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ANPSA BRACHYCHITON & ALLIED GENERA STUDY GROUP
ISSN 0816-178x
Newsletter No. 34. June 2009.
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For easy photocopying.)

Financial matters : Subs run from June to June, & remain at $ 5 within Australia, & $ 10 overseas. A tick in the relevant spot below shows where you are financial up to, according to my records.
2006-07 √ 2007-08 √ 2008-09 2009-2010 2010-2011

New hybrids created : Approaching flowering size here are *B. bidwillii (*Beau Belle*) x B. muellerianus* (an apricot-pink clone) seedlings. Trevor Garrad, a semi-retired nurseryman cum farmer, breeder of the widely used *Syzygium* Tiny Trev, & brachy fancier, gave me a flowered plant of the same cross (but done using different clonal parents), which is a pale apricot-pink. He also gave me cutting material of 2 different clones of a cross between his equivalent of Robin Hood (*acerifolius x bidwillii*), but using parents not as good as Merv used (but they gave a good result), x 'Jerilderie Red' , an x-*roseus* (*acerifolius* x *populneus*) hybrid about 100 years old. Maybe even a little more. I have yet to get a pod set on a *roseus* tree, unlike virtually all my other mature brachys except maybe Griffith Pink. These two 3-way hybrids should be big enough to flower in the spring, hopefully.

Small seedlings include *albidus, chillagoensis, bidwillii* Beau Belle x *garrowayae, bidwillii* Red Belle (= K10) x *garrowayae,* Robin Hood (*acerifolius x bidwillii)* x *bidwillii,* Robin Hood x *muellerianus,* Robin Hood x *discolor* [has reddish bark & red-veined leaves close in shape to juvenile *discolor*], Robin Hood x *garrawayae*, Robin Hood x x-excellens (*discolor x bidwillii*) 'Rosalind', Rosalind x *garrawayae,* Rosalind x *spectabilis*, & various line-breedings within *bidwillii*, which may be the most variable of all brachys. Older seedlings include *bidwillii* Beau Belle x *vitifolius.* Seedlings from this summer's pods include various Robin Hood clones x *garrowayae, &* Jasper Lode x *garrowayae.*

Rockhampton member David Long reported poorer than usual brachy flowerings up there last year, probably due mainly to the dry. He has some *spectabilis* hybrids I have not seen yet, including *excellens* (not Rosalind in his case, I think) x *spectabilis*, & *excellens* x [*acerifolius* x *bidwillii*]. Iwill try & see them this coming spring. South Australian member Matthew Oxford has had good results with Beau Belle, Belladonna, Clarabelle, an *excellens* called 'Noel's Surprise' bred on the Sunshine Coast & marketed by Trevor Garrad, & others. Quite a few of these have been used as street trees by the City of Playford (part of Adelaide, I think). Noel's Surprise & most other *excellens* clones are slow-growing here, unlike Rosalind.

Species roundup : The last section of this newsletter is a slightly altered version of a talk I gave to SGAP-Toowoomba in August 2008, & is a general summary of the genus.

Another hybrid named : I have mentioned in a couple of earlier newsletters a hybrid raised by a friend of mine that is almost certainly Qld bottletree x flame tree (*rupestris* x *acerifolius*). The female parent was *rupestris*, & as a seedling it looked almost pure flame tree. Adult leaves are mostly unlobed & look similar to an unlobed *populneus.* As it switched to producing some adult leaves, it produced some 'adult' branches at random over the tree, imterspersed with juvenile ones, & with all leaves on a given branch all either the one form or the other. It flowered on the adult branches, giving short upright spikes of smallish tangerine-coloured flowers, & I have called it Tangerine Belle. It is now a very dense 6 m tree, close to a rounded pyramid in shape, quite unlike a young *rupestris*, & a good deal denser than even well-watered flame trees. It is not a spectacular blossom tree, but an interesting foliage one, with 2 'iconic' parents.
It grafts easily on to flame tree.

Finale : As of late June, it is still raining every 2 or 3 days in Brisbane & environs, with 70 mm around the 20th. However the SOI has turned distinctly negative, & drought later in the year looks all too likely. My neighbouring turf farm has put in 80 megalitres of extra water storage, & should be able to look after me for a couple of years. I grow shrubs for his landscaping enterprise in return, & give him use of some of my land to grow turf. Suits us both. Best wishes to everyone for the coming financial year. Kerry.

