

Some Callitris Species

This weeks FACTT note is number 5 It would seem that we have dodged a bullet so far but complacency now becomes the enemy. I hope to keep you in-doors for a moment or two longer as you read this short piece about Cypress Pine. It is a species which we are all familiar with as attractive knotty flooring in older houses. The timber of the genus is characterised as being resistant to termites but is out competed for commercial wood production by the remarkable *Pinus radiata*.

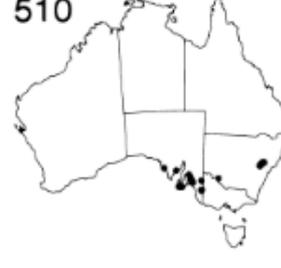
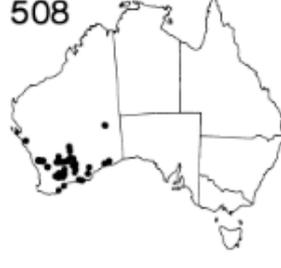
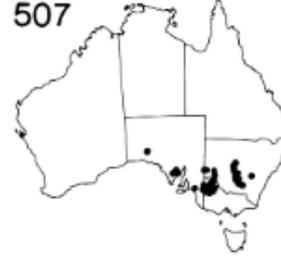
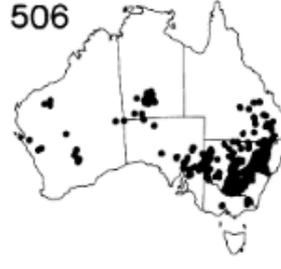
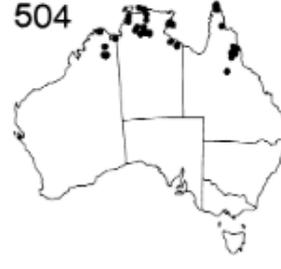
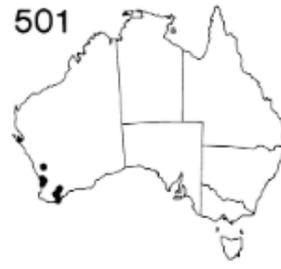
The comments made in the introduction to the last note apply here namely that I have not included references as it is a quickly written piece for the times. There are no photographs as they are easily obtained by the reader on the net using your favourite search engine.

Cupressaceae

The genus is placed in the Family *Cupressaceae* which is made up of 30 genera and about 155 species of which 4 genera consisting of 22 species are native to Australia. One genus in this large family is *Callitris*. It is a genus of 20 species 17 endemic to Australia and 3 endemic to New Caledonia. The New Caledonia species are *C. noecaledonica*, *C. pancheri* and *C. sulcata*. *Neocaledonica* was formally placed in its own genus but following genetic studies is now found to be a *Callitris* species. Exact numbers of species is difficult as the the taxonomy was surprisingly fluid. Indeed even the genus was re-named from *Frenella* which was named by *Charles-Francois Brisseau de Mirbel* (1776-1854) in 1825 to the already used name *Callitris* which was named by *Etienne Pierre Ventenat* (1757-1808) in 1808. *Calli* G *Kallos* beauty and *tris* probably three referring to the beautifully formed tree with leaves in whorls of three.

Ventenat was a French botanist.

The maps below are taken from *Flora of Australia volume 48 Ferns, Gymnosperms and Allied Groups* Commonwealth of Australia 1998



496. *Araucaria bidwillii* (568)

497. *Athrotaxis selaginoides* (570)

498. *Athrotaxis cupressoides* (570)

499. *Cupressus macrocarpa* (572)

500. *Diselma archeri* (573)

501. *Actinostrobus pyramidalis* (574)

502. *Actinostrobus arenarius* (574)

503. *Actinostrobus acuminatus* (574)

504. *Callitris intratropica* (577)

505. *Callitris columellaris* (578)

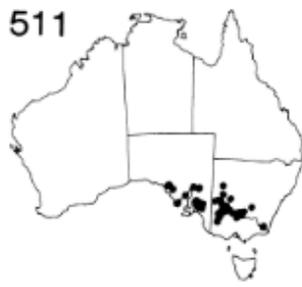
506. *Callitris glaucophylla* (578)

507. *Callitris verrucosa* (579)

