



Association Of Societies For Growing Australian Plants

# Banksia Study Group Newsletter

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Dear all,

Yes I know this newsletter is also late – I will get this and another out before June 2009. The new Banksia book has been published and is available in bookshops now – enjoy!

### Rare & Threatened Banksia #12 – *Banksia benthamiana*

*Banksia benthamiana* is a rare species found northeast of Perth; a large shrub or small tree, it has showy inflorescences yet is almost unknown in cultivation.

**Description:** It is a nonlignotuberous shrub which ranges from 1.8 to 4 metres tall. The roughly flaking bark is grey, and the stems are tomentose. Borne on a 5–15 mm long petiole, the leaves are 10–25 cm long, and 5–10 mm wide, acute, with flat margins that are shortly serrate to entire. Both the upper and under leaf surfaces are densely pubescent, and become smooth. Flowering occurs from November to January. The inflorescence arises on short lateral branchlets, and is 5–10 cm high; involucral bracts are tomentose and persistent. Both the individual flowers and styles are a gold to orange-brown colour. The perianth is 20–24 mm long including limb of 4–5 mm, pubescent outside, hirsute inside along margins. Pistil curved, 23–26 mm long, glabrous; pollen presenter narrow, 1.5 mm long, finely ribbed. Old flowers persistent. Old cones may bear up to 130 follicles, which are narrowly elliptic, 10–15 mm long, 3–5 mm high, 3–5 mm wide, smooth, tomentose. The seed is obovate, 17–19 mm long; and seed body cuneate.



**Taxonomy:** *Banksia benthamiana* was first described by Charles Gardner in 1964 from a January 1940 collection near Dalwallinu. He named it in honour of George Bentham (1800-1884), author of *Flora Australiensis*.

It has been traditionally considered to be closely related to *B. ashbyi*, a larger shrub with larger, more deeply-lobed leaves, bright orange flowers and wider, more rounded follicles. Probably related also to *B. audax*, a much smaller species with pubescent-hirsute perianth. Using morphological cladistics, Kevin Thiele placed it in a group with *B. audax* and *B. laevigata*, based on very small distinctive seedling leaves, and linear pollen presenters. This group was supported in Mast and Givnish's 2002 molecular study. The position of *Banksia ashbyi* was unclear in this latter study but it did not appear to be closely related.

**Distribution and habitat:** It is found in scattered populations between Mullewa and Kulja, W.A. It grows on plains in shrubland, sometimes as the emergent plant, on brownish yellow sandy loam or clay-loam, sometimes over laterite. Many of the populations are small and on road verges. The annual rainfall in these areas is around 300 mm.

**Ecology:** Volunteers for the 1985 Banksia Atlas reported that moths and birds have been seen pollinating it.



**Cultivation:** Almost unknown in cultivation and unsuitable for small gardens, but can be grown in a container and is fast growing. A slightly acid deep sand or gravel soil is desirable.

**Conservation:** *Banksia benthamiana* is currently classified as **Priority Four - Rare**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors (though this could be argued otherwise in this case). These taxa require monitoring every 5–10 years. It was previously classified as threatened but has been 'downgraded'. Unfortunately, this has meant the species has not been closely monitored as limited resources are prioritised for threatened species.

There are 29 known populations, most of which are on road verges, however it occurs at the edges of land cleared for agriculture, so it is possible that further populations occur to the east and north in uncleared areas.

Potential threats include road widening in rural areas; the effects of prolonged drought are unclear. The region has had several years of drought and die-off of banksia populations in other areas has been noted in similar situations.

#### Grafting, summary of tips

Banksia grafting is still in its early stages of research, but we have more of an idea of what to try in future now than we did 10 years ago. However, grafters now are not truly thinking about horticulture - the trade has changed immensely and if the products are not constant (minimal variation height, flower colour etc) the idea of grafting banksia might not reach its full potential. i.e. Many people see a *Banksia menziesii* flower on the label, but a seedling might not be as bright or may be reluctant to flower and thus gets a bad reputation. It needs the right approach and marketing and most of all a consistent product before it can be truly accepted by the common non collector type person.

