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Threatened Banksias #2: *Banksia brownii*

Introduction: The Feather-Leaved or Brown's Banksia (*Banksia brownii*) was named after the botanist Robert Brown (1733-1858), being collected and described in 1830. It belongs to the series Spicigerae (Species with hooked styles and cylindrical spikes), which also includes *B. occidentalis*, *spinulosa* and the similarly threatened *B. verticillata* among others.

Description: A shrub of 2 to 4m, or small tree to 6m by 4m, it is non-lignotuberous and hence killed by fire and regenerates by seed. *B. brownii* derives its common name from its fine soft feathery leaves, which are up to 10cm long and 0.5-1.2 cm wide. New growth has a prominent reddish tan tinge. Its bark is smooth with lenticels. Flowering occurs autumn/winter (April-July), with cylindrical grey-ginger spikes with burgundy styles. Flowers are persistent on old cones and the flattish follicles are numerous. Honeyeaters and mammals are considered to be its major pollinators. *B. brownii* is one of the few banksias to produce only one seed per follicle which may account for its low seed set compared to other non-sprouting banksias. The species is extremely susceptible to *Phytophthora*.

Kevin Collins of the Banksia Farm in Mt Barker feels there are three forms and at least the first two breed true from seed, a finding replicated by some other people as well.





The usual, or **Millbrook Road, form** has a tree-like habit and fine fernlike leaves and flowers as described above. (pictured in the [Banksia Book](#) (George))

A **mountain form** with a shrubby habit and squatter inflorescences which are more orange with red styles (pictured above). Generally flowers 2 months earlier and is just finishing as the other two start to colour up and open.

An **intermediate form** (pictured left) from NE of Albany; overall size is between tree and mountain forms, with flowers intermediate between the tall narrower ones of the tree and the short fatter squat ones of the mountain. This intermediate form has flowers commencing white with burgundy styles. A colour variation of this form has gold styles. A single plant exists in an Albany garden. It flowers at the same time or just a bit later than the tree



Kevin adds that an interesting colour variant once existed on the lower slopes of Bluff

Knoll. It was reported to have a mauvish tinge with purplish styles. On trying to locate the plants some 15 years ago he found only dead specimens on the ground with no viable seed retention. This area was wiped out with *Phytophthora*. He doesn't know of anyone having this colour form.

(leaf variations – mountain (shrubby) on (L), tree on (R), from Banksia Farm)

Distribution & Habitat: On meta-sandstones / schist in the Stirling Ranges and in coastal areas near Albany on laterite ridges, Western Australia; Sarah Barrett of CALM in Albany reports that all known populations are infected with *Phytophthora* and are in decline. Several populations, such as that on the summit of Bluff Knoll in the Stirling Ranges, have become extinct in the last decade. Bushfires in quick succession have contributed to population decline within the Stirling Range with poor recruitment post-fire. Its status was upgraded to critically endangered in 2002. The largest populations, between the Stirling Ranges and Albany, are sprayed with phosphite to combat dieback. Ultimately, translocation may have to be considered. Mike O'Donoghue, of CALM in Perth reports that seed is being collected and cold-stored of this and many other endangered species.

Cultivation: *B. brownii* is an attractive garden subject with interesting foliage and smooth trunk as well as its distinctive hook-styled flowers. Seed and plants are readily available from nurseries and it has been successfully grown in well drained soils in areas with dry summers. However it is very susceptible to *Phytophthora* and has a reputation of being a drop-dead plant because of this. Alec Hooper, of Zanthorrea Nursery in Perth adds that it can even die suddenly in Perth gardens. George Lullfitz reports it will grow there on its own roots in sand and gravel, but needs to be grown in clean, steamed soils.

An interesting development is that it appears to graft onto *Banksia integrifolia* or *B. cunninghamii* fairly readily. Success has been had with cotyledon grafting. I feel that this not only benefits us in the eastern states but facilitates growing this species in heavier soils in Perth and Adelaide as well. Anyone interested in this can contact me for further information.

Update On Eastern Banksia Cultivars

One of the objectives I feel is to improve the quality and range of Eastern banksia cultivars available. For the most part, nursery plants are mass-produced, so they may as well be nice forms!

