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Rainforest Study Group

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Hello everyone, I'm sure this newsletter has been long awaited for study group members. I have had to reside to the fact that colour photos in the newsletter were going to cost too much and owing to my irregularity of posting them I couldn't take the option of increasing the membership costs to the group. Instead I have posted the photos of many of the plants, which I have spoken about, on the following web site. I will endeavour to utilise an ASGAP website in due course.

http://spaces.msn.com/members/kriskupsch/PersonalSpace.aspx?_c01_photoalbum=showdefault&_c02_owner=1&_c=photoalbum

The subscriptions to this years membership will be relaxed primarily due to my 'slackness' and as the groups balance is currently a little over $400 and in no need of 'topping up' at the moment. I will send the next two upcoming newsletters regardless of subscription renewals. Those persons wanting previous newsletters (last one Jan '05) please contact myself by phone or email.

MY GARDEN UPDATES

My garden is thriving and I have just completed an updated database of all the species, which I cultivate. Any members who would like a copy of this list please contact me and I will send a list (preferably by email) which additionally contains brief notes on the 1133 species which I have growing and the 79 species which I have tried growing, however have died for various reasons. I'm currently concentrating on growing species from Queenslands Wet Tropics montane peaks.

Winter is well and truly over with night time temperatures now well over 15°C and average temperatures now reaching 22°C. We have had a mild winter with only two frosts occurring on the flats and additionally high rainfall for our dry season. Our lowest temperature was 3.9°C, which is a fraction warmer than expected. Due to excessive rainfall in June (611mm) the ground has remained moist throughout the winter, which has resulted in a mass of growth now that the warm northerlies have returned. Notwithstanding, winter did result in a few casualties, these being:

1. *Calophyllum bicolor*, a rare species from Cape York, all ten specimens died following two days when maximum temperatures never exceeded 14°C.
2. *Pandanus basedowii* seedlings from Arnhem Land died, however I have older specimens doing fine.
3. *Nypa fruticans* the mangrove palm from the tropics died, however this was expected.
4. *Gulubia costata* (recently assigned to the genus *Hydriastele*). This species has been reported to survive Brisbane winters when grown in a humid greenhouse.
5. *Morinda citrifolia ssp. bracteata*, as with the typical subspecies, both are very cold sensitive, however I have a *Morinda citrifolia ssp. citrifolia* now flowering, the only one of 10 that survived two winters now.

The foremost difficulty with tropical species is that they detest being wet and cold. During the end of June we received a monumental rainfall event where 23 inches of rain fell over three days. Many of my 'Top End' species became sick with a particular Cape York savanna species basically developing mould on its leaves and rotting. I have read in Kerry Rathie's journals (leader of the ASGAP Palm/Cycad and *Brachychiton* Study Group) where he places some Cycad specimens into a dry shed to avoid rotting during occasional wet-cold winters. They then must be planted in brightly lit well-drained 'suntrap'. There certainly is a skill in growing some of Australia's cold tender species in

subtropical areas whilst others do surprisingly well, even self-seeding and becoming of ecological concern. The current distribution of species is determined by the past and often not by the present day conditions.

Some species which I have flowering/fruiting in my garden at the moment:

1. *Elaeocarpus johnsonii, E. coorangooloo* and *E.grahamii* are flowering.
2. *Peripentadenia phelpsii* a large tree (Elaeocarpacaeae) from the Mossman-Julatten area in the Wet Tropics. White bell shaped flowers borne on the branches.
3. *Brachychiton velutinosus* and *B. garrawayei* from Cape York are flowering well.
4. *Dysoxylum parasiticum* a cauliflorous species in the *Meliaceae* family from the Wet Tropics, unusual and decorative.
5. *Davidsonia johnsonii* and *D. jerseyana are* flowering heavily *D. pruriens* is fruiting.
6. *Syzygium rubrimolle* is fruiting heavily with fruit landing on the roof! They are large fruit the size of a small apple and edible.
7. *Cassia queenslandica* is flowering with its amazing golden racemes in profusion.
8. *Diploglottis bracteata*, *smithii* and *obovata* are flowering heavily.
9. *Cryptocarya williwilliana* and *C. sclerophylla* is flowering. They are shrubs most suited to small gardens. From north-central NSW and SE QLD respectively.
10. *Syzygium wilsonii spp. wilsonii* is flowering with well over 300 blooms on this 4m high shrub, an amazing plant.
11. *Cupaniopsis cooperorum* is flowering well again, easy to grow in the shade.
12. *Eupomatia barbata* the *E. bennettii* equivalent from the Wet Tropics is flowering. This species is very easy to grow reaching just 1m at the most.
13. *Elaeocarpus carolinae* from the Wet Tropics flowered with about a million flowers over this 5m high tree. The tree was simply a spectacular sight.
14. *Hernandia bivalvis* from SE QLD dry rainforests is flowering well.
15. *Aceratium ferrugineum* is flowering. A highland Elaeocarpaceae with huge ornamental potential. Large pink bell-shaped flowers produced in profusion. Tolerates full sun and grown by cuttings
16. *Tecomanthe sp.* Roaring Meg Creek produced many tubular pink flowers on the stems. A hardy vine to grow.

