



Association Of Societies For Growing Australian Plants  
**Banksia Study Group Newsletter**

Issue 18: Vol. 10 No. 2 - Autumn 2010 ISSN 1444-285X

(Editor & Group Leader: Cas Liber, PO Box 83 St Pauls NSW 2031 phone: 0400 475 862)

### **In This Issue**

Banksia Profile #13: *Banksia scabrella* – compiled by Cas Liber\*

Update On Grafting Western Banksias – Phil Trickett

Banksia snippets – Kevin Collins

More *Banksia rosserae* flowering in cultivation! – Graeme O’Neill

*Banksia novae-zelandiae*, a fossil Banksia from New Zealand – Cas Liber

Sad news – Victorian botanist Steve Sinclair wrote to me last year and advised that the giant *Banksia marginata* tree near Beeac on Thursday- only to find it dead and crumbling. Luckily, cuttings had been taken from it, so its legacy lives on.

Also, very sorry about the delay of this newsletter. I have moved house, changed emails (and endured the usual glitches with this), followed by a couple of hard drive crashes, busy circumstances in real life and some ennui. However, I will try to make up for this and post out to those whose subscriptions would have expired.

#### **Banksia Profile #13: *Banksia scabrella***

(\*compiled by Cas Liber from material supplied by Alex George, Kevin Collins, Alanna Chant et al.)

*Banksia scabrella* is a rare species of the abietinae series found south of Geraldton. An untidy shrub, it does appear to flower for a long period and has horticultural potential. Its ecology is little known.

**Description:** *Banksia scabrella* grows as a low spreading shrub to 2 m high and 3 m across, its lateral branches are low and often rest on the ground. The small linear leaves measure 0.8 to 2.8 cm long and 0.1 cm wide and are crowded along the stems.

George recorded flowering as occurring in spring and summer (September to January), although the Banksia Atlas noted inflorescences in bloom in April. I took photos of it flowering in April, and there were plenty of flowers then and Alanna Chant reports that she has noticed it flowering in early spring (July/Aug) and noted plants with flowers which appear to be a range of ages so she guesses it does flower for a long period. The round or oval cream or tan inflorescences are 3 to 6 cm high and 7–9 cm wide.



above - inflorescence(l) and infructescence (r).  
note two native wasps among flowers

The individual flowers are light yellow or cream, with the styles and upper floral parts purple. The perianths measure 2.7 to 3.5 cm, and the pistils 3.4 to 4.5 cm in length and are curved at the apex. The inflorescences fade to grey as they age and the old flowers do not fall. Up to 80 follicles develop on one spike, and remain closed until opened after a bushfire



*right – flattened habit displayed by some plants.  
below – in late bud*



**Taxonomy:** First collected on September 4, 1966, southeast of Walkaway, *Banksia scabrella* was described by Alex George in his 1981 revision of the genus *Banksia*. He gave it the epithet *scabrella*, a diminutive of the Latin adjective *scaber* "rough", referring to the leaves. George placed *B. scabrella* in subgenus *Banksia* because of its flower spike, section *Oncostylis* because its styles are hooked, and the resurrected series *Abietinae*, which he constrained to contain only round-fruited species. He initially thought its closest relative to be *Banksia leptophylla*, which is found in the same region, and later felt it to be *B. lanata*, which has similarly coloured inflorescences but longer smooth leaves. It was one of several new species

previously regarded as a form of *Banksia sphaerocarpa*

In 1996, botanists Kevin Thiele and Pauline Ladiges published an arrangement informed by a cladistic analysis of morphological characteristics. *Banksia scabrella* appeared in the third of four subseries (*Leptophyllae*) that *Abietinae* had been divided into, initially called the "telmatiaea clade" for its most basal member. As with George's classification, *B. lanata* and *B. leptophylla* emerged as close relatives of *B. scabrella*. However the relationship between the four species was unclear.

(below - habit shot)



A 2002 study by American botanists Austin Mast and Tom Givnish concurred with Alex George's observations in that molecular analysis mapped out *scabrella* as one of a clade containing *B. lanata*, both subspecies of *B. leptophylla* and *B. telmatiaea*, with *B. grossa* as a more distant relative

**Distribution and habitat:** *Banksia scabrella* is found from small town of Walkaway south of Geraldton to Mt Adams road, although much of the land between these areas is cleared. The average annual rainfall is around 450 mm. It has been placed on the Priority Flora List, where it is classified as a has been identified as a "Priority Four – Rare" taxon; although it is rare, it is not currently threatened by any identifiable factors. These taxa require monitoring every 5 to 10 years. Although limited in range, many stands are populous, and number over 100 plants. However, over half the known population of *Banksia scabrella* is found on road verges.