Anyway, first step is to find out what is actually about and where they are from (both in nature and propagator). I have been nagging nurseries to find out what happened to many cultivars listed in various places over the past few years, as well as find out about new ones and try to assimilate some sort of systematized feedback on others. Here are the notes I have gathered so far, sorted by species. I have left the subspecific rank within the *spinulosa* complex so that readers can readily see which forms have risen from what – though in practice none will have the subspecific rank on the plastic tag:

- * ***Banksia canei* ‘Celia Rosser’** – alas, it appears this plant has been extinct for 15 years. Originally it arose on the Bennisson High Plains near Wellington River, so anyone finding any dwarves there let me know!
- * ***B. marginata* ‘minimarge’** - grows to 40cm high x 50cm and was originally collected from windswept Northeast Tasmanian coast, with lemon 10cm spikes in late summer and autumn, and is propagated by Richard Anderson of Merricks Nursery on the Mornington Peninsula. Reliable in Mediterranean climates, but reports variable for areas of summer humidity (Importantly, this is only based on a handful of reports – further feedback will be gratefully received.)
- * ***B. marginata* (Wildtech dwarf form)** - dwarf form to 50cm originally from Betka River near Mallacoota, propagated by Martin Swanson of Wildtech Nursery in Glenmaggie, Victoria. It is unknown whether this gets bigger than 50cm (stay tuned for updates.....)
- * ***B. marginata* (Wildtech ‘mauve’)** - mauve budded form to 1.5m high, provenance unknown, propagated by Martin Swanson of Wildtech Nursery
- * ***B. marginata* ‘coastal spread’** - dwarf form to 1m high x 2m from windswept Northeast Tasmanian coast, with lemon spikes 5-8cm high, and very small 1cm long leaves, propagated by Will Fletcher of Plants Of Tasmania Nursery in Tasmania.
- * ***B. marginata* ‘Ridgeway spread’** - 3m high x 3m open shrub, with lemon spikes 5-8cm high, propagated by Will Fletcher of Plants Of Tasmania Nursery in Tasmania.
- * ***B. marginata* (Portland form)** – Propagated by Kuranga Nursery, Evan Clucas feels this is the best of their small (~1m) Silver Banksias, with a tidy domed habit and yellow flowers in autumn/winter. Kuranga also has a Croajingolong form which is said to keep to 1 metre with pruning
- * David Shiels of Wakiti Nursery in Victoria adds that there is a late (spring) flowering spreading form of *Banksia marginata* to 60cm high by 1.5m across with 10cm long leaves. This originated from Torquay in light soil, collected many years ago by Bill Gunn. Unfortunately David’s stock plant died so it is currently not in cultivation.

(NB: many older dwarf forms of *B. marginata* grew larger than their purported size;)

- * ***B. integrifolia* “Austraflora Roller Coaster”** – Widely available prostrate form propagated by Bill Molyneux. Very hardy, though can be shy to flower.
- * ***B. integrifolia***, an unnamed dwarf selection propagated by Kuranga from the Green Cape area, Evan Clucas says this selection is better than their previous ones from the same area. It is a compact dwarf better flowering plant to 2m with lemon yellow flowers in autumn.
- * ***B. paludosa* ‘Greencape Dwarf’** - Propagated by Richard Anderson of Merricks Nursery, this plant grows to 60cm high by 1m across with yellow spikes to 13cm high, flowering mid-summer to end of autumn. There are similar but unnamed dwarf forms collected from the same place (Green Cape, near NSW/Vic border, now in Ben Boyd National Park)
- * ***B. paludosa* (prostrate)** – propagated by Kuranga, Evan Clucas reports this truly prostrate form comes from the NSW north coast and grows into a thick groundcover with yellowish flowers.