RAINFOREST QUANDONGS

The *Elaeocarpus* genus is within the pantropical family Elaeocarpaceae. Australia has a diverse assemblage of species within this family, many being restricted to refugial habitats whilst a small number are widespread and occur over a wide geographical range.

Quandongs are mostly easy to grow within cultivation and many have considerable horticultural potential in southern Australia, especially the highland species from the Wet Tropics. I consider *E. johnsonii* to be a most overlooked species, one that grows well by cuttings, develops a squat bushy habit and has very decorative bell shaped flowers in profusion.

1. Elaeocarpus angustifolius Silver Quandong. This species is the northern equivalent of the southern *E. grandis.* The taxonomic splitting of this species from its southern cousin has been debated, however I'm of the opinion that this is warranted. The leaves of this species (as the specific name suggests) are much narrower and the fruits are additionally smaller than *E. grandis*. The Silver Quandong is also common within non-riparian habitats whilst *E. grandis* is a riparian specialist; however not restricted to this habitat by no means. It grows easily in cultivation and possibly shouldn't be grown in southern states to avoid 'genetic pollution' with *E. grandis*. It is widespread throughout North Queensland.

2. *Elaeocarpus arnhemicus* Bony Quandong. This Quandong grows within drier sites of tropical Australia, superficially resembling *E. obovatus*. Plants have grown well in cultivation within NSW and have adopted a bushy habit and have attractive serrated leaves when young.

3. Elaeocarpus bancroftii Kuranda Quandong. This is a hardy tree that can be successfully grown in NSW, bearing fruit after about 6 years. It is restricted to the Wet Tropics being found in very wet forests and seasonally wet rainforests. Its fruits are large and the persistent rat-eaten endocarp is a sign as to where the trees are within the forest. It can be grown by seed, which doesn't require cracking, and by cuttings, which are relatively easy to strike. When in flower is very ornamental

4. *Elaeocarpus carolinae* occurs in the highlands of the Wet Tropics and is very common along mountain roads such as on Mt Lewis. I have one specimen in the garden, which was recently a mass of flowers. It has grown

easily within full sun and without additional water. It reportedly grows well and flowers in the ANBG in Canberra. It has small lime green leaves and flowers mainly on the old wood.

5. *Elaeocarpus coorangooloo* This species occurs from the Windsor Tableland, northwest of Mossman and extends south to the Paluma region northwest of Townsville. It has performed very well in cultivation growing quickly and flowering heavily. The old leaves turn red and trees grow upright and produce buttress roots from a young age. Reportedly, this species is more closely related to a PNG species than it is to other Australian species.

6. *Elaeocarpus elliffii* occurs commonly above 200m within the highlands of the Wet Tropics. It is a fairly nondescript species with large domatia present within its leaves. Plants can be difficult to establish in low rainfall areas.

7. *Elaeocarpus eumundii* The Eumundi Quandong reaches its southern limits in the Big Scrub area of NENSW, where it is locally common and extends to the McIlwraith Range on Cape York. It is rather common in parts of the Nightcap Range, growing within warm temperate rainforest and additionally within the Tweed's subtropical lowland rainforest. Specimens from NQLD have rounded/obtuse leaves than to those from NSW. Trees are fast growing reaching 6m in 4 years and are spectacular in flower.

8. *Elaeocarpus ferruginiflorus* is a highland mountaintop species with attractive serrated rigid rusty leaves. I have seen it growing well in NQLD gardens however my specimens died, although this was ten years ago when my garden was a harsher place! It can be observed growing besides the Mount Lewis road in NQ.