Victorian nurseryman Doug McKenzie was a pioneer in grafting and didn't have a market for this type of propagation. Remember, when Doug was doing his work, native plants were all tall straggly drop deaders with a life-span of 7 years. Doug unfortunately was way way ahead of his time, and horticulture wasn't ready for him. I had nobody to ask as when I started with banksia grafting all the people grafting (Besides Doug although I think some things he deemed incompatible weren't) kept all their cards close to their chest. I just had to work it out. I think passion and determination has a lot to do with success. I tried to pass on all the tricks but nobody seemed to expand it further.

Cotyledon grafting looked the most promising initially, and is still reasonably successful, but a combination of mature grafting onto a cotyledon rootstock can be just as reliable. I am the only bloke that tried it with pretty good success. Seems that people only want to work with the initial and published methods, maybe to make a name for themselves. Its gotta be commercially acceptable. A bit more than for the collectors or APS sales although that's a good start.

The downsides are two but they are big. Using seedling material means a long time till flowering, and also means that selected form or cultivar material can't be used from cuttings (seed can be used but it is not guaranteed a seedling will be the particular desired form). The trick is to insert the scion material into the hypocotyl of the stock. Misting can be used afterwards, even for hairy growth.

More recently, using more mature scion growth has been more promising. Here, the key is to use material where the newer part looks about ready to burst into growth - this often

occurs in spring.(Just after flowering is best although this does vary from species to species its an acquired art form of the propagator) It is important to have good alignment between stock and scion. *Banksia integrifolia* has been a good rootstock for many species, including the *prionotes* group, *brownii* and *solandri*. *Banksia speciosa* offers promise as an interstock - it can grow onto *Banksia aemula* the most easily but also *integrifolia*. *Banksia coccinea* has grown well initially when atop *speciosa* here. *Dryandra polycephala* is also promising as an interstock. Compatibility can be tested with approach grafting. I think that one of the so called incompatibility problems noted is rootstock suckering (With grevillea as well). This is a problem that should be addressed during initial cultivation. As the graft takes and shoots away, the rootstock must not be stressed in any way until the scion is growing sufficiently to support the rootstock. Care should be taken to cut any suckers off without too much damage to the young rootstock as any wound, although not detrimental, will heal and this spot is liable to sucker when exposed to the sun or under stress. It's a cultural thing.

### Banksia growing in Italy

Luca De Vincenzi writes:

I have been following Banksia since several years, both because they are wonderful flowers and because I consider them interesting for the growing. From this point of view it could be a finishing to the production of the southern hemisphere since here they bloom in opposite months than in Australia. In this area they successfully grow different species of Australian origin, such as eucalyptus and mimosa, some of them grown for cut branches.

I have to tell you from the beginning that my tests, for commercial production, have not obtained great success. Unfortunately the limits are given by the soil, clayey with high pH, which creates problems for the most interesting species.

I am sending you the coordinates to copy on Google Earth to locate the area in which I live: 43 48,0765' 7 40,0518'.

(*B. integrifolia* in snow – R)





For what concern the *B. ericifolia*, *B. media*, and *B. speciosa* I can say they grow without particular problems but the growth seems to me slow, unfortunately I have no parameters with whom I can make any comparisons. *B. prionotes* and *B. speciosa* reach 1,5 metres in height, and *B. ericifolia* and *B. media* reach around 1 metre. In all other cases I have has several damping-offs and very difficult growth. For what concerns the climate I can tell you that the temperature never goes below - 2 °C, and this may happen for a few days during all year and only during the night. The rainfall, as you well know, has become very variable from one year to the other and during the different seasons. During the last eight years we have suffered two floods alternated to drought years. The average rainfall of this area is approximately 700 mm yearly, but every year both for rainfall and for temperature it may change from the other.

I have personally experienced the following species:  
*Banksia integrifolia*, *B. marginata*, *B. prionotes*, *B. speciosa*, *B. spinulosa*, *B. ericifolia*, *B. victoria*, *B. media*, *B. hookeriana*, as well as *Dryandra quercifolia* and *Telopea speciosissima*.

