Associations of Societies for Growing Australian Plants

Rainforest Study Group

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Rhododendron lochiae; Mount Bartle Frere, near, Summit 1550m alt. Mossy Cloud Forest, Dec 2003 (Photo: Lui Weber)

Idiospermum australiense, cultivated in my shadehouse. Refer to article pg 6
Note: Large segmented seed.

Freycinetia marginata,
Panadanaceae
Very large climbing Pandanus, occurs north from Mossman. Cold Sensitive

Podocarpus grayae
Podocarpaceae
Gray's Plum Pine, adaptable, prefers full sun and is cold tolerant, very ornamental

Eucryphia wilkiei

Eucryphia wilkiei; Mount Bartle Frere. The leaves are larger growing protected within the understorey of montane cloud forest.

Eucryphia wilkiei: Near Summit of Mount Bartle Frere, growing on exposed Granite peaks (Photo Lui Weber Dec 2003)

Bartle Frere Leatherwood

Family Cunoniaceae (syn.Eucryphiaceae)

Eucryphia wilkiei occurs only near the top of Queensland's highest mountain peak, Mount Bartle Frere. It is a scant shrub to 4 meters tall that is found only on the southeastern side of the climb to the summit at an altitude between 1400-1500m. Its habitat consists of large granite boulders strewn over a considerable area of the mountains exposed ridges. The rainfall is extreme; the neighboring peak of Mt Bellenden Ker recorded over 10 metres of rain in a single year. Mount Bartle Frere possibly is wetter as it experiences the Southeast trade winds before Bellenden Ker and is obviously higher. The occurrence of a Eucryphia species in the tropics is unique however the climate and conditions of Bartle Frere's summit is similar to other Eucryphia locations. . The overnight minimum was 12.5°C and daytime maximum 25°C in the middle of December additionally the UV was enough to give myself a tender skin burn in just 2 hours. The closest Eucryphia is located on the Springbrook Plateau in far south eastern Qld. This species, *Eucryphia jinksii* is known only from the type population and is restricted to an extremely small area, as is *E.wilkiei*. *Eucryphia moorei* is common in SE NSW and Victoria with *Eucryphia milliganii* and *Eucryphia lucida* in Tasmania. An additional two species *E.cordifolia* and the deciduous *E.glutinosa* occur in South America, highlighting a Gondwanan origin. The distribution of Eucryphia almost always coincides with the occurrence of Nothofagus. *Eucryphia jinksii* at Springbrook in SE Qld is the northern and eastern most occurrences of Nothofagus in Australia. Nothofagus pollen has been recorded from the Atherton Tablelands lake deposits suggesting an extinction of this genus from the Australian tropics, 2 million years ago at the beginning of the Pleistocene drying when Australia's rainforests underwent a massive retreat. The presence of large boulders, orographic rainfall and cooler conditions on Mt Bartle Frere may have provided a refuge for Eucryphia whilst Nothofagus may have succumbed to the dry Pleistocene environment. The geology of Mt Bartle Frere is intrusive granite dated within the Late Carboniferous at over 300 million years old. This suggests that this peak has acted as a refuge for plants and animals over a considerable period of time.

I have seen this species being propagated in NE NSW and in N QLD. It grows by cuttings and quickly adopts a bushy habit. It tolerates rainfall much less that its mountainous habitat suggests. A horticulturist based on the western fringe of the Atherton Tablelands says he never waters his specimen and cuts it back off his walkway readily. His property receives about 1400mm of rain annually compared to an estimate of 7000 mm annually on Bartle Frere. The fact that this species grows among black Granite boulders which heat up when the weather is fine and that water drains down hill accounts for the hardiness of this species. I suggest that as long as this species experiences winter cooling and doesn't experience fire and excessive dryness it should grow quite well. The flowers occur in late Summer-Autumn and are spectacular.

Kris's Garden Hint #1

Proteaceae species are very susceptible to Glyphosate and high phosphorus fertilisers.
Use less than 4% phosphorus fertilisers in the garden and be very careful when spraying near trees.

AUSTRALIAN TAMARIND SPECIES

Family Sapindaceae-Genus Diploglottis

These notes on the Diploglottis species are sourced largely from an article I wrote in Australian Bushfood's magazine, Issue 15 back in August 2000.