9. *Elaeocarpus foveolatus* occurs naturally from Eungella west of Mackay into the Wet Tropics. It is a moderately fast growing species well suited to southern latitudes quickly developing the typical Quandong layered growth habit.

10. *Elaeocarpus grahamii* is found within the foothill rainforests and wet sclerophyll of the Wet Tropics and can be locally common. It is a mere understorey tree and fruits when young (<3m tall). Trees have grown very well in NSW and quickly develop a central leading stem that bursts through to the garden canopy. The lime green leaves are covered in silky hairs.

11. *Elaeocarpus grandis* the Blue Quandong requires little introduction to native plant enthusiasts. It is a very fast growing tree to 35m that prefers being planted near water or within moist fertile soil. It cannot tolerate frost and I have observed 10m high trees killed by sudden cold spells. Trees are grown by seed, which must be collected from the previous years crop and cracked to extract the seeds. This ensures that germination takes two weeks rather than 2 months or even 2 years. Four metres of growth in the first year aren't un-heard of.

12. *Elaeocarpus holopetalus* occurs south of Dorrigo to the East Gippsland, Victoria in cool temperate rainforests. It was first introduced to me in my early years, I mistook it for a species of *Helicia* as it was covered in moss and had hard rigid leaves. I would like to try to cultivate it and would be keen to hear of people's success/failures.

13. *Elaeocarpus johnsonii* is a wonderful plant with large furry leaves from the highlands of the Wet Tropics. It naturally occurs on granite and metamorphics but I have seen it on basalt and I have it growing on clay. It grows easy by cuttings and my specimen flowers at a height of 2m tall in every leaf axil. Spotty green fruits follow the flowers.

14. *Elaeocarpus kirtonii* the Silver Quandong occurs from Milton, NSW to Eungella west of Mackay. It is a common species within the Tweed district and can be found at high altitudes. This species is spectacular when in new growth and should be more commonly grown. Cuttings strike reliably. Trees grow to 40m within the forest, however garden specimens would reach 15m.

15. Elaeocarpus largiflorens ssp. largiflorens the Tropical Quandong occurs commonly within the highlands of the Wet Tropics. It grows well in cultivation with all specimens growing fast in NSW. It tolerates full sun when young and produces large decorative red/orange senescing leaves.

16. *Elaeocarpus largiflorens ssp. retinervis* is restricted to the granite highlands to the west of Mossman, extending just to the north of Cape Tribulation. I have seen it on Mt Lewis where it is rather common in locations at high altitudes above 1000m asl in very wet forest and is untried in cultivation.

17. *Elaeocarpus linsmithii* occurs as a small tree to 7m on the granite highlands between Mount Bartle Frere and Mt Spurgeon west of Mossman. I haven't cultivated this species however in the wild I have seen it flowering at 1m tall growing within the highly leached soils of the fern thickets on Mount Bartle Frere where it receives over 6000mm of rain annually and up to 12000mm. A nice looking plant.

18. *Elaeocarpus miegei ssp. miegei* is known only from Melville Island in the Northern Territory and additionally the Solomon Islands, PNG and Bismark Archipelago. It is listed as critically endangered with the flora of the Northern Territory and its occurrence in Australia is likely linked to migratory birds and may further occur on offshore islands.

19. *Elaeocarpus michaelii (E. aff. culminicola*) occurs within coastal areas from Tully north. I have seen it on a number of occasions growing always in close proximity to the ocean. At Cape Tribulation there is a specimen growing in sand near Mangroves. It is worthy of cultivation growing well in NSW and tolerating the cooler winters.

20. *Elaeocarpus obovatus* the Hard Quandong is rather common from Wyong, NSW to its northern limit within the Undara Volcanic NP, southwest of Cairns. It occurs as a large tree to 35m with notable blotches of white lichen on its trunk. I have seen the northern specimens growing within the Undara Crater. They barely reach 15m whilst the specimens, which occur naturally in my locality, are large 35m trees. I too would look rather different if I stayed at Undara for long enough; it's so very hot and dry out there. This again prompts the question "What's a species". I think that the Undara specimens are *E. obovatus*, which have adapted to the drier conditions. Seeds require treatment.