The first plants I planted in 2001, they were 30-40 cm high. There were *B. integrifolia* and *B. marginata*, *B. prionotes* and *B. speciosa*. Two or three years later I planted *B. ericifolia*, *B. media*, and *B. victoria*.

Among all these species the only ones grown with success and without problems are the *B. integrifolia* and the *B. marginata*. The *B. marginata* has reached 2-2.5 metres in height. Some *B. integrifolia* are 3-4 metres high, but there is a lot of variability, and changeability.

(*B. integrifolia* inflorescence in snow- L)

(*B. ericifolia* buds in snow- below)



This area is in any case characteristic, for the temperature particularly favourable: in fact we have a winter temperature mild and summer temperature not particularly hot. Concerning animals, up to know I did not notice if there are mammalian or birds interested to flowers; is for sure that they are loved most of all by ants.

At the moment I have sown new species of *Banksia*, including *aemula*, *ashbyi*, *baxteri*, *caleyi*, *coccinea*, *menziesii*, *occidentalis*, *praemorsa*, *robur*, *sceprium*, *serrata*, and *spinulosa* as well as *Dryandra cuneata*, *formosa*, *wardiana*, *nobilis*, *polycephala*, *praemorsa*, and *quercifolia*. Meanwhile I would like to test these plants into a different soil from the one present in my property. At a few kilometres there is a hill with a sandy soil even if little deep.

### **Banksia growing in Strathmerton (update)**

Paul Kennedy has reported the following in May 30<sup>th</sup> 2008:

The Banksia collection here at Strathmerton has continued to prosper despite the dramatic changes in climatic conditions. We had no spring rains in 2007 and just when we thought we were going to have a very hot dry summer the rain clouds arrived in early December. Between December and the first week in February 190mm of rain fell in heavy downpours making up for the drought in the second half of 2007. However, summer was far from finished and the dry set in with a very hot March. Since then we have had very little rain and lovely sunny days which makes life in the garden very pleasant, apart from having to water a number of plants that are small or from wetter climates.

Thanks to a number of people we have added the following Banksias to our collection. *Banksia meisneri* ssp. *meisneri* and *ascendens*, *Banksia sphaerocarpa* ssp. *dolichostyla*, *latifolia*, "Badgingarra", *Banksia ashbyii* dwarf, *Banksia incana* ssp "shorterfolia", *Banksia leptophylla* ssp. *melleatica*, *Banksia littoralis* and *Banksia conferta* ssp. *penicillata*. So at this stage the only ones not growing here are *Banksia oligantha*, *Banksia elegans* and *Banksia croagingolensis* based on my assessment of the revision being done by Alex George. Considering the climate and soil types we have here, I have probably far exceeded expectations on how many Banksias should survive.

The tropical and sub tropical species have survived, but I did lose one plant of *Banksia aquilonia*. *Banksia dentata* is now nearly 1.6m high and seems to survive our frosty winters provided it has a plastic cover around it.

The *Banksia ericifolia* subspecies, *Banksia paludosa* and *Banksia spinulosa* group do not like our very hot summer weather and need to be grown in dappled shade. They also need to be watered regularly to survive. The *ericifolias* had their tips burnt after days of 40 degrees C plus heat. Other eastern species seem to be more tolerant of the heat and I am pleasantly surprised by the hardiness of *Banksia canei* growing in full sun which comes from a cooler mountain climate.

The ten year old specimen of *Banksia praemorsa* still refuses to flower despite being 3m high multi stemmed plant. Its close relative, *Banksia epica* flowers every year. Others that flower poorly are *sceprium* which puts out many flower spikes but they do not really open up. Considering *Banksia victoriae* and *ashbyii* flower profusely, I am surprised *sceprium* does not do likewise. *Banksia media* did not flower well this year either and I suspect the lack of spring rains may have been the cause.

*Banksia goodii* survives our summer heat by being permanently kept under shade cloth. I saw it growing in Western Australia as an understorey plant and believed it needed similar conditions here.

Both forms of *Banksia nutans* have flowered this summer and I have been delighted by their light pink pendant flowers. They set seed readily which is good news.