Found in deep pale yellow or white sand in kwongan scrubland and heathland, *Banksia scabrella* grows on flat areas or gentle slopes and is found in association with *B. leptophylla* and

dwarf form of *B. attenuata*. The region between Geraldton and Gingin is a rich one for *Abietinae* banksias, and nine species occur there. Despite this, there is little overlap in range and habitat; *Banksia scabrella* is unusual in its co-occurrence with *B. leptophylla*.

One protected area it is found is Burma Road Nature Reserve. There, *Banksia scabrella* is found most commonly in (and forms a prominent part of) a mallee sedgeland on the eastern edge of the reserve, which is dominated by the cord rush *Ecdeiocolea monostachya* as a ground cover, and the mallee *Eucalyptus eudesmoides* as an emergent species. It is found occasionally in acacia scrub-heath, and rarely in acacia thickets and banksia woodland

**Ecology:** Although banksias are known to attract a wide variety of animal visitors, none are recorded for *Banksia scabrella* to date. Alanna Chant adds that she hasn't noticed any pollinators that she can recall. A large proportion of Burma Road Nature Reserve (~80%) was burnt in a wildfire in 2005 which impacted a large proportion of this species distribution within this reserve, however from what she has seen it appears to be regenerating well, despite very low rainfall years in 2006 and 2007. This fire would have also impacted on pollinators of this species, so the long term recovery of the vegetation community here needs to be monitored. Killed by fire, the species regenerates by seed afterwards

**Cultivation:** Rarely cultivated, *Banksia scabrella* flowers in 3 to 5 years from seed. Information is limited on its reliability, but it has been grown successfully in South Australia. It is fast-growing but ultimately untidy in habit, and would benefit from regular pruning. Some forms in the wild have a more compact habit, and have a more promising horticultural potential.

### Update On Grafting Western Banksias

Phil Trickett writes:

Catriona and I have just moved to a 3ha property at Milton. The high rainfall and lack of frost will provide a welcome contrast to our experience in Canberra over the last decade. We have taken a number of our grafted banksias included a 4 year old *B. solandri* which has settled in nicely in its new home and is producing a cone. This plant was dug from the ground as was 2-3 year old plants of *B. occidentalis*, *B. laevigata* subsp. *laevigata*, *B. lemanniana*, *B. micrantha* and *B. incana*.

Below is a summary of my grafting experiments over the last 5 or so years. All my grafts use *B. integrifolia* as rootstock.

#### **Grafted plants in garden**

*B. occidentalis* - one is thriving in sand at my parent's place on the NSW North Coast. It had more than 50 inflorescences this year and is more than 4m in height. Another plant of the same age has grown much slower in Canberra but has flowered for the last two years. This plant has been moved to Milton. Despite being compatible with *B. integrifolia*, my success rates are low with all failures dying within a month. Timing and maturity of grafting material look to be critical.

*B. solandri* - flowered for the first time last year but the flowers were malformed due to the drought in Canberra. Seems to appreciate the move to Milton and is producing a cone. Grafts easily onto *B. integrifolia*.

*B. brownii* - has flowered for two years and is still growing rapidly - height currently 4m. Unfortunately I have left this plant in Canberra, but have some other plants to grow in Milton (both tree and

mountain shrub forms). Very compatible with *B. integrifolia* but timing and maturity of grafting material is important.

*B. laevigata* subsp. *laevigata* - hasn't flowered yet but is growing vigorously - currently 2m. Has been relocated to Milton and has settled in beautifully. One of the easiest to graft onto *B. integrifolia*.

*B. micrantha* and *B. incana* - both growing slowly but look very healthy - currently 30cm. Both have been moved to Milton where I would expect them to show more vigour.

*B. lemmaniana* - around 70cm at 2 years of age - very vigorous and showing great promise.

*B. victoriae* - have one 18 months old growing vigorously. From a handful of attempts seems to be one of the easiest to graft onto *B. integrifolia*.

### 'Successful' plants still in pots

*B. laevigata* subsp. *fuscolutea* - good success rates and looks to be equally as compatible as subsp. *laevigata*

*B. tricuspis* - high success rates from small number of grafts. Very promising

*B. speciosa* - high success rates but plants mostly seem to lack vigour. There is a great old grafted plant in the ANBG on *B. serrata*. I'll try this combination in spring to see if vigour is improved.

*B. praemorsa* - not showing much vigour at present. Maybe the Milton climate will invigorate them.

*B. rosserae* - have one growing beautifully. Looks promising.

*B. epica* - seems to grow slowly but looks very healthy.

### Unsuccessful plants

*B. coccinea* - these grow beautifully for around 6 months and then gradually die over the next 6 months. I plan to trial a range of different stocks to try to find a successful combination.