21. *Elaeocarpus reticulatus* the Blueberry Ash is a very hardy species occurring from Flinders Island in Bass Strait to Fraser Island. It occurs as a common small tree within nearly all types of forests within NENSW except the coldest forests. It is commonly encountered in coastal dune scrubs where it co-occurs with heath vegetation. It is largely grown by cuttings and grows easily in well-drained soil. Prima Donna is a most attractive cultivar of this species and is freely available.

22. *Elaeocarpus ruminatus* the Brown Quandong grows fast and has an attractive layered habit (as many Quandongs do). It is common in the Wet Tropics to Eungella west of Mackay and has attractive lime green leaves. It is an easy tree to grow if moist conditions are provided.

23. *Elaeocarpus sericopetalus* is a component of highland rainforests growing on granite in the Wet Tropics. It is an attractive species appearing morphologically different to other species in Australia. Its leaves are glabrous and oblong. It can be cultivated by cuttings and requires moist humid conditions. I have lost specimens due to excessive heat and exposure to the sun.

24. *Elaeocarpus* sp. Bellenden Ker (aff *arnhemicus*). This species is relatively common within rainforests of North Queensland between the McIlwraith Range and Paluma. I haven't grown it before however gauging from its observed range of occurrence it should grow easily in southern states.

25. *Elaeocarpus* sp. KS/6 sp/ Mossman Bluff is an undescribed mountaintop species from Thornton Peak north of Mossman to Lambs Head west of Cairns. I had one specimen given to me in 1995 however it died and since then I haven't seen a specimen at all. It has leaves with huge domatia.

26. *Elaeocarpus* sp. Mt Lewis is a large tree recorded to 35m tall. It has a large seed with 5 endocarp 'wings' similar to *E. stellaris* but not as pronounced. It is restricted to highland rainforest between 1000-1300m in the mountains behind Mossman, northwest of Cairns.

27. *Elaeocarpus* sp. Windsor Tableland. Often referred to, as *E.* sp. aff. *ferruginiflorus* occurs in both lowland and highland rainforest between the McIlwraith Range and Mt Elliot near Townsville. I have tried this species however all specimens died. A friend has successfully grown this species in NSW and it needs high moisture and shady conditions whilst young.

28. *Elaeocarpus* sp. Minyon the Minyon Quandong was thought to be extinct until one tree was found on the banks of Rocky Creek Dam north of Lismore. It has been further identified from a handful of sites all centred on the wet mountainous refugia of the southeastern Mt Warning Caldera in far northeastern NSW, in the general area to which a number of rare species occur, such as *Eidothea hardeniana*. It is easy to cultivate and rather fast growing with trees reaching 4m in less than five years. The species ultimate height is from 6m to 30m. They do prefer alluvial moist soils rather than the drier sites, which reflect their high rainfall natural habitat.

29. *Elaeocarpus stellaris* is most peculiar in that it has fruit the size of a tennis ball, with the seed deeply flanged by five ridges. It only grows within very wet rainforests to the west of Innisfail in the Palmerston area and again in the Cape Tribulation lowlands north of the Daintree River. It grows very well in my garden with no further irrigation being necessary; it is actually rather fast growing. The exocarp needs to be cracked to extract the seeds, which need protecting from rodents.

30. *Elaeocarpus thelmae* Thelma's Quandong. I haven't grown this species however

a friend has one growing very well. It requires similar conditions to *E. largiflorens* in which it superficially resembles. It was named after Atherton botanist/forester Bernie Hyland's wife Thelma. It occurs from Cape Tribulation west to the Windsor Tableland.

31. *Elaeocarpus williamsianus* Hairy Quandong is listed as endangered and has been found only in approximately ten locations between Goonengerry-Broken Head area on the northern extremity of the 'Big Scrub' to Couchy creek, west of Murwillumbah. Recent genetic analysis has confirmed that of four populations studied all have originated from the same rootstock, except one. All efforts to cultivate this species from seed have proven futile, grafting has had limited success with the union rejecting the scion after a period of time, although cuttings have proven successful as has marcoting. I grew my specimen from a marcotted branch in 1994 and now the tree is over 5m tall. It was first found in the wild in 1980 in Burringbar, across the road from where I live. A local horticulturist, Mike Lickfold, found the species however it was later named in honour of the recently late botanist John Williams, and not vice-versa, thank goodness!

RECENT BUSHWALKS

Recent botanising walks (and escaping the domestic scene) in my local area have been concentrated on revisiting some of my favourite locations in search of species that I haven't seen before or are in want of propagation material.