- * ***B. ericifolia* 'Limelight'** - a lime-green foliaged form with orange blooms - original found at Kariang on the NSW Central Coast. This plant is now 4-5m high, registered by Phil Packham of Wirreanda Nursery in 1987, with propagating rights with Princeton Nursery, Mt White. Due to little consumer interest, the two existing plants have not been propagated from for some years (but are alive and healthy- if anyone wants to hassle them to propagate some more.).
- * ***B. ericifolia* 'Little Eric'** – a dwarf form to 1.5 to 2m, chance garden seedling, with maroon styles and whitish perianth, propagated by Richard Anderson of Merricks Nursery.
- * ***B. ericifolia* 'Bronzed Aussie'** - a white-budded terminal flowering form to 2m, with honey-coloured pistils, and bronzed foliage. Propagated by Rod Parsons of Carawah Nursery, Hoddle Creek. A new release in 2003. Provenance unknown (seed donated to Rod's father by SGAP member many years ago.)
- * ***B. ericifolia* 'Golden Girl'** - a golden-flowered form (hidden wide fat flowers to 8cm high) to 1.5-1.8m, with blue-grey foliage. Propagated by Rod Parsons of Carawah Nursery. A new release in 2003. Provenance unknown (seed donated to Rod's father by SGAP member many years ago.)
- * ***Banksia ericifolia* 'Kanangra Gold'** – Propagated by Kuranga Nursery, this is a gold flowered form to 4m from the Kanangra-Boyd region of the Blue Mountains. It is bushy and flowers are much paler than the regular *ericifolia* orange.
- * ***Banksia ericifolia* 'White candles/Christmas Candles'** - allegedly from somewhere in Sutherland shire in Sydney's south. I like it as it has an unusual red style/white body colour combination somewhat reminiscent of *B. coccinea*. The buds are white and are a nice contrast to the red styles that emerge through them. An open shrub to presumably 3-4m. Apparently ***B. ericifolia* 'Ruby Clusters'** is similar in appearance.
- * ***Banksia ericifolia* 'St Pauls'** – a dwarf form to 2m with conspicuous red inflorescences which has been available from time to time from Cranebrook Nursery in Sydney's west. Originally propagated from a plant cultivated at St Pauls' secondary school (a local high school).
- * ***Banksia ericifolia* 'Purple Pygmy'** – a dwarf form propagated by Kuranga Nursery to 1m with purplish foliage with claret flowers. It only flowers rarely and is difficult to propagate. Also, due to low demand it is only propagated in low numbers.
- * ***Banksia ericifolia macrantha* 'Creamed Honey'** – so called as its flowers are the colour of creamed honey, this pale flowered variant was found at Crowdy Head on the NSW north coast. Propagated by Kuranga nursery it grows to 4 or 5m with a more open habit. Notable in that it is the northern variety of *Banksia ericifolia*.

- * ***B. "Giant Candles"*** – said to be a vigorous hybrid to 5m of *B. ericifolia* and *B. (spinulosa) cunninghamii* which originated in a Brisbane garden around 30 years ago. Russell Costin of Limpinwood Nursery (who registered it) says its popularity waned for a few years but has become more popular in the last 5-10 years again. Angus Stewart reported it to be iron hungry, so treat yellowing with iron chelate or iron sulphate. It has large orange spikes in autumn to 40cm long, though they do have a habit of drooping or bending occasionally (which can be quite attractive I guess.....)



- * ***B. "Yellow Wing"*** – This plant to 2m high with all-orange spikes is the result of deliberate hybridisation between *B. "Giant Candles"* and *B. spinulosa collina* from Carnarvon Gorge. Should be out this Spring.
- * ***B. spinulosa collina* 'Carnarvon Gold'** – All-gold flowered form with long entire leaves and old flowers falling from spikes, from Carnarvon Gorge in central Queensland.
- * ***B. spinulosa collina* 'Stumpy Gold'** - spreading form (40cm high by up to 1.2m across) with light gold flowers 15cm high by 6cm across from Wybung Head on NSW Central Coast, propagated by Richard Anderson of Merricks Nursery. Comes from a silty loam so theoretically should tolerate a heavier soil than 'Coastal Cushion'

