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Seed Notes

for Western Australia

No. 7 *Allocasuarina*

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This issue of **Seed Notes** will cover the genus *Allocasuarina*.

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Allocasuarina

The name *Casuarina* comes from the neo-Latin *casuarius* meaning cassowary, due to the resemblance of the drooping branchlets to the feathers of the Cassowary bird. The Greek *allos*, meaning other, has been added to the word to refer to the relationship with the genus *Casuarina*. The common name of 'she oak' was given to the genus in reference to the timber, which is oak-like in appearance.



Jointed leaves of *Allocasuarina ramosissima*. Photo – Anne Cochrane



Above: *Allocasuarina fibrosa*.
Below: *Allocasuarina humilis*.
Photos – Anne Cochrane



Description

Allocasuarina species (family Casuarinaceae) may be dioecious or monoecious trees or shrubs with soft wispy pendulous branchlets. The leaves of *Allocasuarina* are seemingly absent and are reduced to 'teeth' that whorl around the small branchlets that are jointed at regular intervals. The male flower is an elongated spike; the female flower is globular or ovoid and reddish in colour. A variety of species have been used for ornamental

purposes, for fuelwood or forestry and joinery timber. They have an important role in stabilising coastal dunes and riverbanks. Some species are reasonably salt-tolerant and have been used in the amelioration of saline soils. Others are effective as wind breaks or shelter belts. The foliage of some species is palatable to stock in times of drought.



Allocasuarina tessellata.
Photo – Sue Patrick



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Geographic distribution and habitat

Allocasuarina is a genus endemic to Australia, whereas *Casuarina* is more widespread. *Allocasuarina* consists of about 50 species and subspecies that are found mainly in southern Australia. Less than half of these are endemic to Western Australia. Plants usually grow in impoverished soils but can be found in the arid inland, in swamps, on riverbanks and by the coast. They have a preference for well-drained soils, both light and heavy, although some species may withstand waterlogging.



Approximate distribution of *Allocasuarina* in Australia.

Reproductive biology

Allocasuarina are wind pollinated and their seeds are wind dispersed. Because of wind pollination, plants are generally outcrossing, and very little hybridisation occurs within the genus. The roots of the *Allocasuarina* have nodules that fix atmospheric nitrogen and therefore aid in soil nutrition. Parrots often predate the developing fruits. Cones of *Allocasuarina* are often found in emu scats and it appears that the old cones help in the digestion of food eaten by these birds. It is not thought that this aids germination of the seed. Some species are root suckering and will resprout when damaged.



Above: *Allocasuarina tessellata*.
Photo – Sue Patrick



Left: *Allocasuarina ramosissima*.
Photo – Anne Cochrane

Seed collection

The fruiting body of *Allocasuarina* is a woody cone and the fruit itself is a winged nut or samara (dry indehiscent winged fruit). The seed is solitary within each samara and embryonic, meaning there is no food body around the embryo. The cones themselves contain many seeds, and are generally mature within a year of flowering. Flowering can occur from autumn to spring and many species retain their cones for several years, being termed serotinous or canopy stored. Cone collection is easy. Maturity is generally indicated by a change in cone colour from green to pale brown to dark brown. Cones from the previous year can be collected, making sure that the valves of the cones are not open. Cones with open valves are likely to be devoid of seed because it would already have been released. Secateurs should be used when taking cones from the fruiting branches. In some cases pole pruners will be required for the collection of cones due to the height of trees.



Above: *Allocasuarina tessellata*.
Photo – Sue Patrick



Right: *Allocasuarina* seed.
Below: Immature cones of *Allocasuarina ramosissima*.
Photos – Anne Cochrane





Above: *Allocasuarina thuyoides*.
Photo – Andrew Crawford



Below: Typical fruits of *Allocasuarina*.
Photo – Andrew Crawford

Seed quality assessment

Cones open readily at maturity if placed in a dry warm position. Many *Allocasuarina* produce seed that appear intact but are actually empty. A simple cut-test of a representative portion of the seed (sectioning the seed to see what percentage of the total is filled) will tell you how many seed in your collection are good. If the endosperm is absent or shrivelled, discard these seed.



Above: Winged *Allocasuarina fibrosa* seeds.



Left: Note the difference between the state of the contents of the samara. On the left a firm white endosperm; on the right the seed is shrivelled.

Photos – Anne Cochrane

Germination of seeds

Upon wetting, seed of *Allocasuarina* develop a mucilaginous layer around the rim of the seed coat. This is likely to be an adaptive response to the environment, providing the germinating seed with an inbuilt source of moisture. Seed germinates readily without pre-treatment, although it is necessary to ensure that the seed you are trying to germinate is filled. Nicking a small section of the corner of the seed coat will reveal an endosperm. Seed can be direct sown or placed in dishes or pots for germination and emergence of seedlings should occur after two to five weeks. Seed may lose viability quickly once released from the cone unless kept dry and cool.



Germinating *Allocasuarina ramosissima* seed.

Photo – Anne Cochrane



Seed Notes

for Western Australia



These **Seed Notes** aim to provide information on seed identification, collection, biology and germination for a wide range of seed types for Western Australian native species.



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The **Seed Notes** are available from www.naturebase.net

Seed Notes

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Top left: *Allocasuarina thuyoides*. Top right: *Allocasuarina tortiramula*. Above: *Habitat of Allocasuarina ramosissima*.
Photos – Anne Cochrane

Recommended reading

Elliot, W. R. and Jones, D. L. 1984. *Encyclopaedia of Australian Plants Suitable for Cultivation*. Volume 2. Lothian Publishing, Melbourne.

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Wilson, K. L. and Johnson, L. A. S. 1989. *Casuarinales Flora of Australia* 3. 100–203. AGPS, Canberra.

