

Some Allocasuarina Species

This note is dedicated to Tony Fearnside -(28th June 1934-18th — April 2020) Forester, who was interested in such things to the end.

This weeks offering concludes the notes on *Casuarinas*. It is of course about the Genus *Allocasuarina*. All are Australian species. They are an effulgence of taxonomist delight, spread throughout the country in some cases extensively but mostly confined to small specialised sites.

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. Something you are encouraged to do if you are looking for something to do at this rather frustrating time which, it seems, may be easing soon - or not as we go into winter.

Allocasuarina

There are 59 species and a total of 68 if one is including the subspecies in the Genus which are comprehensively covered in the Flora of Australia v3. L.A.S. Johnson and K.L. Wilson divided the *Allocasuarina* into 14 Sections. One can only admire the dedication in sorting out a very complex Genus spread over the continent in mostly small areas. There were many taxonomists identifying individual species from the 1840s to the period of Johnson and Wilson to be sorted out and incorporated or rejected.

I have created a spreadsheet of all the species in the Flora of Australia which can be sorted by maximum recorded height, Section or State where they are found. (Sent as separate spreadsheet) Because a species is recorded in a State it does not reflect how widespread it is. In fact many are very localised. The maps in the Flora are useful in this regard.

I will cover only a very small number of species which have some interesting characteristics.

Allocasuarina torulosa

Allocasuarina torulosa is the tallest species. It was named by *William Townsend Aiton* (1766-1849) in 1789 from material collected at the Bay of Inlets Queensland. by Banks and Solander in 1770. *Torulosa* is from the Latin *torulus* a little bulge and *osus* abounding So many little bulges

found on the back of the bracteoles on the cone. The common name is Forest Oak

It grows from North Queensland to Nowra in N.S.W.

The bark is rough and corky persisting throughout the tree.

The wood is hard heavy, 960kg/m³, and fissile with a limited range of uses other than craft wood such as turning. It is a very good firewood.

Allocasuarina decaisneana

Allocasuarina decaisneana's common name Desert oak indicates the country this extraordinary species grows in. It was first named by Ferdinand Mueller (1825-1896) in honour of *Joseph Decaisne* a Belgian botanist in 1858. Decaisne never visited Australia or saw the tree.

It has the largest cones in the Genus and is able to survive and grow to impressive size, up to 16m, in very low rainfall regions in an area which surrounds the point where N.T, W.A and S.A borders meet. This ability to survive is partly due to a taproot which can reach to 10m, and the association of mycorrhiza with its roots scavenging for nutrient. In a region with limited resources this tree is very important to the Anangu people.

Allocasuarina luehmannii

Allocasuarina luehmannii was named by *Richard Thomas Baker* (1854-1941) in 1900. The name recognises the work of *Johann George Luehmann* (1843-1904) an Australian botanist born in Prussia who became the Government of Victoria botanist in 1900.

The outstanding feature of this tree is the hardness of the wood. It is the hardest commercial wood in the world as measured by the Janka hardness test. The Janka test measures the force needed to embed a 11.28mm steel ball halfway into the sample. For this species the force is 22,500N. Lignum vitae is 20,000N. (some of the small *Allocasuarina* species may be harder but are not available for testing) for comparison Balsa wood is 310N, Jarrah 8500N. In the S.I system a Newton is that force which will accelerate 1kg 1 m/sec². A 1kg weight will exert a force of about 9.8N. G is not constant around the globe.

Allocasuarina littoralis

Allocasuarina littoralis was named by *Richard Anthony Salisbury* (1761-1829) in 1796. from material collected by Banks and Solander at Botany Bay. hence the name.

The species grows from Cape York Queensland to the Otways and into Tasmania. within 100km of the coast. It is the most widespread

species in the Genus and varies from a shrub in exposed sites to 15m. in better sites.

Allocasuarina verticillata

Allocasuarina verticillata was named by *Jean-Baptiste Lamarck* (1744-1829) in 1788 from a tree in cultivation in *Jardin du Roi* Paris most likely from Tasmania. A number of others subsequently named the species but Lamarck was first and his species name taken precedence over the others such as *Casuarina stricta* Aiton 1789. It occurs from Cobar N.S.W. to the coast near Sydney south to Victoria South Australia and Tasmania on grassy woodland and rocky hills and ridges inland. Red Hill in Canberra is a typical rocky site. Its main claim to fame is that it is a food source for the Glossy Black Cockatoo which shreds the cone and picks out the seed. It grows rapidly for a few years and then stops growing so it does not exceed about 10m.

Allocasuarina inophloia

Allocasuarina inophloia was named by Mueller and Bailey in 1882 It is unique in the Genus in having a quite extraordinary hairy bark. Hence the name referring to the 'irregular' bark. It can be seen in the Australian National Botanic Gardens in Canberra near the bookshop

Allocasuarina grevilleoides

Allocasuarina grevilleoides is the smallest species in the Genus growing to a maximum height of 0.3m in W.A heath.

A perusal of the spreadsheet shows the range of heights and geographic spread in Australia of these species. By reducing their demand for water and nutrients, by remaining small, and reducing the leaves to teeth on the branchlets they have been able to survive in very inhospitable sites mainly in Western Australia. Some such as *A. littoralis* are widespread while others are very localised adaptations to their environment. In some cases struggling to survive. *A. portuensis* was known only from a population of 10 plants on a sandstone headland in Sydney. All have died and the species only exists in cultivation now. Very few species have commercial uses but contribute significantly to the ecology of the areas they grow in. All make good firewood a characteristic of the genus. Few could be recommended for urban plantings but some investigation could be made into the possibility of the use of low growing species such as *A. nana* for planting on batters. Replacing the popular *Lomandra longifolia* cultivars which are difficult to manage, are short-lived, and often overcome by

weeds. *A. verticillata* is planted for food for certain bird species in river corridors and open spaces. However like all of the *Casuarinaceae* they drop copious amounts of foliage which can be a problem in some situations.

A note from John Gray

I am pleased that Chris Borough has mentioned the massive planting at Brisbane Airport- a real success story. Has anyone published an article on this planting, for example by Peter Davidson who has been working on bird strike at Australian airports?

Planting *Casuarina* in urban areas can be hazardous. Here at Shackleton Park in Mawson we are continually troubled by blocked sewer and stormwater pipes

John Gray

You may like to do some sums on the force required to indent the small ball into *A. luehmannii* if a weight were used. Do you remember the issue of stiletto heels on wood floors?

Steve Thomas
23/4/2020