The 10 recognized species, 1 unrecognized species and possibly another unrecognized subspecies of Diploglottis in Australia are all associated with rainforest habitats. The natural distribution of this genus in Australia is from the Illawarra region in Southeastern NSW with the northernmost species occurring in the Iron Range bioregion of Cape York Peninsula. Two additional species apparently occur in New Caledonia and Papua New Guinea

I have managed to acquire specimens of all Australian species. They have grown very well in Northeastern NSW. The fastest growing are the typical macro-leafed species with the second subgroup of this genus containing *D.harpullioides* and *D.campbellii* being usually slower growing. The undescribed species from the Palmerston area west of Innisfail has grown extremely fast. Personally this species should be included in the Mischarytera genus however will be considered a Diploglottis herein. The slowest growing species is without doubt *D.harpullioides*. This species is an understorey tree in extremely wet rainforest; its uncharacteristic flowers are axillary and ramiflorous a possible mechanism to display green fruit in such a foliage dominated habitat

In the garden all species require moist soils and good drainage. All species require a sunny aspect apart from *D.harpullioides*, *D.macrantha* & *D.pedleyi*, which benefit from 50% shade when young. *D.berniana* and lowland *D.bracteata* prefers a wind-sheltered site however can tolerate full sun. All species dislike frost when young, although southern and highland species are more tolerant.

Bernie's Tamarind, (*Diploglottis berniana)* is arguably the one of the most attractive species native to Australia. It occurs between Innisfail and Cooktown below 600m in altitude and has the largest leaves of all Australian Diploglottis. Specimens can be found growing beside the Cape Tribulation Road. The leaves can measure at 2m long with several leaflets. It maintains a monopodial growth habitat for many years unless a tree falls on it! (Judging from experience). In full sun 8m would be its ultimate height, a little more in shady locations. The fruit capsules are very hairy with an Arial similar in taste and texture to *D.cunninghamii*. If given moist soil this species grows steadily in subtropical conditions. Trees are intolerant of frost and dry conditions. Specimens in Edmonton south of Cairns are thriving in full sun planted around a roundabout. Cyclonic conditions are likely to obliterate exposed specimens; the leaves act as helicopter rotors! Growth records in NE NSW Jan 1996=35cm→Aug 2000=3.1m.

Boonjee Tamarind (*Diploglottis bracteata)* has two varieties, a large green leafed form and a smaller grayer form. The large leafed form is dominant in the lowland forests especially at the base of Mount Bartle Frere whilst the grey leafed form occur in the lowlands and highland areas. Collectively this species occurs below 750m altitude between Cairns and Innisfail. I have found specimens of this species occurring in drier forests have much reduced leaves to those in very wet rainforests. Specimens of this species can be found growing beside the Gilles Range Road, Atherton Tablelands. The fruit are the largest of all species and trees can fruit at 3m in height. This species grows rather fast and is best suited to sunny locations with ample moisture. The ultimate height is restricted by conditions however 12m in the garden would be considered, large. Wind can damage the leaves of the lowland form however the grey leafed and seed collected from dry sites can tolerate wind. Growth records in NE NSW Jan 1995=45cm→Aug 2000=6m.

Small-Leaved Tamarind (*Diploglottis campbellii*) is a subtropical species occurring from just north of the Richmond River near Lismore in NE NSW to Currumbin Creek in SE Qld. This species is entirely restricted to lowland and foothill rainforest below 500m in the Mount Warning Shield Volcano region. In the forest the trees can reach 25 with a girth of 120cm diameter, in the garden a height of 10m is more realistic. A part shade-full sun location is best and trees look attractive as a specimen. Many trees are located in botanic gardens, council plantings and native gardens, however wild populations retain original genetic material allowing for tolerance over the ever altering Australian climate. Fruit colour varies between orange, red or yellow. Trees are usually steady growers becoming bushy unlike the erect growing large leaved species. Personally this species could be placed into a genus of its own. Growth records in NE NSW August 1994=10cm→August 2000=4.7m. I'm fortunate to have found possibly the largest wild population of this species. It occurs on an isolated ridge of red basalt soil in Burringbar, NE NSW. There

are about 8 large mature trees. It was rather a thrill to find these trees, however a specimen of *Bulldozerous destructorii.var. europea* was located near-by and the site requires weed eradication.

Native Tamarind (*Diploglottis cunninghamii*, syn *D.australis*) occurs between Illawarra in southern NSW and extends possibly as far north as Mackay/Eungella region in central Queensland. Old reports indicate a northern extension to Proserpine, although this is likely to be *D.obovata.* This species is a majestic tree to 30m, obtaining a height of 15m in garden situations. It has one of the largest compound leaves in the subtropics. Trees can be fast growing in the ground if the root systems are unrestricted whilst in the pot. All rainforest Sapindaceae species have a habit of easily being root bound, due to their early development of strong growing supportive lateral roots. From experience it grows faster in full sun than in the shade. Growth records in NE NSW May 1998=22cm→August 2000=3m.