508. *Callitris tuberculata* (579)

509. *Callitris preissii* (580)

510. *Callitris gracilis* subsp. *gracilis* (581)



511. *Callitris gracilis*
subsp. *murrayensis* (581)

514. *Callitris drummondii* (582)

517. *Callitris muelleri* (584)

520. *Callitris oblonga*
subsp. *parva* (586)

523. *Callitris endlicheri* (587)

512. *Callitris canescens* (581)

515. *Callitris baileyi* (584)

518. *Callitris oblonga*
subsp. *oblonga* (585)

521. *Callitris monticola* (586)

524. *Pinus canariensis* (591)

513. *Callitris roei* (582)

516. *Callitris macleayana* (584)

519. *Callitris oblonga*
subsp. *corangensis* (585)

522. *Callitris rhomboidea* (586)

525. *Pinus contorta* (591)

The species in the genus are monoecious trees or shrubs ranging in height from 2.5m to 30m. The wood is renowned as being resistant to termites and makes very good firewood. Old floorboards were highly sought after; even when the rest of the house was consumed by the white ants; for the chip heater, as it is easy to split and brittle, such that little pieces were easily obtained.
(per.com. Jim Laity)

C. endlicheri

C. endlicheri was first named by *Filippo Parlatore* (1816-1877) in the genus *Frenela* which was changed by Frederick Manson Bailey (1827-1915) to the genus *Callitris* as were all other species by various taxonomists.

The species name honours *Stephan Ladislaus Endlicher* (1804-1849) an Austrian botanist.

Commonly known as Black Cypress Pine the species is well known for its wood properties particularly its resistance to termites and knotty appearance when used as floor boards. When dry it weighs about 710kg/m³. The bark has a high tannin content but is not commercially harvested.

It grows over a wide area of N.S.W. and southern Queensland on dryer sites away from the coast. The small logs are milled for building materials but less so than that of *C. glaucophylla*.

C. glaucophylla

C. glaucophylla was formerly *C. glauca* but renamed in 1986 by J. Thompson and L. A. S. Johnson
They state that:-

The species widely known as 'White Cypress Pine' appears to lack a 'correct' botanical name. All the names it has carried through its extensive literature are either not legitimate under the International Code of Botanical Nomenclature, or are legally the property of other species.

Fortuitously they decided to retain the essence of the original name and only add to it. *Glaucus* L. blueish green and *phylla* G. leaves. Its common name is White Cypress Pine.

The tree grows over a wide area in the more southerly parts of Australia where rainfall is moderate. The soil is better and deeper which resulted in much of the areas being cleared for pasture and crops. Today it only forms extensive forests in the Tambo Dalby Inglewood region of S. Queensland and the Baradine Narrabri and Cobar districts of northern N.S.W. It usually grows to 18m with a DBH of 0.45m and occasionally reaching 30m and a DBH of 0.9m

The wood which has a camphor like odour is brittle and care is required in working it for example it is advisable to drill before nailing. Its claim to fame is its resistance to termites. Resin can be collected from the tree as it contains sandarac used in confectionary and pharmaceuticals but it is not commercially collected as it is very labour intensive to do so.

After fire the trees is killed but seedlings grow in profusion at incredibly close proximity to each other resulting in dense locked up areas with over 10,000 stems/ha and heights of 5m. To achieve merchantable logs this needs to be thinned to allow the trees to develop. The slow growth means that the time scales involved are very long and the practise only economic for corporations. It has been shown to improve the biodiversity providing some dead trees are retained.

Callitris glaucophylla (White Cypress Pine) has much to thank Myxomatosis for. In 1964 our Silviculture lecturer, Alan Brown, took the 3rd year forestry class to Forbes and other areas around the SW slopes of NSW. We were taken to see wheatfield regeneration of White Cypress Pine with something like 100,000 stems/ha in amongst scattered mature Cypress. The Forestry Commission of NSW was experimenting with slashing and cultivation on a rectangular pattern to thin the stands to a reasonable stocking. It was all due to the introduction of myxo. The myxoma virus was released by CSIRO in the early 1950s and within two years the impact on the rabbit population was catastrophic. The silver lining (or glaucus lining),

however, was salvation for C. glaucophylla forests with a place on earth (albeit a crowded one) assured.
Chris Borough

The Pilliga is an area of *C. glaucophylla* and other trees. It is of intense interest with many competing views about its management, and the rural workers who depend upon it.

