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#### Threatened Banksias #3: *Banksia verticillata*

**Introduction:** The Albany Granite Banksia was originally collected by Robert Brown in 1801 and officially described in 1810. It belongs to the series Spicigerae (Species with hooked styles and cylindrical spikes), which includes *Banksia littoralis*, *B. seminuda* and *B. brownii* in the west and *B. spinulosa* in the east.

**Description:** A much branched shrub or occasionally a small tree to 5m, with a roughly fissured, grey trunk; *Banksia verticillata*'s specific name is derived from its whorled (verticillate) leaves. The obtuse leaves are 3-9cm long by 0.7-1.2 cm wide, with entire, recurved margins. *B. verticillata* is killed by fire, with a canopy stored seed bank and takes 13 to 17 years to first produce seed (Kelly and Coates 1995). Flowering occurs between January and April, with golden yellow inflorescences 8-20cm high and 6.5 cm wide. The hooked pistils are 30-35mm long. Old flowers initially persist on old spikes but eventually fall off. Follicles are numerous and relatively small (11-15mm wide, 2-3mm high and 3-4mm wide), eventually opening without fire after several years. Relatively high levels of fruiting success (% flowers that develop into fruit) have been recorded. Research has shown that New Holland Honeyeaters (*Phylidonyris novaehollandiae*) are the major pollinators in Torndirrup National Park (Kelly and Coates 1995) and mammals do not appear to be as important.



(photos – courtesy CALM WA)



**Distribution & Habitat:** One of the rarest western banksias, *Banksia verticillata* is found in two areas 100km apart; on the south coast of WA near Walpole, and further east from Albany to Two People's Bay. Its current Status is Vulnerable, though it is well represented within Conservation Reserves. It is highly susceptible to *Phytophthora* based on inoculation of seedlings (Dr Bryan Shearer pers. comm.) and field observations. Fortunately several populations are not currently infected by *P. cinnamomi*. Aerial canker infection (*Zythiostroma* sp) also presents a significant threat to populations and has been the cause of large scale deaths at Waychinnicup east of Albany (Kelly and Coates 1995). The control of aerial canker is problematical with no answers as yet. Another pathogen, *Armillaria leuteobulbina*, has caused limited plant death in Torndirrup National Park. Several populations have become extinct or have declined, most probably as a result of *Phytophthora* and /or aerial canker.

The long juvenile period of *Banksia verticillata* indicates that a fire frequency of more than 20 years is required to enable seed banks to re-establish sufficiently.. The granite outcrop habitat offers some protection but not in the case of intense hot fires.

It is found on or near granite outcrops in exposed areas, on rocky or sand over rock soil, in low or tall shrubland.

**Cultivation:** Kevin Collins adds that *Banksia verticillata* forms an shapely shrub for the small garden, whose flowers are best in the bud stage being a lovely bronze shade. Good in a range of soil types. He has had December flowers. You can get early and slightly later flowered bushes.

## References

A Kelly & D Coates 1995, Population dynamics, reproductive biology & conservation of *B brownii* & *B verticillata*. unpub report Dept of CALM, WA.

### **Wagga form of *Banksia marginata***

The Wagga District Group has been propagating an interesting local form of *Banksia marginata*. It is distinctive in that it is highly lignotuberous and forms a prominent lignotuber as a seedling. It has distinctive adult linear leaves 3-4cm long by 0.5-0.6cm wide and lacking the characteristic truncate tip of the usual forms. Flowers are bright yellow in bloom (and possibly greenish in bud) and approximately a third larger (taller and fatter) than those of coastal populations. Old flowers fall from the cones and the follicles open spontaneously.

It is a slow growing plant, the largest specimen found was a very old plant which was 5m high by 4m wide. This plant was discovered near Coolac when the Hume Highway was being expanded into a dual carriageway in the early 1990s – the grader diver was to demolish it but was struck by its distinctive appearance! Since then, another old plant of similar appearance was found at Deniliquin and a third population near Adjunbilly between Gundagai and Tumut.

The Coolac and Deniliquin plants have since died but seedlings of all three populations are very similar (and distinctive from other specimens of *B. marginata*).

Historically, there are records of *Banksia marginata* at Wagga and Narrandera. Stands were knocked down in the latter town to make way for potato farms. The records also report the wood was used for plough handles as it is quite flexible.