I have been trying to differentiate between *B. leptophylla* and *B. sphaerocarpa*. A visitor recently to our garden who is an artist with a special interest in Banksias pointed out that the dead flower material stays as a closely matted conglomeration around the flower spike and fruits that form in *sphaerocarpa* and in *leptophylla* the dead flower material stays in an open erect position similar to what is was in flower.

Another Banksia to flower over a long period this summer was *micrantha*. The Banksia book lists its flowering from January to May, but here it seems to start earlier and continue on into the winter. Unfortunately it is reluctant to set seed. Another that flowers outside its specified flowering period is *Banksia leptophylla* ssp *leptophylla* and I have had plants that have flowered for ten months. At

present many of the shrub type Western Australia Banksias are in flower and the effort put into growing them is rewarding.

Updated on November 4<sup>th</sup>:

I have been meaning to write and update on how things are going here. The drought continues and we are now in our tenth year of well below average rainfall. We had 200mm over summer in three large thunder storms and the Banksias took that quite well even though it had been hot and then to be soaked may not have been to their liking. After that we had a heat wave during late March and no rain fell to mid May, 20mm and then again in July, 40mm. There has been no spring rains and the ground is now bone dry. I just hope we get some more rain before the heat of summer arrives.

October has been particularly warm and that is not a good sign. The only losses during 2008 have been *Banksia brownii* and *spinulosa* var. *cunninghamii* which found the heat just too much. I have planted replacements in more shady spots. The Banksia collection has continued to be enlarged such that it now consists of about 97 species and varieties.

In May I added *Banksia ilicifolia*, *meisneri* var. *meisneri* and *ascendens*, *sphaerocarpa* var. *dolichostyla*, *latifolia*, and *badginaarra*, *incana* var. *shorterfolia*, *littoralis*, *leptophylla* var. *mellica* and *ashbyi* dwarf. All were planted in sandy loam with a car tyre around them to protect from rabbits and hares.

However I found in October that it was just getting too hot inside the tyres and the leaves were getting burnt. So I quickly removed the tyres and replaced with wire netting with a hessian cover on top. I have not had to do this previously, so it may be a result of the acute lack of soil moisture and early hot conditions.

Despite the prolonged drought, the Banksias with a bit of supplementary watering in really dry times have continued to grow and flower. *Banksia scabrella* has flowered for nine months and the prostrate *Banksia blechnifolia* and *petiolaris* continue to spread out across the ground. I kept my only plant of *Banksia integrifolia* ssp. *monticola* under shade cloth all the year, otherwise the leaves start to turn yellow because of the heat. It has flowered during May. When up at Dorrigo recently, I saw this form growing along roadsides in rich chocolate soils and of course associated with high rainfall. The other forms of *integrifolia* seem to be much more tolerant of heat.

I am gradually working towards getting the last few. I met a person recently who has been experimenting with grafting of Banksias and has had some good results. I think this will be the only way to grow *Banksia elegans* as seed is just so scarce.

The tropical and subtropical Banksias have survived another winter. They were covered with plastic sheeting around them and watered through the dry months. We did not have many frosts, the worst probably minus 2 degrees C. My fourth son is now living at Nana Glen near Coffs Harbour and he is keen to have the tropical Banksias growing there as a back up seed source in case mine die.

Whilst I was up at Nana Glen we went out into the bush on the sandstone escarpment and found populations of *Banksia oblongifolia* and *serrata*. There is a wealth of flora there including many species of the pea family.

And another update on February 7<sup>th</sup> (hottest and windiest day for many years)

Since I wrote to you we have had extremes of weather. In November and December 150mm of rain fell and everything put on new growth and the brown native grasslands amongst the trees and shrubs turned to a lovely waiving mass of green. Then at the beginning of January the hot summer days returned and we have had no rain for all of January and early February.