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The genus *Brachychiton*, & its close cousin *Sterculia*.

Kerry Rathie, August 2008.

All brachys are highly drought resistant, some almost too much so, as most or all of the species from semi-arid areas have seedlings which can rot if over-watered while dormant. This is because tubers are formed by plants only a couple of inches tall. In many species the tubers are edible, fresh or roasted, while small. Root growth is rarely a nuisance.

Some species are totally evergreen (populneus, diversifolius, gregorii), but most are deciduous while flowering. All go deciduous if stressed by drought or heavy frosts. Most tropical species are winter-spring flowering, while the more southern species tend to be spring-summer flowerers. Hybrids between the groups can inherit the flowering period of both parents, or be worse than either. Length of flowering period, & intensity of flowering, are two of the main traits I have selected for, as many species already have large attractive flowers in a range of colours. All species appear to graft onto all other species, & on to Sterculias, though I have not tested many species of the latter. All but 2 brachys are endemic to Australia, one, B. carruthersii, is endemic to New Guinea, & B. velutinosus occurs in both countries. There are quite a few Sterculia spp. scattered around the world, several producing good edible nuts, including Australia's peanut tree, S. quadrifida. Some of the Philippines species are supposed to be really good, & they graft onto S. quadrifida. I had some, but lost them (& some of my NT Sterculia species) in the fierce frosts of July 2007, & my supplier died of cancer a few years ago. A 'New Age' medicines supplier, among other things, he made the mistake of believing in his own propaganda until too late.

There are a number of large trees suitable mainly for parks & large gardens, but some of these are fairly slow-growing once past the sapling stage, & sometimes advanced specimens are transplanted to streets or in front of office buildings. Qld bottle trees, B. rupestris, are an example around Brisbane, Adelaide & Canberra. Most or all brachys transplant readily, large or small, if given adequate care. Some of the large trees are brilliant blossom trees. Others, like the bottle tree group, have interesting adult shapes & striking juvenile foliage which they retain for a decade or two, or perhaps longer. The kurrajong group make excellent shade trees & provide quite nutritious fodder for livestock, & like most or all brachys tolerate severe lopping (pruning).

All plants of all species are capable of producing all male flowers, all female flowers, or a mixture of the two, at any given time. Male flowers usually predominate. Some hybrids produce very few female flowers indeed. Several new species are yet to be formally described, as are two species that have been around for quite a few years, namely B. sp. Ormeau from near Dreamworld, & B. sp. Exmoor Station from inland north Qld. They both exist in very small populations, perhaps of the order of 20 trees each. B. sp. Ormeau has the largest contrast between its juvenile & adult leaves, & in fact the first tree ever 'found' had been mistaken for a mango & parked under more than once by SGAP people looking at the nearby patch of remnant rainforest, until it gave itself away by dropping an obvious brachy pod. Both of these are quite frost tolerant, as neither showed any sign of damage after the –6.5 frost last year, while nearby Syzygium tierneyanum trees 25 feet tall were killed back to ground level (& then reshot this year). I know of no seedling sp.Ormeau trees that have yet switched to adult foliage in the 20 or so years since their discovery.

Some of the smaller trees or shrubs, especially B. bidwillii & its hybrids, are suitable for small gardens, & bidwillii passes its frost tolerance on to its hybrids in most cases. The recent -3 frosts at my place have not stopped the two hybrids (Jasper Belle & Robin Hood) that were in flower from flowering, nor removed their leaves, but the –6 & -5 frosts last year certainly did both, although causing no permanent damage. Some of the tropical species lost quite a few twigs, but the inland tropical species B. spectabilis suffered no harm, apart from having its flowering period delayed. In Brisbane it flowers in early summer anyway, as against winter-spring in the NT. Griffith Pink, a purply-pink hybrid between discolor & populneus created about a hundred years ago, did not notice the –6.5 frost last year. A year or two earlier a customer of mine with a winery & farm at Mudgee in NSW had horrendous frosts, several of –11 & -12, which killed not only bidwillii & some of its hybrids, but also sapling populneus. The former group were grafted on to acerifolius, & may have survived if on bidwillii or discolor. Populneus survive at Canberra, just.