BLACK SCRUB NATURE RESERVE MT JURESALEM NATIONAL PARK

The Black Scrub is a place that I very much enjoy visiting. It is subtropical rainforest at an altitude of about 400m asl growing on basalt-derived soil. The trees are large and the forest is at all stages of maturity; a phenomenon unseen in regrowth forests or planted rainforests. The forest is accessible via a narrow track, which meanders through the centre of the luxuriant vegetation. Upon a visit during March this year I was lucky to spot 6 Birdwing Butterflies and numerous larvae on the *Pararistolochia praevenosa* vines. During my last visit a pair of Wompoo Fruit-Doves were observed flying through the forest canopy; they are amazing birds. In total within all stratums of the forest there are at least 250 species of life forms including trees, vines, shrubs, herbs, orchids, grasses etc within this forest. Some of the species encountered at the Black Scrub included:

Canopy/Sub-Canopy Trees

Acacia bakeri, Araucaria cunninghamii, Argyrodendron trifoliolatum, A. actinophylla, Brachychiton acerifolius, B. discolor, Diploglottis australis, Dendrocnide excelsa, Dysoxylum fraserianum, D. mollissimum subsp. molle, Ehretia acuminata, Ficus macrophylla, Flindersia schottiana, Geissois benthamii, Melia azedarach, Melicope micrococca, Polyscias murrayi, P. elegans, Pseudoweinmannia lachnocarpa, Sloanea australis, Stenocarpus sinuatus, Streblus brunonianus, Syzygium francisii, Toona ciliata.

Understorey Trees/Shrubs

Abutilon auritum, Acronychia baeuerlenii, Alchornea ilicifolia, Alyxia ruscifolia, Anthocarapa nitidula, Archidendron muellerianum, Atalaya multiflora, Akania bidwillii, *Atractocarpus chartaceus, Baloghia inophylla, Bosistoa pentacocca, Capparis arborea, Carissa ovata, Casearia multinervosa, Citrus australasica, Cleistanthus cunninghamii, Cryptocarya laevigata, Endiandra globosa, Neolitsea dealbata, Notelaea longifolia, Guilfoylia monostylis, Harpullia alata, Ixora beckleri, Pentaceras australis, Rhysotoechia bifoliolata, Trema tomentosa var. viridis, Triunia youngiana*

Ground layer/Climbers

Alocasia brisbanensis, Austrocynoglossum latifolium, Austrosteenisia blackii, Calamus muelleri, Callerya australis, C. megasperma, Cissus antarctica, C. hypoglauca, Clematis glycinoides, Cordyline petiolaris, C. rubra, Deeringia arborescens, Flagellaria indica, Gymnostachys anceps, Meiogyne stenopetala subsp. stenopetala, Melodorum leichhardtii, Panicum pygmaeus, Pararistolochia praevenosa, Passiflora herbertiana, Ripogonum album, Trichosanthes subvelutina, Zehneria cunninghamii

Epiphytes/Ferns/Palms

Archontophoenix cunninghamiana, Cyathea cooperi, C. leichhardtiana, Dendrobium kingianum, Dockrillia bowmanii, Linospadix monostachya, Platycerium bifurcatum, P. superbum, Pothos longipes, Pyrrosia confluens, P. rupestris

'VANDERLEEDENS'

This area of forest is on private land and possesses a high diversity of rare species restricted to the lowlands of the Mt Warning volcanic region. The site is situated within a small coastal valley in a relatively warm and wet belt. The soil is metamorphic derived with heavy clay subsoil. The majority of the area was partially cleared for Banana cultivation some 50 years ago however since then has regrown and only small areas of Camphor Laurel and Lantana growth remain today. The site has stands of the endangered species: *Davidsonia jerseyana* (Davidson's Plum), a well-represented patch of *Fontainea australis* (Southern Fontainea), scattered individuals of *Randia moorei* (Spiny

Gardenia), the highly significant *Elaeocarpus williamsianus* (Hairy Quandong) and a small patch of *Ochrosia moorei* (Southern Ochrosia) among many other rare and threatened species. These other interesting species of note include *Archidendron muellerianum* (Veiny Laceflower), *Rhodamnia maideniana* (Smooth Scrub Turpentine), *Syzygium moorei* (Coolamon), *Pararistolochia praevenosa* (Richmond Birdwing Vine), *Hicksbeachia pinnatifolia* (Red Bopple Nut), *Endiandra globosa* (Black Walnut), *Acacia bakeri* (Marble Wood) and *Macadamia tetraphylla* (Rough Bush Nut) among other species. This property illustrates that with careful management; rainforest regeneration can incur some very significant improvements to habitat quality and resilience, safeguarding valuable habitat for many rare and specialist species.