Worse was to come when in late January the heat wave hit. We had six days of 40 to 43 degrees C, a “cool” day of 38 degrees C and then four more of over 40 degrees C. A cool change is due tonight but today, the 7<sup>th</sup>. of February is the worst day I have come across in my life of nearly seventy years. The temperature is 44 degrees C with a howling north wind and the heat is blistering. Our thermometer is 1.5m above ground so the ground temperature is probably nearer 45 to 47 degrees C. Already some of the Banksias are badly stressed and whether they recover or not we will have to wait a

month or so until good rains arrive. Those with lignotubers probably have a better chance. The heat turns the green leaves to a yellowy green or to a yellowy brown which are the more severe burn marks. In the later case the leaves tend to curl up and eventually will drop off.

Our losses so far of mature Banksias are a *quercifolia* and *solandri* and *conferta*. The former two grow around Albany where there is plenty of moisture and temperatures cooled by the filtered sunlight and growing not that far in from the coast. Both were watered weekly but the heat was just too much even though they were in afternoon semi shade. Many other mature Banksias are showing considerable leaf burning. *Banksia conferta* comes from the Glasshouse Mountains in Queensland and its climate is much different to ours here. *Banksia baxteri* has had all its new growth burnt as well as its lower leaves. I doubt whether it will survive. *Banksia grandis* has most of its lower leaves burnt and whether it reshoots only time will tell. Of the prostrate banksias, *petiolaris* is badly burnt but *repens* and *blechnifolia* are showing little effect. The three forms of *gardneri* have more than 50% of their leaves burnt. *Banksia goodii* has also had some of its leaves burnt despite being covered. Most of the inland Banksias and those from north of Perth have stood up very well to the heat with a few surprises in *nutans* and *pulchella* which are coastal from east of Albany.

The biggest battle has been to keep the eastern Australian Banksias alive. Most grow south of the divide in cooler climates, higher rainfall and as understorey plants. I have had to cover most with hessian to try and reduce the heat effect. The *integrifolia* group have varied in their resistance to heat, ssp *integrifolia* seems to survive once established. Ssp. *monticola* has survived with a good deep watering and a cover over it. Ssp. *compar* have remained uncovered and watered weekly, but showed some leaf discoloration. Most of the *spinulosa* group are very heat sensitive. They do not like our summers at all. The outer leaves turn yellow and stay that way all summer. There are some green leaves inside the shrub. The exception is *Banksia spinulosa* var *cunninghamii* which seems to be less sensitive to the heat.

Heat also affects *Banksia ericifolia*. Both varieties have all their outer foliage badly burnt and only a few green leaves remain lower down in the shrub. It is a totally different plant south of the divide where it grows in heavier soils and with more moisture.

About half the seedlings raised from seed of the new sub species described in the new Banksia book by Alex George and Kevin Collins have died. They were planted out in May 2008 but the scorching temperatures at ground level were too great before they had time to get their roots down deep into the sand.

The general analysis from this heat wave is that inland Banksias and those north of Perth will withstand temperatures of up to 38 degrees C and slightly beyond quite well, whilst those from southern WA and on the coastal side of the great divide in eastern Australia will withstand temperatures of 30 degrees C quite well and occasional higher temperatures not exceeding 38 degrees C provided of not long duration. Up here the latter all need to be in shade to have any hope to survive.

On a brighter note, *Banksia victoriae*, *nutans* var. *nutans*, *elderiana* and *media* are flowering away at present. Earlier on the big yellow flowers of *sphaeroarpa* ssp *sphaeroarpa* were a delight to see and *Banksia attenuata* also had a number of flower spikes which probably look prettier when coming into flower than when fully out.

Of the tropical Banksias, *dentata* is still alive under a shade cloth cover, *aquilonia* has survived in the open and *plagiocarpa* under shade cloth. All get watered weekly but only *plagiocarpa* has flowered.

Lastly can you explain why *Banksia scopulorum* spikes do not fully develop all their flowers. I often get half out and the rest remains unopened on the spike. Frosts have long gone, so I believe that is not the cause.

(answer to last bit – I have no idea Paul, if anyone can help out we'd love to hear about it!)

#### Banksia growing in Vermont (eastern suburbs of Melbourne)

Ross Shepherd of Vermont in the outer eastern suburbs of Melbourne writes:

My property is situated facing NE on the top of a rise amongst rolling hills In Vermont South a suburb of Melbourne, about 26 km out ESE altitude is about 175M if my memory serves me well.