C. rhomboidea

C. rhomboidea is a very attractive tree named by *Louis Claude Marie Richard* (1754-1821), in the genus *Frenela*. It was changed to *Callitris* by *Frederick Manson Bailey*. *Richard* was a French botanist who gave his name to a Caribbean lizard and a snake in his honour. (I'm not sure I would like that). He did not travel to Australia doing some collecting in the West Indies and Central America rather than coming east. The species is named from the rhomboidal shaped cones with a pointed boss which are quite distinctive.

The common name is Port Jackson Pine, or Oyster Bay Pine. It grows to 15m with branches which tend to fastigate form giving an attractive canopy. It grows in scattered areas along the coast from Q., the eastern parts of the tablelands of N.S.W to Vic, and Tas.on well drained sites.

The way the stomata respond to drought stress is under some investigation. By responding slightly differently when the abscisic acid concentrations in the cells which control the stomata reduce, it can restore normal hydraulic functioning very quickly. This allows the tree to utilise minor rainfall events. It may be a mechanism used by other drought hardy species in the genus and perhaps others which grow in dry country.

Abscisic acid (ABA) $C_{15}H_{20}O_4$ is a plant hormone which functions mainly as a growth inhibitor and also promotes closing of stomata.

The wood is not utilised commercially as it is not available in sufficient volume but is used locally for on-farm needs.

The appearance of the young tree makes it a candidate for Christmas trees particularly when grown in pots rather than cut. Care is required if planted outside its natural range as it may be considered an environmental weed.

C. gracilis

C.gracilis was named by *Richard Thomas Baker* in 1903. *Gracilis* L thin, slender. It describes the tree with its rather erect branches and overall slender form growing to 20m on the very best sites but more generally to 5-10m. It grows on the lower Murray River valley in N.S.W. and into Vic.and to coastal S.A. It has a number of common names which highlights the need to use the proper name rather than a local one.

Two subspecies are identified subsp. *gracilis* and subsp. *murrayensis*. They hybridise with each other and with *C. glaucophylla* and *C. verrucosa*. so identification can be difficult for the non-specialist. In any event most people tend to lump them together as Cypress Pine. The tree tends to be slow growing for the first few years but then grows more quickly to attain its final height in 7-10 years.

The 17 species of *Callitris* grow over a wide area of Australia with many possible provenances. Therefore selection for urban planting should be informed by provenance trials to find potential candidates for use in the drying landscapes of our city. To simply dismiss the genus as being slow growing fails to consider the very hard sites the species occupies in the ACT, nutrition, mycorrhiza, and the other species in the genus which may have potential.

Letter to the Editor

I have read the two reports on the Family Casuarinaceae but I am dismayed that the Genus *Gymnostoma* has been apparently ignored. Although we only have one member of the Genus in Australia – *Gymnostoma australianum* (Daintree Pine) - there are numerous species in New Caledonia. I have two specimens of Daintree Pine growing brilliantly in Forster NSW. Features that foresters particularly like are perfect form (straight stem, branches at right angles), and self-pruning. Daintree Pine will most likely become the new Christmas Tree.

Could you please present some additional information on this Genus.

Chris Borough

Gymnostoma australianum is a vulnerable species and is the only Australian species of 18 in this tropical genus. The type specimen was collected on Mount Alexander Q. on the 17th December 1929. It was named by L.A.S. Johnson in 1989. It is a small tree of the Daintree rainforest, with a candelabra form, growing to 7m in open long-term gaps in the rainforest. As Borough points out it has good form and many features which are desired by foresters growing wood for us to use by pruning to produce clear wood with no knots. Although this species is not large enough to be commercial for wood production, it is sold as Daintree Christmas tree and serve the purpose admirably.

Gymnostoma see FACTT note 1 for derivation. The species name requires no explanation. It's an attractive small tree but generally will not survive in Canberra. However, John Turnbull informs me there are young trees growing well in the Rainforest Gully at the National Botanic Gardens in Canberra. As he pointed out they are probably protected from frost damage by an over-storey of taller trees.

Steve Thomas
30/4/2020