Wild Tamarind (*Diploglottis diphyllostegia*) is similar to *D.cunninghamii* however have smaller leaves with a silver-grey colour to the new growth and has a squat spreading growth habit. I have found it growing in extremely wet rainforests of Babinda to dry forests around Atherton; it however retains homogenous features. It occurs more commonly in dry forests below 900m in altitude. Trees are usually a maximum of 15m tall with lichen-covered trunks, typical of Sapindaceae. Trees crop in abundance at a short height of 5 metres, often bending branches under the weight of the fruit. This species is fast growing and will survive in a frost-free site in Melbourne. Growth records in NE NSW February 1993=25cm→August 2000=5.5m This species has the potential to become naturalised in subtropical regions of Australia's East Coast, especially in former rainforest habitats such as between the Sunshine Coast and Coffs Harbour.

Cape York Tamarind (*Diploglottis macrantha*) is rarely seen in cultivation. A large specimen is growing well at Mount Cootha Botanic Gardens, Brisbane in a shady rainforest gully planting. *D.macrantha* grows as an understorey tree in the Iron Range area of Cape York often within riparian rainforest. I have specimens in NE NSW, which have grown slowly but tolerate southern latitudes well. Overall I have about 12 specimens with occasional sunburn occurring in summer months. This species tends to attain a growth habit more characteristic of a slender Cupaniopsis or Hicksbeachia. The arils of the fruit aren't juicy like other Diploglottis and are more like Cupaniopsis, being thin and friable. Trees can fruit at a young age with a specimen in NSW flowering at 1m tall. The fruit are axillary at the base of the large leaves. New growth is crimson-red and very attractive. This species has considerable horticultural potential due to its size and slender growth habit. Trees grow to a maximum of 6 m with pruning being beneficial. Two large specimens are growing well in the Cairns Botanical Gardens.

Pedley's Tamarind (*Diploglottis pedleyi)* is a slender gravity challenged species from very wet rainforests between Palmerston and Bellenden Ker, south of Cairns. It occurs below 500m in altitude on granite and basalt soils. Its maximum height in the forest is about 8metres and is often supported by adjacent vegetation. The fruit are large with a fluro-orange aril and ripen in March-May. In cultivation a height of 5m is envisaged, it tolerates full sun when established. In NE NSW it has grown very well with limited additional water. My oldest specimen flowers almost continuously however hasn't set fruit yet. This species is most ornamental which deserves wider horticultural trial. Growth records in NE NSW January 1996=50cm→August 2000=3.3m. The type specimens originate from trees growing at the Babinda Boulders.

Babinda Tamarind *(Diploglottis harpullioides)* occurs patchily in very wet rainforests below 400m in altitude between Innisfail and Cooktown. It is a small understorey tree in lowland tropical rainforests with an annual rainfall often exceeding 4000mm. It however adapts well to southern latitudes with half the annual rainfall. The leaves are similar to a large *D.campbellii* being smooth and not hairy like other Diploglottis. The fruit are borne on leafless branches and axillary nodes. Trees in my garden possess a slender growth habit, which have started to lean-over at about 2 m in height. They require almost full shade and heaps of ground water in the dry season. They are slow to establish. Growth records in NE NSW December 1995=50cm →August 2000 2m. Two bushy trees are growing well in the Cairns Botanical Gardens, fruiting at 3m tall.

Dryander Tamarind (*Diploglottis obovata*) occurs in the vacinity of the Dryander National Park and possibly Conway Ranges, east of Proserpine. It is a regionally restricted plant in gallery forest close to the coast. It is a bushy tree in the garden to 8 metres tall with rounded leaflets. It has potential as a street tree as far south as Sydney. Trees in NE NSW fruit heavily and are fast growing. Fruit has a sparsely hairy yellow

capsule produced on long panicles in abundance. Trees grow best in full sun and tolerate dry conditions. Growth records in NE NSW Aug 1995=50cm→Aug 2000=4.5m.

Smith's Tamarind (*Diploglottis smithii*) is a very fast growing easily grown species with large fruit. It occurs below 450m between Innisfail and Cooktown in moist to very wet rainforests. A slender growth habit is produced in the first few years until the crown develops which becomes bushy. The grey-green too lime new growth is very attractive. Trees can grow to 20m tall however in the garden reaches 10m tall. This species fruits in heavy quantities, which produce a deep orange fleshy aril. This fruit is good for cordial or jam making. Overall this is a superb species that requires moist soil in full sun otherwise is hardy. Growth records in NE NSW February 1994 = 30cm→ August 2000=7.5m.