Other uses for brachys are as a high class flour, from ground seeds, which adds flavour to cakes & so on, to a greater extent than the more widely used wattle-seed flour. It also has roughly twice the protein content of wattle seed flour, although the bush food books mostly state they are equivalent. This is due to a widespread error in analysis of many wattle seeds, especially prior to 2000. Roughly half the N content of a wattle seed is contained in the insoluble & inedible & sometimes poisonous seed coat, & early chemical tests used the Kjeldahl reaction to gauge total N, & then extrapolated from that to protein percentage, getting about double the true figure. Brachy seeds also make quite a good coffee substitute, much better than the cereal-based caffeine-free brew my wife sometimes drinks. The things holding back utilisation of brachy flour & coffee are the relative rarity of brachy seed, & the irritating silicaceous hairs which cover the seeds in the pod to a greater or lesser degree. Some bush foods books claim, falsely, that these hairs are poisonous. Aborigines used to briefly half-roast the seeds to singe off the hairs, before making flour. A couple of WA species have sticky pods oozing oxalates, & I still vividly remember shelling pods of viscidulus in a Kunnunurra motel because I needed the space for other things, & having fingers full of oxalate crystals. The various brachy species & hybrids vary greatly both in how many pods they carry, & in how many hairs are present, & I am sure a prolific pod-bearing strain with almost no hairs could easily be bred, although I have made no attempts along those lines. I would if I were younger. Some types of bidwillii are almost there anyway. The roseus hybrids resulting from crossing flame tree & inland Kurrajong (populneus) usually flower profusely but set few or no pods. I can't recall seeing one on my trees, though they do occur sometimes. Their pollen is perfectly fertile.The 2 parents of this cross must be genetically fairly far apart, although each grafts readily on to the other, with the exception of the weeping-leaf variant (central Australia) of populneus, which is damnably difficult, unlike all other brachys I know of (not all have been tried). I wonder if it is has gregorii in its makeup, or may indeed be straight gregorii, as I did not collect it myself, & the 2 species have very similar leaves.

In northern Australia the inner bark of several species of small brachys was very widely used, & still is in the NT & the Kimberleys, to make strong & long-lasting rope & woven bags & so on. Many an indigenous-owned vehicle still gets towed on a brachy rope.

When Gordon Guymer was writing up his Ph.D. thesis on brachys, published in 1988, he took the unusual step for a botanist of giving valid scientific names to almost all the classes of hybrid he then knew about. (Some more have been found since.). Seven of these were natural hybrids, & two were man-made. They are roseus & excellens, the former technically *Brachychiton* x *roseus* Guymer, but I am too lazy to use the italics, the 'x' & the 'describing author' when it is obvious what I am talking about. Roseus is acerifolius x populneus, described by Mueller in 1884, & excellens, which is bidwillii x discolor, was described by Guymer from street trees in Dubbo in 1977. He suspected it also occurred as a natural hybrid, & several excellens trees have arisen around Brisbane without deliberate pollinating, but from cultivated trees.

The seven natural hybrids are turgidulus (rupestris x populneus), vinicolor (acerifolius x discolor), incarnatus (discolor x populneus), carneus (garrawayae x grandiflorus), allochrous (grandiflorus x muellerianus), hirtellus (megaphyllus x multicaulis) & apparent hybrids between albidus & chillagoensis, but he did not confer a scientific name on this last hybrid. He commented that turgidulus seems inferior horticulturally to its parents, & I agree. Some forms of roseus, excellens, incarnatus & allochrous are superb. I would expect carneus to be nice also, but have seen none, & have not made the cross as my place is too cold for grandiflorus to flower, apparently. I have had grafted plants from mature grandiflorus, & an alleged hybrid, for a decade, but not a flower. A graft from mine has flowered well at Canungra, however. A suspected allochrous plant owned by Garry Sankowsky in FNQ is multi-coloured with large flowers but as yet a shy flowerer at my place. My surviving plant, of two initially, is over-wintering at my brother's frost-free property on the north side of Brisbane, as are my allochrous, muellerianus, & viscidulus (very cold-sensitive) plants, &, as a precaution, some of my hybrids between bidwillii 'Beau Belle' & an apricot muellerianus.