- * ***B. spinulosa spinulosa* “Birthday Candles”** – the original trailblazer, a compact plant growing to 45cm tall and up to 100cm across with red-styled gold flowers 15cm high by 6cm across. Under PBR by Bill Molyneux (Austraflora). Original provenance on headland near Ulladulla in southern NSW. It appears to fare better in Mediterranean climates with reports of patchy performance in Sydney (though better in pots) and unreliability in Brisbane. Reports of it flowering in alternate years only. Big dilemma is, though, is the reported unreliability due to it being grown by a higher proportion of novices (who ask for it before others) who may be accidentally killing it (I repeat, no offence to all novices out there! I am still one!).
- * ***B. spinulosa spinulosa* “Cherry Candles”** – Bred by Bill Molyneux from “Birthday Candles”, this is compact plant growing to 45cm tall and up to 100cm across with cherry red-styled gold flowers, darker than its parent, 15cm high by 6cm across. Release Spring 2004.
- * ***B. spinulosa spinulosa* ‘Coastal Cushion’ (= ‘Schnapper Point’)** – originally collected by Neil Marriott and called ‘Schnapper Point’ from the same locality as “Birthday Candles”, this is more spreading plant to 50cm tall and up to 1.5-2m across with red-styled gold flowers 15cm high by 6cm across. It is very floriferous and seems to be more adaptable to points north than other dwarf forms – growing reliably in SE Qld. It is propagated by Richard Anderson of Merricks Nursery.
- * ***B. spinulosa spinulosa* ‘Golden Cascade’** – yet another plant from the same locality as “Birthday Candles”, this is more spreading again, to perhaps 30cm tall and up to 1.5-2m across with red-styled gold flowers 15cm high by 6cm across. It is also seen as ***B. spinulosa* ‘prostrate’**. Propagated by Gondwana Nursery, this is a relatively new release.
- * ***B. spinulosa spinulosa* ‘Honey Pots’** – a form with all gold flowers to 20cm high (taller than forms listed above), however it is a little larger with reports of it growing to 1m high by 1.2m across. It comes from south coast in Victoria, propagated by Rod Parsons of Carawah Nursery in Victoria.
- * ***B. spinulosa spinulosa* (dwarf forms – miscellaneous)** – Rod Parsons of Carawah Nursery in Victoria has two red-styled fairly compact dwarf forms, one growing to 1m, the other 1.2m – and there are others reported but not named.
- * ***Banksia spinulosa cunninghamii* ‘Lemon Glow’** – registered under ACRA by Alf Salkin, this hales from French Island and grows to 2 or 3m with all lemon yellow flowers. Currently propagated by Phillip Vaughan (who highly recommends it) and Kuranga Nursery, both in Melbourne.
- * There is a form sold as ***Banksia (spinulosa) cunninghamii*** variant, propagated by Bournda Plants of Tura Beach on the NSW south coast. Dave says the plants reach 70cm after 4 years and have black-styled gold inflorescences. The form came from David Shiels of Wakiti Nursery in Victoria, who got it from Alf Salkin. However it has a white undersurface (not brownish) and has a couple of serrations close to the tip of the leaf, which is reminiscent of a *marginata* leaf. I suspect it is *Banksia spinulosa spinulosa* and will confirm this with the NSW herbarium.
- * ***Banksia serrata* “Austraflora Pygmy Possum”** – Prostrate form originally from Green Cape area. Similar plants are now seen in nurseries called simply *B. serrata* (Prostrate) collected from the same area. This plant looks great in half a wine barrel.

Recent scientific journals

Recently, Katharine Evans, who studied for her PhD in the School of Botany at the University of Melbourne with Professor Pauline Ladiges a few years ago sent me some recent articles on *Banksia integrifolia* and *B. saxicola* she published, as well as one by Nicole Middleton also on *B. saxicola*. This species is a rare plant restricted to the Grampians in western Victoria with an outlying population at Wilson’s Promontory.

Over a few years, she had been investigating the foraging behaviour of pollinators and the resultant distribution of genetic variation over different spatial scales both within and between populations of *Banksia*.

A 2000 paper comparing the foraging behaviour of Eastern pygmy-possums and nectarivorous birds in *Banksia integrifolia* woodland found that birds were attracted to trees with a larger number of visible inflorescences but once within trees both visited an equal number on inflorescences.

The paper also noted an observation by Carpenter in 1978 that some banksias had a stronger odour at night (for mammal pollinators perhaps).

In 2002, a DNA analysis (using the AFLP technique) of the various subspecies of *B. integrifolia* as well as *B. aquilonia* was published in Australian Systematic Botany. It correlated well with the current classification; namely *Banksia integrifolia monticola* is more closely related to *B. i. integrifolia* than to *B. i. compar*, with *B. aquilonia* more distinct still.