Palmerston Tamarind (*Diploglottis. sp. Palmerston*) occurs rather commonly in luxuriant rainforest west of Innisfail in very wet rainforest on basalt soil at an altitude of between 50m and 400m. The area is often misty and full of leaches, however is a most extensive area of tropical rainforest of great botanical interest. This species grows into a dense tree to 20m with glossy leaves with undulate margins. It possesses the greatest number of leaflets of all Diploglottis with up to 30 per leaf. The new growth is bright red with the fruit being orange with a yellowing aril. The trees produce heavy crops of fruit. This species is easy to grow in full sun to part shade and likes moist humus rich soil. It is fast growing and branches sparingly while young. Growth records in NE NSW December 1997=90cm→August 2000=4.7m.

WHAT I GOT UP TO IN THE BREAK FROM UNI.

The large scale planting of "Pioneer species" is beneficial within an open paddock situation as it provides a buffer against moisture loss from the soil, initiates plant debris breakdown and microbial activity, attracts seed eating birds which help build an almost absent soil seed bank, retards the growth of greedy grass species and they grow extremely fast thus reducing the period of time that maintenance is required. I planted over 1000 plants in this one area at a spacing of 1.5m. The trees should reach 2m tall in the first year. The careful selection of species will generate further enthusiasm because of the reduction in weed spraying and losses. A four stranded electrified fence is used on all new plantings at my fathers place to shock the local wallaby population into not liking my trees, as yet no damage has been observed. It is important that the fence has a very low live wire because Wallabies prefer to go under objects than bounce over them like Kangaroos, which we thankfully don't have. My father is the fencer, property owner and progress reporter, and I'm the fleeting tree planter that escapes back to Cairns after planting 1000's of trees every summer break! It's amazing how well they do without attention. The species I used for this planting were *Acacia mangium, Alphitonia petriei, Commersonia bartramia, Mallotus discolor, Macaranga tanarius, Mallotus nesophilus, Melicope elleryana, Trema orientalis* and *Trichospermum pleiostigma.* Some of these species aren't native to NE NSW however they are shade intolerant pioneer species which

dislike fire and undisturbed environments. My long term goal is to transform an alien harsh paddock climate to a favorable situation that native seedlings can grow. Some replacement of the pioneers will occur and mature phase rainforest species planted. Overall to achieve canopy cover over a large area you must use fast growing, large leaved species which allow you to begin planting another site in a year or two. The aim is to reduce the frequency of sun loving weed species which inhibit natural succession.

JANUARY FIELD DAY AT BURRINGBAR.

The field day held on the 11th of January this year at my Arboretum in Burringbar was a great success. About 25 people, some traveling a considerable distance to attend the afternoon's events. The weather was good with rain overnight helping to spruce the otherwise dry garden into life. It was good to bring people together and meet other people in the group. I wished that I had taken a group photo! I will be purchasing a new digital camera soon so photo taking will be a regular occurrence. Thanks again for those involved.

Idiospermum australiense
Idiospermaceae (Calycanthaceae)
Idiot Fruit.

The Idiot Fruit is restricted to lowland tropical rainforest in northeastern Queensland. It grows in the Bellenden Ker-Harvey Creek and Russell River regions south of Cairns and also in the Daintree lowlands between the Daintree River and Cape Tribulation. Being locally abundant and rated as a common species by the Queensland Herbarium it was once thought extinct due to clearing. The species is a monogeneric primitive angiosperm with typical symmetrical whorled petalate flowers, which stink. The flowers and fruits litter the ground below mature tree. Often it is difficult to locate trees within the canopy of tropical 'jungle' however the presence of their three to four segmented cotyledon seeds are very apparent. Each portion is able to grow a separate seedling. In cultivation the Idiot Fruit is fast growing preferring partial shade however will grow well in full sun however may yellow a little. Flowers are produced after about 8 years within the tropics. In NE NSW this species has been remarkably hardy and tolerates cold conditions. Some dying off is experienced during dry low humidity weather and establishing specimens require constant moisture to perform well. It is likely to succeed as far south as Sydney in the warm coastal belt as long as frost isn't experienced. The coldest temperatures that the tropical lowlands of north Queensland briefly experience are about 12-14°C at Cape Tribulation and 8-10°C around Babinda. In my garden it gets down to 2-5 °C every winter. The Idiot Fruit is worth growing for botanical interest alone.

As requested: Literature on Rainforest species:

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SHOW OFFS WANTED!

Anyone willing to hold an open garden event at their place please contact me on the above phone number so we can organize an event. Happy Rainforest studying from Kris!