THE SILVER LEAVES OF THE RAINFOREST UNDERSTOREY

The Argophyllum's are a small genus within the family Grossulariaceae (syn. Escalloniaceae/ Argophyllaceae). They have aptly incurred their genera name from the obvious silver under surface of their leaves (Argo = silver, phyllum = leaf). There are six species within Australia with a further five species within New Caledonia. As typical of this family the Argophyllum's are prevalent within cool moist niches within rainforest and sclerophyll forests. They are all shrubs well suited to shady corners of the garden.

1. *Argophyllum nullumense* occurs from the Lismore/Nimbin area to at least Eungella west of Mackay. It is easy to grow with the form from Eungella being especially attractive.

2. *Argophyllum lejourdanii* occurs within NQ between the western Daintree Ranges and Mt Elliot near Townsville**.** It is easy to cultivate tolerating dry conditions, as in its natural habitat it is often found on rock cliffs and steep slopes in association with rainforest.

3. *Argophyllum verae* is restricted to the environs of Hann creek on Cape York. It grows easily within the shade in NSW however dislikes dry conditions. It has hirsute leaves unlike the other species. This species was named in honour of the late Vera Scarth-Johnson, an artist from Cooktown who in 1995 was awarded an Order of Australia Medal for her contribution to art and the environment of North Queensland.

4. *Argophyllum cryptophlebum* occurs within the cool wet mountain ranges of the Wet Tropics from the Johnstone River to west of Cape Tribulation. This species requires constant humidity and relatively cool conditions. I have seen it growing in a number of the Wet Tropics mountains especially on rocky ridgelines and sites of erosion, *i.e.* walking tracks! It does well within pots however slowly on planting out. It can be grown well by cuttings.

5. *Argophyllum* sp. Babinda has only been recorded in the vicinity of the Babinda region where it is locally abundant and again near the peak of Mt Isley closer to Cairns. I have seen both these populations which are rather different to one another in that one is at 50m and the other about 1000m asl thus this species is likely to be found elsewhere nearby. It grows easily in cultivation and has large lime green leaves.

6. *Argophyllum* sp. Koolmoon Creek occurs in the upper Tully River area to the Kirrama Range of which I haven't visited as yet. It would undoubtedly have similar requirements to that of *A. lejourdanii*. This unnamed species has been suggest to be called *A. lunarfridgea*

Of these species *A. nullumense* and *A. lejourdanii* are by far the easiest to grow. There is a little variability within these two species. For instance the distribution of *A. nullumense* has recently been extended to include sub-populations occurring at Mt Perry, west of Bundaberg and another within the Eungella region, west of Mackay. I believe that the Eungella population warrants separate recognition, as it is very different to the typical *A. nullumense* from the Mt Warning volcanic area. Another form collected from Paluma northwest of Townsville is a closer match for *A. nullumense*. *A. lejourdanii* has two distinctive forms, the typical less serrate form, which is more common, and another drier adapted form with deeply serrated leaves.

INVITATION

On the 18th November I will be giving a presentation at the NSW Regional SGAP meeting. The meeting will be held at the Ermington Community Centre on River Road, Ermington @ 8pm. The talk will revolve around the experiences I have had with the cultivation of rainforest plants and the rainforests of Northern NSW and Qld. Contact me for more information. I hope to see you there.

REMINDER

Please make all cheques payable to "ASGAP Rainforest Study Group" and not to myself. Also please send me a story about your garden, or highlights from your experiences in Australian rainforest; I haven't received a single one yet which I can put into the newsletter. There are over 100 members so I expect at least one! Also, please excuse any errors/shortcuts as I'm off to Cairns in three days so I have much to do!

Davidsonia johnsonii

This article is reproduced from a contribution I made to Issue 12 August-Sept 1999 of the Australian Bushfood Magazine titled 'More on Davidsonia…'

Botanical name: *Davidsonia johnsonii* (syn. *D. sp. Currumbin creek-Mullumbimby, D. sp nov.*)

Common name: Smooth Davidson's Plum

Distribution: confined to the remnants of the Mount Warning Shield Volcano, having so far being recorded in around 24 locations between Tintenbar in the south, Nimbin in the west and Tallebudgera Valley in the north.