In 2001, a DNA analysis (using the AFLP technique) to look at genetic variation in *Banksia saxicola* from two populations within the Grampians (Mt William & Victoria Range) and Wilson's Promontory. She found that the two Grampians populations were genetically more distinct from each other than expected (given that birds are likely pollinators), and that the Wilson's Promontory was much more distinct from the others (not surprising, given the 500km separation between colonies) and that there was lowered genetic diversity (possibly from inbreeding). This followed on from a 1996 study of the population ecology of *B. saxicola* by Nicole Middleton, who noted there were population differences but that individual plants did not exclusively group into geographically isolated populations. She also noted that the Grampians populations were generally healthy and regeneration was taking place in the absence of fire. However, at Wilson's Promontory, there had not been a fire since 1951 with no new plants appearing for at least 19 years and the existing plants ageing; this has implications for incorporating fire management in the conservation of the species.

Update: Jim Whelan (Parks Victoria Ranger at Wilson's Prom NP) adds that there is a second population of similar size (on the North Side of 5 Mile Peak) in Wilson's Promontory National Park about 7km north of the Sealers' Cove colony, which may have been burnt in 1967. The area is inaccessible except by foot and would be difficult to do a controlled burn. Furthermore, there is a lot of fuel and it may be a very hot burn, however they are developing a management plan for burning within the park.

***Banksia ericifolia* response after fire**

Betty Rymer writes about a project covering more than a decade monitoring fire response of *Banksia ericifolia* in bush on Sydney's northern boundaries:

In 1991, there was a hot fire in Kenthurst. The Parramatta/Hills District Group of the Australian Plants Society put up 10 plots each 1m x 5m on 5 sites in an area of dry sclerophyll woodland/heath on mostly shallow sandy soils and sandstone outcrops. The sites are all near the top of a northwest running ridge. Regrowth of the local flora was monitored over the ensuing years. All large shrubs of *B. ericifolia* were burnt and destroyed. They reproduced from seed in their hundreds.

In one area of 2m x 2m, the seedlings were counted at over 150 plants. Of these about half a dozen survived and grew. The first flower was seen in 1996 and did set fruit with the plant about 0.5m tall. These sites were checked up to the present fires. The banksias had reached about 2m before being burnt again. This gap of about 11 years seems about right to ensure the species survived successfully and is not completely lost.

We have photos taken over the years of every site. We have pressed specimens – all having been checked by the Royal Botanic Gardens. We've had a great deal of help from Jocelyn Powell and Barbara Weikic on grasses.

The group has just put up 10 plots on the same 5 areas to monitor the plants again. We were back for our first survey June 2003 and found lots of banksia seedlings in the gutters of the fire trail but not too many on the sites themselves. Seems the seeds dropped just as the rain fell and a lot were washed to the road. Some have since drowned in a semi permanent puddle. We were moved to transplant a few just to see how well they did back up the hill where we think their parent was (but no visible siblings).

Wendy Goonan (Parramatta/Hills Group President) adds:

‘Incidentally, we found some large banksias unburnt close to the puddle that drowned the seedlings. Some node counting might be in order there as it may not have burnt in '91 either. The puddle is pretty permanent - does that make it a soak? - and at the top edge of the ridge, but below the highest point.’

Growing Banksias in Williamstown, South Australia

Ruth Charlesworth writes:

‘We have nearly 5 acres of mostly deep white sand (just like at the beach) of unknown depth and annual rain 550mm. our soil is neutral. I have not had it tested but am relying on a nurseryman who lives nearby with similar conditions. We also have a small patch of yellow clay but no banksias in this area. Most banksias are healthy apart from a few which have some yellow tips. Some seaweed fertiliser has helped this. Some dates below are only approximate when only the year is printed.

