

Macrozamia fawcettii

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Macrozamia fawcettii is a small (Section Parazamia) cycad that is endemic to New South Wales, Australia. It has a limited distribution range, which is confined to the far north coast (and adjacent ranges) and which extends roughly from near the coastal city of Coffs Harbour, north to near Casino and then west to areas surrounding the town of Tabulam (which is situated on the Richmond Range at an elevation of 555 meters).

Macrozamia fawcettii can be found growing on undulating hillsides on the foothills of the Coast Range near Coffs Harbour, in areas of dry to semi-wet sclerophyll forest. Coffs Harbour (elevation 5 meters) has an annual average rainfall of 1708 mm (spread over 144 rain days) with winter minimum and summer maximum daily temperatures (reached at least once per week during July and January) of 2.6 and 28.9 degrees C respectively. Frosts occur on an average of six days per year, though a higher incidence of frosts could be expected on the nearby ranges.

Two-thirds of the annual rainfall covering the overall distribution range of *Macrozamia fawcettii* falls in summer and autumn. The percentage seasonal rainfall pattern is as follows: Summer: 37%; Autumn: 29%; Winter: 15%; and Spring: 19%.

The principal characteristics of *Macrozamia fawcettii* are as follows:

- a subterranean caudex,
- a more or less straight rachis, despite turning through multiple spiral twists,
- glossy, mid to dark green colored fronds,
- broad, normally flat-surfaced pinnae - usually with apical toothed edges on adult plants,
- pinkish-red callouses at the point where the pinnae join the rachis, and
- seeds with a finely ribbed outer shell.



Macrozamia fawcettii - habit

At first glance, the pinnae on *M. fawcettii* fronds seem to spread radially from the rachis in a similar manner to which the branches of a tree extend from the trunk. Upon closer inspection, however, it becomes obvious that the pinnae do not actually extend radially from the rachis, but that the rachis itself spirally twists through two-five (or sometimes more) complete 360 degree revolutions.

In effect, because of the twisting of the rachis, the pinnae extend in various directions and ultimately form the basis of a frond structure with a more or less spirally ascending 360 degree spread of pinnae.

The pinnae are normally angled slightly forward (from the rachis), with the apical pinnae often being inclined at a more acute angle to the rachis. The angle between the rachis and the median pinnae is usually about 60 degrees.



Macrozamia fawcettii - end-on profile of frond showing pinnae twisted slightly at base.

Despite extending in various directions from the rachis, the normally flat-surfaced pinnae twist slightly at the base and, generally, face uniformly upwards (see photo of end-on profile of frond).

This species normally has an average of four to six fronds ranging up to a maximum of approximately eight to ten fronds. Plants with one or two fronds are not uncommon. The fronds generally rise from the caudex in a more or less upright manner, though it is not unusual to find plants with fronds extending from the caudex at various angles, ranging from being almost vertical to spreading

at an angle of 30-45 degrees to the perpendicular.

In near-coastal areas, fronds normally grow up to an average length of 600-700 mm, though the fronds on some plants reach up to 1 meter in length. On the inland ranges, however, the plants are generally more robust and can have fronds which grow up to 1.3 meters in length.

Macrozamia fawcettii normally has an unbranched caudex and grows under a eucalypt canopy in a pattern of scattered individual plants or, sometimes, small groups of plants. A view is held by certain cycad enthusiasts, however, that some of the smaller, more compact, "groups" of plants could actually be multi-headed individual plants.

Cones on both male and female plants are usually solitary, but plants with two cones are not uncommon. Coning occurs on an irregular basis, though undoubtedly on a more frequent basis than most of the drier-habitat inland *Macrozamia* species. I have seen this species cone on a large scale basis in successive years at one particular habitat location (though the same plants were probably not involved in successive conings).

The flesh on *M. fawcettii* seeds varies in color from orange to red to dark red and often adheres strongly to the outer shell. On a comparative basis, its seeds are generally the most difficult New South Wales *Macrozamia* species seeds from which to remove the flesh, unless they are soaked in water for a long period of time.

Macrozamia fawcettii grows reasonably quickly from seed, unlike most other New South Wales Section *Parazamia* species, which normally grow extremely slowly from seed.

Despite being small, *M. fawcettii* is a very attractive cycad, principally due to its broad, glossy pinnae. With age, the pinnae on new fronds undergo a color transformation and change from an initially bronze (or sometimes light green) to a dark green color. As the fronds age, they sometimes become unsightly due to damage from (leaf rolling) insects.

Unlike *Macrozamia diplomera* caudices, which can have a 1.5 meter long whipcord-like tap root, the caudices of *M. fawcettii* sometimes do not have a root system at all, as they seem to rot away at the point where they (possibly) encounter a water-table which is relatively close to ground level.

On an affinity basis, *M. fawcettii* is closely related to the recently named Queensland species, *M. lomandroides* (which was formerly known as the "Bundaberg form" of *M. pauli-guilielmi*). The features which readily distinguish these two species are that *M. fawcettii* has very glossy pinnae and a round petiole, whereas *M. lomandroides* has dull-colored pinnae and a petiole with a flat upper surface. In addition, the caudices of the two species are dissimilar, with *M. fawcettii* being basically ovoid or "egg" shaped, whereas *M. lomandroides* has a longer, narrower, "turnip" shaped caudex.

In respect of New South Wales cycads, *Macrozamia fawcettii* is related to two other *Macrozamia* species, *M. flexuosa* and *M. plurinervia* (both of which have multi-twisted rachises), but is easily distinguishable from these particular species because of its glossy and much broader, flat-surfaced pinnae. [Editor's note: This article appeared in PACSOA in a slightly different format and is reprinted with permission.]



M. fawcettii-female cone with seedlings from previous coning



M. fawcettii - male cone