The Deniliquin plants are growing on low hills of sandy loam on sandy riverbeds, and historically the Wagga and Narrandera populations grew in similar conditions, whereas the Coolac and Adjunbilly plants were growing midslope on heavier soil. However, the seedlings have been forgiving to a variety of soil types.

### Visit to Cranbourne Annexe

Recently I had the good fortune to visit the area planted out with western proteaceae at Cranbourne with Alf Salkin (who planted out a plethora of eastern and western banksias there). Though many species had long since perished there was an amazing array of flora surviving and flourishing. Indeed, there have been problems with *Petrophile* and *Isopogon* seedlings within the Western planted area. I noted some *Banksia seminuda* and *B. conferta penicillata* coming up around parent plants. Of greater concern were the eastern banksias. Warren Worboys, ranger at Cranbourne, reported virtually all eastern species (*B. spinulosa*, *canei*, *ericifolia* and *integrifolia*) had been guilty of some spread but the worst culprit was a Tasmanian tree form of *Banksia marginata*. This particular form very rapidly grows into a dense classic 'Christmas Tree' shape and can reach 6m in 4 years or so. Specimens resembled exotic conifers dotted in the Mornington landscape. It was quite startling to see the spread. The Gardens are developing a plan of removing them.

Also of interest were plots of *Banksia grandis* plants which had been grown in nutrient (phosphorus) rich locations and inoculated with *Phytophthora* and showed no signs of ill-health. The plants appeared young and results will be analysed in the future. The trip was not without drama as we came within inches of treading on a tiger snake which could have proven unhappy if trodden on I suspect (we owe a debt to Warren who pointed it out to us before we 'discovered' it with our feet!)

### Suckering banksias around Sydney

While walking around some patches of bush in inner Sydney, I have found suckering from both *Banksia spinulosa spinulosa* and *B. integrifolia integrifolia*.

Nannygoat Hill is a large sandstone outcrop overlooking Wolli Creek in Sydney's Inner Suburbs - on an exposed area is an old black-styled Hairpin Banksia 1.5m high with a habit very similar to *B. spinulosa* "Birthday Candles" but larger. About 1m away from the parent plant I noticed a small, young looking plant maybe 40cm high which arose from a partly uncovered horizontal root which was 1cm in diameter.

In sandy soil at Henry Head in Botany Bay National Park I found suckering growth from disturbed roots 2 metres or so from a *Banksia integrifolia* tree some 5-6m high.

Kevin Collins of the Banksia Farm in WA has also reported this with *B. integrifolia* (which occurred from damaging roots with a ride on mower!) and *B. robur*.

To date I have not seen this documented elsewhere with any of these species – anyone else noticing this please let me know!

### New Population of *Banksia conferta* described

Some time ago, in a fit of state pride I asked Peter Hind at the NSW Herbarium whether there were any NSW records of *Banksia conferta conferta* from our side of the border (it occurs in Lamington National Park and the Glasshouse Mountains). He searched the records and replied that it had been collected in 1979 by a B. Brooker in Landsdowne State Forest northwest of Taree (or several hundred km south of where it should been!). I rang Landsdowne State forest and spoke to Jude Parr there who was happy to go and

look (the area is now in Coorabakh National Park). She found the population and wrote as follows:

“The site is accessible by two wheel drive vehicle(i.e. ordinary car), the road is not that rough. The location is approx MGA(new grid) E4547200 N6493600 on the Lorne Topographic map No.9434-4S (new series). On the southern side of Cooperook Forest Drive, Big Nelly Rd, 1.9km from Stars creek picnic area and 1.9 from Flat Rock Lookout. It only seems to occur in a one km stretch on the southern side of the road growing out of rocky out crops. Associated sp. include *Leptospermum*, *Acacia*, *Xanthorrhoea*, *Euc pilularis* and others. The associated species continue above and below the site but the banksia is only in this one area. The first tree photographed was amongst a clump of smaller ones next to an old decayed trunk which may have been a banksia. There did not appear to be any lignotuber/s associated with the clump. the smaller ones appeared to be older seedlings. The younger plants had dentate leaf margins and the mature ones had entire/slight tooth, slightly recurved margins. The bark was tessellated not smooth. The inflorescences were approx 10 - 15cm. The shrubs were 2 - 4m high branching from a main stem to 1 - 1.5m wide.”