- * *B. ashbyi* planted Dec 99 now 1m several flowers.
- * *B. attenuata* 1997 2m healthy but irregular shape, dense shade, many flowers.
- * *B. benthamiana* 2000, 1.5m healthy, has flowered the last 2 years.
- * *B. caleyi* 1999, 1.3m flowered 2001 & 2002 but no buds this year.
- * *B. coccinea* 1995 3m straggly but appears healthy, 5 flowers 2002.
- * *B. dryandroides* 1997 1m many flowers for several years
- * *B. grandis* Nov 00; 2.5m - some dry ends of leaves after drought '02; no flowers.
- * *B. lemanniana* May 01 2m x 2m, healthy with many large flowers.
- * *B. media* 1999 2x2m some yellowing, many flowers
- * *B. menziesii* 1999 1.3m flowered 2002
- * *B. occidentalis* May 03
- * *B. oreophila* March 00 healthy 1.8m x .7m one main trunk flowered 2002
- * *B. petiolaris* 1998; healthy, 0.3m x 3.5m and very sprawly; sometimes I cut it back - it has many flowers
- * *B. pilostylis* 1999; healthy, 1.5m x 1.5m - many flowers for several years
- * *B. praemorsa*
 - ... burgundy 1997 two flowers early then no more very quick growing bush 3 m
 - ... lemon candles 1998 many flowers 3m quick growing shrub
 - ... unnamed burgundy 1999 healthy flowered 2002
 - ... unnamed yellow 2000 healthy many flowers
- * *B. scabrella* Oct 00 1.0m x 0.5m, one main trunk no flowers yet
- * *B. seminuda* Aug 00 3m but no flowers
- * *B. solandri* 1998 healthy 2.5m x 1.5m flowers from 2000
- * *B. speciosa* 1998 healthy 2m x 1.5m flowered 2001
- * *B. sphaerocarpa* July 00; rabbit eaten but recovered - no flowers yet but healthy. Only 0.2m due to rabbit digging.
- * *B. victoriae* 1998 healthy flowered 2000
- * *B. violacea* 1999 healthy flowered 2001

Banksias at Penguin

Dick Burns reports:

‘Penguin is a small coastal town in the north of Tasmania, fronting directly on to Bass Strait. The climate in this region is milder than for the two main population centres of Launceston and Hobart. Summer temperatures hover around the mid-20s, with occasional winter frosts down to 1°C. Annual rainfall averages about 1000mm (40inches).

My home is on a double block about 500m in from the beach, sheltered by a few hills. It is on a slope facing west, the direction from which most of our wind and rain comes. My soil varies between a shallow fragmented cherty gravel loam to old degraded basalt-derived clay I bought the block in 1976 and started trying banksias soon after. Those from the ‘70s are as follows

- *Banksia baueri*. One of the major plants of the garden. Over the past 20+ years it has grown to 2mx3m. Flower spike size varies across the plant. I have thought this could be due to shading. 2003 is a magnificent year, with 20+ blooms in crowded clusters.

- *Banksia baxteri*. I had a good plant of this early on, but it died when I built my shade house with its automatic watering nearby. Its replacement has survived for many years overshadowed by other shrubs.
- *Banksia blechnifolia*. My plant hasn't formed a dense clump, but happily flowers every now and then. I'm trying another plant in a more open spot.
- *Banksia caleyi*. A pride-and-joy. It has grown as a dense rounded shrub about 1.5mx2m. Flowering varies with the year, but some times, the red pendulous heads are prolific.
- *Banksia canei*. A small plant, struggling in competition with others.
- *Banksia dryandroides*. My plant has remained small but healthy with several good cones.
- *Banksia integrifolia* I have 2 forms. The upright one is one of the dominant trees of the garden, in full flower right now. The prostrate form follows the contours and flowers despite being in shade.
- *Banksia marginata* I have a dense upright form along one border of the property. I used to have another tree form that I had struck from a cutting, selected because the parent was prostrate. But this was apparently due to wind pruning, because within a few years, my plant was 2m tall. It blew over in a strong wind.
- *Banksia serrata*. Another dominant tree. My plant is of Tasmanian origin, and the flowers start with a brownish tinge.
- *Banksia spinulosa*. I have several forms. Once there was a large dense plant of var. *cunninghamii*, but I lost this when I had a large tree felled, which fell on my banksia.
- *Banksia violacea* Surprisingly this plant struggles on behind the shadehouse. Not a common flowerer.