I give below the species recognised by Guymer in 1988, plus B. sp. Ormeau & B. sp. Exmoor Station which I have been growing for years. Both are yet to be formally described, although they are obviously distinct species. Neither was known in 1988, & the Qld Herbarium lists several other undescribed species which I shall skip over until I know more about them. I shall list average plant heights in brackets. Seedling morphology is usually constant & characteristic for a species.

Guymer recognised 5 sections within the genus. The first, Section Oxystele, contains just 2 large red-flowering trees, the flame tree, B. acerifolius (20-45m), & the New Guinea flame tree, B. carruthersii (18-35m). Both are outstanding flowering plants.

The second, Section Poecilodermis, are the true kurrajongs with usually greeny-cream flowers, often with brown inside the flowers. All are good fodder & shade trees. They comprise (1) populneus (8-20m), with a basically southern & coastal subspecies, populneus, running from Gippsland nearly to Rockhampton, & a basically northern & inland subspecies, trilobus, which however does extend (well inland) nearly to the latitude of Sydney, (2) gregorii (4-12m) from arid central Australia [the southern half of WA & the N-W of SA up to a little north of Alice Springs], & (3) diversifolius (5-18m), which has one subspecies, diversifolius, which is widely distributed over the Top End of the NT & Kimberleys & the western Gulf area of Qld, & a second, orientalis, which is on the east side of Cape York. B.gregorii seedlings cannot be distinguished from some forms of populneus.

The third, Section Delabechea, are the true bottle trees, all with bottle trunks, great variation between their juvenile & adult leaves, dense ornamental foliage, & flowers which are cream to yellow to green, often blotched with red inside. The flowers are insignificant compared to the trunks & foliage. They comprise the Qld bottle tree, rupestris, the Proserpine bottle tree, compactus, & B. sp. Ormeau. This last species can have either cream (as in our book 'Mangroves to Mountains') or butter-yellow flowers, which are often in dense clusters all over the tree. All are outstandingly ornamental.

The fourth, Section Trichosiphon, have flowers similar to the bottle trees, but lack the obvious bottle, being more columnar in the trunk, except in old trees of B. acuminatus. They comprise australis (8-25m) from eastern Qld north of Roma to the southern 1/3 of Cape York, collinus (6-10m) from Mt.Isa in Qld to Borroloola in the NT, acuminatus (3-7m) from the N-W of WA (S of Port Headland) & obtusilobus (3.5-6m) from a very small area (Cape Range) on N-W Cape Peninsula, WA. B. collinus & acuminatus have maple-like leaves, & at least the former grows into a dense pyramid shape for many years. I have only seen fully mature acuminatus trees, & their shape was most attractive, with a central bulge to the trunk (similar tosome palms), not mentioned by Guymer. Perhaps they vary. B. obtusilobus has leaves which are shallowly 5-7 lobed, & quite unlike those of the rest of the section.

The fifth & final section, Section Brachychiton, with over 20 species, is by far the largest. All are trees or shrubs with cylindrical trunks, & usually red, orange-red or pink flowers, rarely pale green or white, 20-70 mm long & 16-70 mm in diameter. They thus typically have larger individual flowers than the other sections. All have cryptocotylar germination, which means the cotyledons never show above ground, unlike all other sections. This trait is recessive, thus for example the Robin Hoods (acerifolius x bidwillii) all show their cotyledons.