Because the rise is small and the block sits astride it, I actually have fall to either side of my block, especially at the front where most of the banksias are. Before I went with Banksias last year I had removed some full grown pencil cypress trees that were planted by previous owners (I've been here for 14 years now) along the front of the house outside a circular driveway, had an excavator come in dig a bed out 1.5 M wide by about 25 M long in front of the house, then I got them to mix the local soil with sandy loam at about 0.5:2 sandy loam/local. This was in preparation for what became in ill fated excursion into growing cycads and xanthorrhoeas (lost a 8' x five branched beauty that cost a bomb too). Summer heat and no water put pay to that last November-December, so that's when we decided to take advantage of the banksias and grow them instead seeing though we had a couple of decent sized one already and the front lawn was just dust and couch grass remains. Underground lighting and dripper watering were installed at that time too in the front bed.

Our frontage onto the street is about 41M with the biggest trees about in line with the sunrise & (block a direct view of the Dandenong ranges) just 2M in from the street,& about 15M in from the right as you look at the house from the street. The house block itself is a triangle so no back fence! Just over 1/2 an acre all told.

Most of those not dated below are less or about one year old. So its early days for them, I've had issues with overwatering in summer and have killed off a few especially *coccinea* and *occidentalis* (killed four before I got it right), and I've just lost a *burdettii* (hose was left dribbling for a week nearby by mowerman) and a *solandri* from winter rain run off issues. So as you can tell I'm still sorting out where to get the conditions right as best I can for some of them. We have a full grown *Eucalyptus maculata* and another few gums in our largish front yard that take up all the free moisture so when I plant out the front (what was lawn) I use these trees to help optimise the moisture the banksias are going to get. When I plant WA species out, I use a manual hole digger to go down into the clay base about 600-800 mm, then I re-fill the hole with a brickies' sand and local soil mix (from the hole) at about 3:1 this way they can get a start. (Yes I know I'm making a well if I'm not careful with the watering) Some are just sitting pretty much as I planted them but other are double and triple the size.

The reason for going banksia was a desire to have flowers and plants with interesting form and low water needs for obvious reasons. Apart from the old *erijifolia* which is about 4 metres high and round, and has lost a few of its lower branches through overloading itself to the extent they broke or cracked which has destroyed some of its form (do they grow back over the dead of inner parts eventually to hide the grey dead underneath?) Then I planted a *serrata* which has gone crazy is at 6M + and flowers well, and a Giant candles which got badly cleaned up during the last summer when the *maculata* dropped a branch from up on high right through it.

Talking of Giant candles, a factory nearby operated by our State Government has a real strange but beautiful version that I want to take cuttings from to try and replicate, it is this easy or hard to do? Its one out of the box as far as I can tell, very dense masses of straight and bent super long flowers about 4 metres round after many years and in full sun. I must take a pic of it; it is rather special, at least I think so, I have seen many GC's that are more

open and make feature plants in front yards if given their head but the one I refer to is very dense, maybe I've just not seen enough to know? Small birds love it.

My soil conditions are clay loam all the way down with a top soil of only about 150mm summer sees the soil shrink considerably and the house moves all the time, inadequate foundations I guess. my *B. blechnifolia* is going well with 5 buds set at present after two years last year it had three. Pretty colours too.

### **Old Banksia Study Group Newsletters**

The first eight newsletters from my time as leader of the group are available at <http://anpsa.org.au/banksSG/index.html> on the internet, on the national website of the 'Society. Newsletters from the year just completed will go up there regularly.

### **Seed Bank**

If you have a large excess of seeds, consider donating some to your local seed bank (or even another state!) as banksias are popular and the Regional seed banks rely on donations.

Alternately, why not let me know and I can leave a memo in the next newsletter.

- Nindethana Seeds (08) 9844 3533
- Banksia Farm (08) 9851 1770 phone/fax
- Your Region seed bank will usually have a selection of species

If you are unable to find a particular species, please contact me and I may have some ideas.