Later acquisitions are

- *Banksia coccinea* I've lost count of the number of times I tried this. I tried modifying the soil in various ways, but eventually succeeded with a pot-bound plant I found at a local hardware store labelled as *B. integrifolia*. I've had 1 flower in about 4 years.
- *Banksia ericifolia*. I have a magnificent plant, cutting struck, currently loaded with long orange spikes. A plant sold as 'burgundy-coloured' has grown but not flowered in over 10 years.
- *Banksia gardneri*. A recent purchase, just starting out.
- *Banksia* 'Giant Candles'. This is another plant suffering in a crowded garden. It is in dense shade and the spikes are small.
- *Banksia grandis*. I had a good plant of this species that reached to 4m. Then died. The replacement does not have it as easy because there is much more competition now for root space.
- *Banksia marginata*. This new plant is a cutting struck plant and I'm embarrassed to say, I've forgotten where I collected the cutting. Somewhere in Tasmania. It is about 3 years old growing with many branches with a tendency to lean down. I haven't seen it flower yet.
- *Banksia media*. This plant has remained as a small shrub, with the occasional flower.
- *Banksia menziesii*. This is another one I tried many times. Any that succeeded failed because of overshadowing. I now have one at the front of the house where there are no trees. It was sold as a dwarf form.

Failures include -

- *Banksia bookeriana*. Plants have never got past 10cm tall.
- *Banksia occidentalis* I had a tree, but it developed a lean and finally fell over. Replacements have failed.
- *Banksia prionotes*. Tried once – not a species you see in nurseries often.
- *Banksia quercifolia*. I've only tried this once. I thought it should succeed having seen a good plant in a Hobart garden on abominable clay, but no luck.
- *Banksia robur* I tried it once, when I was trying to establish a Sydney sandstone garden. But the most successful plants in my garden are those that others grow in their too-dry spots. So I never tried swamp banksia again.

Banksias in Port Macquarie

Don McLaren reports:

"I have grown banksias for many years up here in Port Macquarie. I have a small garden in town and a footpath on red volcanic loam. I get a sea breeze but it can get very humid here in summer.

In October 1995, we visited Burrendong Arboretum and I commented on some fine *B. pilostylis* & *B. blechnifolia* specimens growing there. The volunteers there said they grew very well there and gave me some seeds to try. I tried to grow several plants but the humidity killed the blechnifolias after one year, and the *B. pilostylis* lasted 3 years. I did, however, give a seedling to my brother-in-law. His place is at a lower elevation and on brown clay, though on a slope. He built a raised bed out of sand and gravel and added native plant food plus blood and bone and planted his seedling out, which is now a rounded, dense shrub 1.2m high and has flowered well for a few years. The leaves are attractive and the flowers partly hidden. A bad hailstorm caused some damage but we hope it will recover.

All of my plants have a story to them – I collected the seed and remember the location and what I saw there. It is sad to think that some interesting forms in our coastal areas have already been lost to developers (and will continue to be).

Banksia spinulosa collina is a case in point; I have seen interesting variations of this plant up and down the coast. Around Newcastle, there are generally red-styled forms, while further north on the Mid-North Coast, flowers are often all lemon yellow. A remarkable form I have growing has large (20-30cm) lemon yellow conspicuous inflorescences. The plant is over 4m, still growing and has had the top pruned off it many times. It is in a well drained part of the garden near a drain where it gets access to permanent moisture, which it no doubt appreciates. It comes from near Laurieton. Sadly one stand of this marvellous form was demolished when a new road was built through it.

I have another plant growing nearby that came from the northern side of the Hastings River that has the same flowers but the height is only 1.5m.

I also have flowered a form of *Banksia ericifolia macrantha* with yellow perianth and red styles, which made for a most attractive inflorescence. The habit of this subspecies is quite different from the southern one; it loses most of the leaves from the bottom of the tree and from my experience here does not live as long. I have lost 4 trees at about 10 years – my southern *B. ericifolia* is still growing strong and has a base trunk of about 400mm.

Around Port Macquarie to Laurieton is an unusual form of *Banksia robur* with leaves much smaller than usual, only 250mm long by 70mm wide – normal being around 350mm long by 140mm wide. Flowers are similar. I am aware it hybridises with *Banksia oblongifolia* but haven't seen any *B. oblongifolia* in this area.

I have a fine *Banksia integrifolia* in my garden, which is popular with the flying foxes and sugar gliders (until the cats ate them). The inflorescences on my 8m high tree (pruned off the roof) seem larger and are more hidden than the trees on the headlands. The bark also seems a bit different, though it might be just that it is growing well.)

This plant came from a group about 5km from the coast and growing on shale and clay. The group is now all gone.