*B. hookeriana* - similar to *B. coccinea*, growing well initially but quickly dying.

*B. prionotes* - no success from many attempts. Need to trial different stocks.

The successful plants have given me plenty of encouragement to do further work on different species, alternative stocks to *B. integrifolia* for unsuccessful species, and refining techniques to improve success rates. With 3ha to play with instead of a suburban block, I hope to make some more progress over the next few years. As part of this work I plan to try to graft a range of dryandras. I have already had a couple of successful dryandra grafts - *D. longifolia* subsp. *longifolia* and *D. cirsioides*, although I have not been successful as yet with the prized *D. formosa*.

### Banksia Snippets

Kevin Collins reports some snippets:

A small nurseryman, Ian Barclay, from The Desert Northwest, Sequim, WA USA has recently sent results of some banksia seed grown .

He has included some pics of his very healthy seedlings.

You might just show the pics and mention banksias being grown in this part of the USA for the first time. Jo O'Connell a former Sydney & Australian resident has long been growing banksias successfully in Ventura CA and she provides plants for some floriculture production in this region. Her venture was recorded in Banksias.

Kathy and I recently had a trip through the western end of the Fitzgerald National Park and I would like to report on the stunning regeneration after the huge fires through the park around four years ago. We climbed west Mount Barren and identified four banksia species and many dryandras growing from the base to within 10m of the top. They are the same species growing on the flat surrounding plains. ie. *B. nutans*, *lemmaniana*, *oreophila* and *baueri*.

These ranges must have uplifted for the species to be the same as on the flats as this is generally not the case with most species.

Others are mountain specific like *saxicola*, one form of *brownii*, *plagiocarpa* and *conferta*.

Throughout the park regeneration of proteaceous plants is outstanding, particularly along the disturbed gravel roadsides and drains. They have had to mow the *baueri* in the roadside drains and are now like bonsai specimens with plenty of flowers.

The banksias in the unburnt headlands of Point Anne, where the very prostrate *media* grow, were very unhealthy in contrast with many dead and dying bushes.

Driving to Jerramungup from Point Anne on Quiss Rd. we spotted some huge *B. media* trees. Possibly the largest I have seen. 7-12 metres high and 0.5 metres in trunk diameter.

3. *B. rosserae* is still flowering as of July 2010. It commenced in April and there are still some buds yet to open. Appears to be an extended flowering period compared to those in the wild.

4. *B. aquilonia* plants at our farm have three distinct colour forms. a. Lime green with grey tips b. gold c. green, bluish mauve. in bud, all opening yellow with distinctive broad twisted perianth tubes.

### ***Banksia novae-zelandiae*, a fossil Banksia from New Zealand**

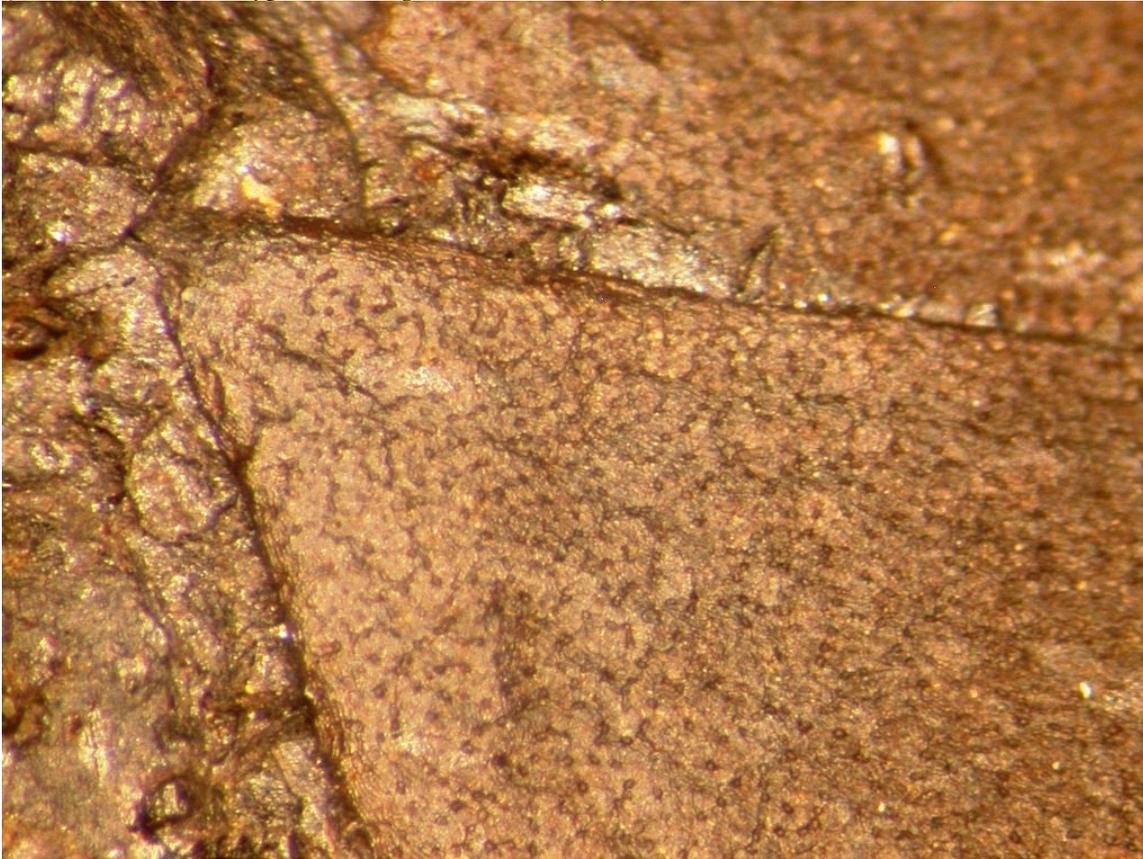
Early 2010 saw the publication of a paper by Ray Carpenter, Greg Jordan and colleagues on a new species described from late Oligocene to early Miocene (28 to 16 million year old) deposits from Southland District in the South Island of New Zealand. The fossil leaves were found at the Newvale Mine in Waimumu Coalfield and represent the first unequivocal member of the genus recovered outside Australia. The leaf litter bed is in lignite, which suggests the drainage was poor in the area. The composition of the plant community (epacrids and persoonieae and absence of lauraceae and large-leaved plants) suggests a raised swamplike area with heathland flora.

