphrodite ie male and female and capable of self fertilization. Males are small, winged insects which are rarely seen. Following self fertilization all the offspring are hermaphrodite but if an hermaphrodite mates with a male both hermaphrodites and males are produced. After fertilization the adult begins to lay eggs and secrete the egg sac which ultimately dwarfs it. As the sac enlarges the insect is tilted until it is almost standing on its head.

Plate 2.

The egg sac has been peeled back from beneath the adult which looks moribund and lies on its back. Its head is towards the top of the photo and its antennae look like two short bristles. The pinkish objects in the opened egg sac are eggs and some newly hatched juveniles. These juveniles are very active and able to disperse to other plants by crawling, hitching a lift or blowing in the wind.

Plate 3.

A group of cottony cushion scales on *A.missneri*. An adult in the early stages of producing an egg sac is in the centre of the photo.

Plate 4.

Warren and Gloria Sheather's *A. covenyi* on the left and three hybrids on the right. See previous article.

Plate 5.

A group of three *Acacia gittinsii* growing in shallow soil over granite at Booie near Kingaroy. Details of the soil and climate have been given in previous newsletters.

Plate 6.

Close up of *A.gittinsii* in flower.

A. gittinsii is confined naturally to the Blackdown Tableland in Queensland and grows on sandstone with a preference for moister areas. It was first described in 1964. With its fine phyllodes and semi weeping foliage it is one of my favourite wattles. The plants shown here have been fast growing in spite of periods of very dry conditions. They are five years old and measure approximately 3 x 3m. This is considerably larger than the height of 1 to 2m usually quoted. They never fail to flower heavily and are not suffering badly from insect attack – yet. Flowering has just finishing in mid October which extends the ‘wattle season’ considerably.

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