

Exocarpos cupressiformis A Machiavellian parasitic plant!

It's an odd thing that *carnivorous* plants are almost as popular as *dinosaurs*,



Brush Cherry, *Exocarpos cupressiformis* – Mount Canobolas State Conservation Area Photograph: Rosemary Stapleton

but the same can't be said for *parasitic plants*! They have low esteem; how popular can plants be that parasitise other plants? There are a lot of them, over 4000 species worldwide.

The life cycles of parasitic plants require the exploitation of at least one



H - haustoria X – roots of host plant. From: Benson 1910.

host plant, sometimes more. *Holoparasites* are *totally* dependent on their host plant or plants to complete their life cycle. They don't produce chlorophyll so they can't photosynthesise and fix carbon, and stems are often pale, white or cream. *Hemiparasites*, on the other hand, are partially dependent on host plants for at least some stages of their life cycle. They do produce chlorophyll, they do photosynthesise, and they do have greenish stems and

leaves, although often with a slightly yellowish tint. They have specially modified roots, *haustoria*, which invade the roots or stems of host plant or plants, and access water, nutrients and organic matter from xylem and phloem of the host plant vascular systems.



Distribution of *Exocarpos cupressiformis*. Modified from Atlas of Living Australia.



Exocarpos cupressiformis Mt Canobolas State Conservation Area Photograph: Rosemary Stapleton

Native Cherries, *Exocarpos cupressiformis*, are *hemiparasites*. They grow as small trees, widespread across eastern and southern Australia from Queensland through to Victoria, Tasmania and South Australia. They have some resemblance to conifers and to Australian Sheoaks (*Casuarina* and *Allocasuarina*) and commonly occur on shallow soils and on granite outcrops. Their root haustoria form connections to those of other plants, eucalypts in particular. Their green stems are the principal site for photosynthesis as the leaves are minute, reduced to tiny green scales.

Flowers, too, are almost inconspicuous, arranged in short spikes, but only one flower in

each spike will produce a fruit. The fruits are dark, hard and globular *nuts* that are produced at the *end* of the flower stalk (the *pedicel*) but the odd things is, that as the nuts mature, the flower stalks swell to become colourful, succulent and edible! The swollen flower stalks are not true fruits and are referred to as *accessory fruits*. It is these that attract birds and dupe them into to consuming both seed and flower stalk, an effective means of seed



Minute flowers in short spikes: Photograph: Rosemary Stapleton

dispersal. Fruit is eaten by many native birds including Mistletoe Birds, Satin Bowerbirds and Grey Butcherbirds, and if ingested by birds, the seeds germinate more rapidly. The *succulent fruit* was eaten by Aboriginal people and early European settlers.

Despite their very small size, the flowers attract and are probably pollinated by honey-producing native bees and white butterflies in the spring. Birds and goannas that seek out the butterflies have also been an important food source for Aboriginal people. Timber is valued for production of tools such as spear throwers, bull roarers, clubs and digging sticks.



Native Cherry fruit: Red - nut (contains the seed) Yellow - swollen flower stalk Photograph: Rosemary Stapleton

In their early stages of growth, Native Cherries are dependent on parasitising roots of other plants, particularly eucalypts, but as their green crowns develop, they become less reliant on parasitism and more reliant on photosynthesis. There seem to be few published accounts of negative impacts of Native Cherry parasitism on host plants, exceptions include a report of dieback in *Eucalyptus dives* populations, and of a related

species, *Exocarpos strictus*, on River Red Gums (*Eucalyptus camaldulensis*).

The tropical Cashew Nut Anarcardium tree. *occidentale*, produces a similar succulent, edible *accessory fruit* from the swollen flower stalk. The cashew *nut* is the kidney-shaped object that grows at the end of the flower stalk. The Native Cherry (Santalaceae) and the Cashew Nut (Anacardiaceae) are totally unrelated.



Cashew apple and cashew nut: Photograph: Abhishek Jacob, CC By-SA 3.0 <https://creative commons.org/licenses/by-sa/3.0>, via Wikimedia Commons



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Atlas of Living Australia: Search: species: Exocarpos cupressiformis | Occurrence records | Atlas of Living Australia

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Wikipedia: *Exocarpos cupressiformis* <u>https://en.wikipedia.org/wiki/Exocarpos_cupressiformis</u>
Wikipedia: Cashew <u>https://en.wikipedia.org/wiki/Cashew</u>
Revegetation Guide to the NSW Southwest Slopes and Riverina Regions <u>Exocarpos cupressiformis</u> - <u>Revegetation Guide</u>

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