Prostrate *B. integrifolia* true from seed? Well I can report I did get a seed from a plant in a garden in Newcastle and the resultant seedling is prostrate, its branches cascading nicely over a wall in my garden.

Another plant I have growing well is *Banksia conferta penicillata* which flowers well every year and started to flower about 4 years from seed. I call it the Smelly Banksia, as it has a strong unpleasant smell, which everyone notices when I take to a Mid-North Coast group meeting.

The following is a list of the banksias that are growing in my yard in June 2003:

- * *B. "Giant Candles"*
- * *B. integrifolia* (Port Macquarie)
- * *B. integrifolia* (prostrate) (Newcastle)
- * *B. conferta penicillata* (Blue Mountains)
- * *B. marginata* (Blue Mountains)
- * *B. oblongifolia* (up to 3m now, from a crop of plants 3m high in the Hunter region)
- * *B. robur* large leaf (Sydney)
- * *B. robur* small leaf (Port Macquarie)
- * *B. paludosa paludosa* (x2) (60cm tall - Ocean Drive/Lake Cathie Rd)
- * *B. serrata* (Foster)

- * *B. aemula* (x2) (Port Macquarie)
- * *B. spinulosa* (x3) (Central Coast)
- * *B. spinulosa collina* (x2) – yellow flowers (Port Macquarie)
- * *B. spinulosa collina* – red styles
- * *B. spinulosa neoanglica* (Werrikimbe)
- * *B. cunninghamii*
- * *B. ericifolia ericifolia*
- * *B. ericifolia macrantha*

Seed Bank & Nursery Contacts for eastern cultivars mentioned

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. John Armstrong has some extra *Banksia blechnifolia*, *caleyi*, *dryandroides* and *speciosa* and is happy to share some with other Study Group members – he can be contacted on (03) 5988 6275 (AH) or fax (03) 5985 7289. Postal: PO Box 27 Rye Vic 3941.

Thanks John for offering to share – The first three may be worth a try in NSW and I hope someone here tries some. Feedback on *caleyi* and *dryandroides* is lacking though they are feasible.

- Nindethana Seeds (08) 9844 3533
- Banksia Farm (08) 9851 1770 phone/fax

Bournda Plants – Widgeram Rd Tura Beach 2548 (02) 6495 9999

Carawah Nursery (w'sale) - 15 Falls Rd Hoddles Creek 3139 (03) 5967 4244

carawahnrnsy@bigpond.com.au

Gondwana – 148 Cregans Rd Barkers Vale, NSW 2474 (02) 6689 7544

Kuranga Nursery – 393 Maroondah Hwy, Ringwood (03) 9879

4076 <http://www.whitepages.com.au/wp/search/redirect.jhtml?url=>

Merricks Nursery - 3361 Frankston-Flinders Rd Merricks, Vic 3916 (03) 5983 1412

merricks@surf.net.au

Plants Of Tasmania Nursery – 65 Hall St Ridgeway, Tas (03) 6239 1583

Wakiti Nursery - RMB 2000 St Violet Town 3669 0411 106

365 <http://www.whitepages.com.au/wp/search/redirect.jhtml?url=>

Wildtech Nursery - Licola Rd, Glenmaggie Vic 3858: (03) 5148 0317 wildtech@netspace.net.au

Wirreanda Nursery - 169 Wirreanda Rd Ingleside 2101 (02) 9450 1400

wirreandanursery@ozemail.com.au <http://www.whitepages.com.au/wp/search/redirect.jhtml?url=>

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- An investigation of genetic variation in *Banksia integrifolia* (Proteaceae) using the AFLP technique. Evans, KM, Newbigin, E, and Ladiges, PY. Australian Systematic Botany (15), 9-17. 2002
- Genetic variation in *Banksia saxicola* (Proteaceae), a rare Australian plant with a markedly disjunct distribution. Evans, KM, Ladiges, PY, Newbigin, E and Ades, PK. Plant Systematics and Evolution 227: 105-115. 2001
- A comparison of the foraging behaviour of the Eastern pygmy-possum (*Cercartetus nanus*) and nectarivorous birds in a *Banksia integrifolia* woodland. Evans, KM and Bunce, A. Australian Mammalogy 22: 81-86. 2000