Firstly, there are three substantial trees (if B. sp. Exmoor Station fits into this Section), all with red or pink flowers ; sp. Exmoor Station (c 8 m) from inland Qld about the latitude of Bowen, velutinosus (7-20 m) from the Central District of PNG & north-eastern Cape York, & discolor from eastern Australia (Dungog in NSW to just north of Mackay in Qld, mainly in dry rainforest). B. sp. Exmoor Station has glossy leaves, usually unlobed, & grows very bushy in cultivation. Then there are 15 or so small tropical trees with what Guymer calls dull red flowers ; I find some bright red, some orangy, some pink or apricot, & many of them gorgeous. Their habitats being mostly in areas little travelled until recently, & in many cases their need of tropical conditions, have led to most of them being little known. B. bidwillii, which comes from Boonah up to Bowen (& perhaps further ; the shrubs round Laura look very bidwillii-like), is a partial exception, being in southern Qld as well as further north, & being fairly frost-tolerant. It is still little known outside Qld, It is immensely variable in leaf shape & colouration (some forms are almost purple when young due to the dense hairs, & others glabrous), flower colour, flower size, height & habit (small tree or multi-stemmed shrub). Unfortunately its early reputation in Qld was not helped by the fact that the best forms come from inland of Bowen, & the worst from around Brisbane where people saw them. It is also variable in how much, & how early, it flowers on the trunk as well as on the twigs & branches. The best forms, like 'Beau Belle', flower there early, & in later years can have circles of 100 or so flowers almost meeting on the trunk. Its closest relative, according to Guymer, is discolor.

The following species I have seen or grown, & all have basically red flowers & are highly attractive : chillagoensis (4-8 m) from north Qld (common near Chillagoe & Almaden), grandiflorus (9-16 m) from central CapeYork (south of the McIlwraith Range), albidus (4-8 m) from the southern part of the Cook District (below Cooktown to half way between Cairns & Townsville), the closely related garrawayae (5-12 m) from Cape York (common N-W of Laura & near Coen) ; my sole plant has non-fading dark red flowers which seem to be much larger than the average for the species (red bidwillii flowers usually fade rapidly to pink), viscidulus (3-7 m) & fitzgeraldianus (4-14 m) both widely distributed across the Kimberleys, spectabilis (closely related to the previous two) from the Victoria river area of the NT, & muellerianus (6-12 m) from the northern half of Cape York. I am not sure if I have seen paradoxus (3-9 m) or not, as most alleged paradoxus in cultivation are clearly something else. Before Guymer, books tended to call every smallish red-flowering brachy in northern Australia, particularly the common megaphyllus (2-8 m) from the northern NT, paradoxus. Guymer says it is closely related to chillagoensis, with similar flowers. It is found in the eastern part of the Darwin & Gulf District (e.g., Boroloola) of the NT & the northern part of the adjacent Burke District of Qld. The large-leaved megaphyllus is the floral emblem of Darwin, & widely distributed in the Top End of the NT. Normally red or pinky-apricot, I have also seen white flowers ; some are in cultivation in Brisbane. All the colour variants are greenish at the base of the flower.

A species with small red flowers but interesting leaves is vitifolius (1-5 m) from Cape York, inland from Cooktown. It does not like Brisbane much, but I have crossed it to bidwillii, probably its closest relative according to Guymer, hoping to get the small size & unique leaves with the palmate veins heavily impressed above (much raised below). The F1 plants look more like a small bidwillii, but the F2 may be more interesting. A species with fascinating maple-like leaves, silvery below, is incanus (4-6 m) from a small area in the Vansittart Bay & Cambridge Gulf areas of WA. Flowers are smallish & red. Another with interesting leaves is tuberculatus (2-7 m) from the lower Ord River area in WA, near the NT border. It has very hairy leaves 11-22 cm long by 14-23 cm wide, dull green above & silvery below, & seed pods with raised tubercles. Seedlings I raised all damped off. A species with small red flowers, ovoid follicles & leaves which are pale grey below (& dry to white) is tridentatus (4-6 m) from the northern part of the Hann District of WA. I know of one plant in Toowoomba. The somewhat related viridiflorus (2-5 m) is widely but sparsely distributed over the Hann & Fitzroy districts of WA, & is unique in the Section with its pale green flowers, small leaves (4.5-8 cm long) & recurved follicles. B. multicaulis (1-4 m) from central NT, north of Tennant Creek, is multi-stemmed with red flowers & tuberculate follicles, & may be related to tuberculatus or paradoxus. From the northern part of the Hann District (think Mitchell Plateau) of WA, B. xanthophyllus (3-10 m) has pink flowers, green at their base, 3-lobed leaves, & is probably most closely related to megaphyllus, whose flowers are also usually green at the base. I have collected (from about half way between Katherine & Kunnunurra) & grown a form of megaphyllus with its typical flowers, but much taller than megaphyllus should be, & with much larger pods. Probably is still megaphyllus, but one that ate too many Weeties or steroids in its youth.