Habitat: occurs in wet sclerophyll and subtropical rainforest and their margins. Often grows as an understorey tree in association with Brushbox (*Lophostemon confertus*) and Flooded Gum (*Eucalyptus grandis*). The soil is most often metamorphic in origin although some occur upon basalt-derived soils especially within the higher altitude sites. This species is often found within formerly cleared land, which seems to assist its development. The annual rainfall varies between populations in the order of 1400mm to 2500mm per annum. Of the 20 locations that I have personally sited all but a couple of 'clumps' occur on hillsides possibly as the level alluvial lands have been largely cleared for grazing. It grows naturally from near sea level just south of Byron Bay to approximately 400 metres in altitude at Numinbah west of Murwillumbah.

Habit: a very bushy small tree to 15m occurring in clumps originating from rhizomes along the roots. Some clumps consist of trees numbering in the hundreds. Genetic examination being undertaken may prove that each clump is of the same genetic stock. Although 90% of observed specimens occur within a closed forest situation, two large specimens occur within a paddock in full sun. Some trees develop slight buttressing but only on shallow soils on steep slopes.

Fruit description: a drupe with two mostly non-viable 'seeds' per fruit. The fruit character varies considerably between the isolated populations. Some fruit is consistently smaller than *Davidsonia jerseyana* resembling a large grape however a few populations produce fruit closer to the size of the *D. pruriens* hairy form. The colour is lighter than other Davidsonia's being a pinkish colour rather than purple. The shape can vary from round within the smaller fruiting sites to pear shaped or compressed with the width being greater. The fruit start to drop from the start of December and from reference until the end of April, but more often until the end of February. 'Average' fruit size varies between 30-80 grams. This species is unique having its own mechanism against immediate mass production. The story is simple- the species only extremely rarely produces viable seed, in fact only two people have found evidence to this. A colleague found what he believes to be a viable seed and I found a germinated seedling under a tree with the seed exocarp still attached to the hypocotyl (seedlings stem). One theory is that the vector (pollinator) has become extinct or the populations are too far apart to allow cross-pollination as the species may have a self-incompatibility mechanism and requires outcrossing in order to produce a viable seed. So how has the species known that it wasn't producing viable seeds and thus must sucker to save itself? How old are the populations? How long have they been suckering?

Flowers: are borne on leafy shoots, which are produced with the first spring flush of growth. They are pink-red in panicles up to 15cm long between early September and late October and rarely into December.

In the garden: these trees do best in a subtropical climate with adequate moisture available during fruit set (Nov- Dec). It can handle light frost and appears to be doing well on the Atherton Tablelands although the noticeable dry season halts growth and may delay flower initiation. The soil type isn't of real importance although due to a high demand for water during fruit set, a soil with high moisture retention could be important; a well-mulched clay loam soil with unimpeded drainage would be ideal. The trees handle full sun provided they don't dry out and are best protected from the wind, as the limbs are brittle especially when in fruit. I have several trees growing well under a cover crop of *Alphitonia petriei* whilst the trees in full sun with no cover are less happy. The fruit can be damaged from sunburn although I have noticed that they favour flowering on the shady side of the trees.

Propagation: because this species only rarely produces fertile seeds other methods have been investigated. Cuttings are successful being the only means of current propagation and marcots do work, as does tissue culture. The roots on the cuttings are very fine and care should be taken when potting on. Cuttings can lack vigour and take a while to become established; they are best planted from a 300mm pot. Marcot's or air layering took 6 weeks to form roots during October. The cultivation of a mixed group of genotypes may result in seed production within orchards.

Time to maturity and yields: a sucker has began to flower after 8 years in the ground whilst cuttings produce flowers after about 4 years. A five-year-old tree has produced 3 kg, a twelve-year-old tree more than 40kg and two wild trees within a paddock produce in excess of 500kg a year.

This species is highly ornamental and should be grown for its new growth alone, it doesn't have irritant hairs as other Davidsonia's and the fruit are more palatable to eat. Additionally the parrots don't attack the fruits like other Davo's.

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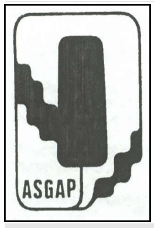

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