Peter Weston at the NSW Herbarium has keyed it out as *Banksia conferta conferta*, a major find as the taxon is only known from two other areas.

A big thankyou goes to Jude, Lucy Scope (from Mid North Coast District Group), Peter Hind & Peter Weston for helping confirm this population.

### **Range Extension/Clarification of *Banksia spinulosa***

(reprinted from Bulletin Sept '03)

I have been in communication with Paul Forster of the Qld Herbarium who has kindly looked at the *Banksia spinulosa* complex specimens on their database. He reports:

"I've had a look at the *Banksia spinulosa* specimens that we have from these spots. If one applies the criteria outlined in the Flora of Australia Vol. 17B, then all the Carnarvon, Expedition, Isla Gorge ones are *B. spinulosa* var. *collina*. The Herbarium also has a record of *Banksia spinulosa collina* in Eungella National at Dick's Tableland, 20d 59'S, 148d 31'E. The Yeppoon - Byfield, Nth Qld, Blackdown ones are all *B. spinulosa* var. *spinulosa*. Both the NQ and Blackdown ones have extremely narrow leaves. *B. spinulosa* are common and easy to find at both Blackdown and the Byfield area. At Carnarvon Range they have been recorded from Hell Hole Gorge and Mickey Gorge. It's not really possible to give definite information on the height of plant, colour of flowers (different collectors record it in strange ways), perianth persistence and follice dehiscent just from the specimens alone."

(Irene Champion adds that Dicks Tablelands in not on the route for most walkers as it is very inaccessible. The botanists try to get in by helicopter to save days of walking. (no wonder no-one found it for the Banksia Atlas in 1988!))

Prior to this official records (Flora of Australia 17B, The Banksia Atlas & The Banksia Book) list all records in Central & Northern Qld apart from Carnarvon as *B. s. spinulosa*.

To update then, what is now called *Banksia spinulosa collina* occurs in several areas in inland Central Qld, with several populations previously listed as *B spinulosa spinulosa* on reinspection transferred to it.

However, the plot thickens as research is being done in Victoria and WA into the Carnarvon Gorge form of *B. spinulosa collina* as it has some features quite different to forms down south. One of the principal differences is that the old perianths as well as

the styles fall off old spikes, which no southern form does (well, styles do but not perianths).

Now, question is, the other plants from central Qld (i.e. Isla Gorge, Byfield and Blackdown Tableland) and points north (Walsh's Pyramid, Mt Windsor Tableland inland from Daintree to Atherton Tableland) have bare old spikes? Do they have follicles which open spontaneously at all? The Carnarvon form also has long entire leaves. Also, are they very distinctive when compared with southern forms in other ways? I haven't seen anything published on this so if anyone has please let me know. I would be very grateful to hear from members of central and northern Queensland to clarify the forms.

Paul Forster also adds that as always the Herbarium would appreciate good pressed material with accurate locality data (contact the herbarium for details and forms on this) that are legally collected.

As a postscript, Jan Sked did check the 2002 edition of "Names & Distribution of Queensland Plants, Algae & Lichens" from the Qld Herbarium lists *B. spinulosa spinulosa* as occurring in the pastoral districts of Cook, Leichhardt, Moreton, Port Curtis & Wide Bay. *B. s. collina* is recorded from the Burnett, Leichhardt, Moreton, South Kennedy, & Wide Bay districts. *B. (s.) cunninghamii* is recorded from the Darling Downs & Moreton Districts and *B. s. neoanglica* from the Darling Downs.

### **Seed Bank**

If you have a large excess of seeds, consider donating some to your local seedbank (or even another state!) as banksias are popular and the Regional seedbanks 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 seedbank 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.

### **Cultivation Notes needed!**

As always, information on many taxa is scant. Please write and tell me how your plants are growing. Of particular interest are western species in NSW and Queensland. I feel that most will do OK in Victoria and Tasmania if in areas of good drainage.

### ***Banksia spinulosa* complex ID chart**

The *Banksia spinulosa* complex refers to the 4 taxa, namely the three confirmed *B. spinulosa* varieties and the taxon *B. (s.) cunninghamii*, regarded by some as a separate species and others (notably Alex George) as a subspecies of *B. spinulosa*. Trevor Blake originally drew up an ID chart in Banksia Study Report 6. I have updated it since the variety *neoanglica* has been formally described. Hopefully this will help those in the field when you find a hairpin banksia you're not sure about.