The fossil bed was dense and multi-layered and the Banksia leaves were not immediately evident. The authors note the leaf resembles those of *Dryandra* (= *Banksia*) *formosa* and the fossil taxon *Banksiaephyllum taylorii* from the late Paleocene of New South Wales (Lake Bungarby near Bombala). All bear similar triangular lobes that indent to the midline of the leaf, a leaf shape not seen elsewhere in the Proteaceae. This shape is now currently restricted to southwestern Australia, but fossil evidence shows it was more widespread in the past.

Before this find, pollen and leaf fragments had been found in New Zealand but their exact relations (*Banksia*, *Musgravea*, or other proteaceae) remain unclear.



(leaf fossil and holotype, showing adaxial surface)



(closeup of apical region of lobe showing leaf architecture)

**More *Banksia rosserae* flowering in cultivation! – Graeme O’Neill**

Graeme O’Neill wrote on March 12 2009 (I left this out of previous newsletters by oversight – sorry Graeme!):

“Thought you might be interested - *Banksia rosseri*, flowering in my garden in Mildura, surrounded by rampant kikuyu. I noticed it was in bud about two months ago, tiny little blue-green buds the colour of verdigris on aged copper pipes. My wife was strolling around the garden yesterday and noticed it was in full flower - only two months from bud to sunburst, which is very rapid. In addition to the other nascent inflorescence, two other buds are now at the same stage as when I first saw it in bud two months ago, so it looks like it will flower at least two or three months of the year.

Neil Marriott gave it to me as a seedling four years ago; it was very slow initially, but put on a growth spurt last year. Neil had buds on his as well, but they aborted - same story with Kevin Collins at Mt Barker, so this might be the first flowering of the species in cultivation. So much for the notion that it might take 15 years to flower. It makes sense, in retrospect, that it would be quick to flower, and that the bud-to-inflorescence development would be similarly rapid.

In 150mm rainfall zone, it needs to grab a pollinator while there's still some post-cyclonic growth going on in the heathland at Kirkalocka, because banksias share pollinating birds with sympatric *Banksia* species, and with other taxa. And since there are likely to be very long intervals between rain events, it gets away to a slow start while it's getting its roots down deep for insurance, but then flowers rapidly because it's at risk from wildfire before it develops a substantial lignotuber like the 200-odd year old parents.



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

Old 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.

### **References**

Foulds, Bill; McMillan, Peter (1988). Burma Road Reserve report 1988: An ecological study of Burma Road Reserve, Greenough Shire, Western Australia. Perth: Western Australian College of Advanced Education. pp. 60, 67. NBD6563629 (Libraries Australia id)

Carpenter, Raymond J; Jordan, Gregory J.; Lee, Daphne E.; Hill, Robert S. (2010). "Leaf fossils of Banksia (Proteaceae) from New Zealand: An Australian abroad". *American Journal of Botany* 97 (2): 288–297