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CALANDRINIAS - SPECTACULAR SUCCULENTS

Frank Obbens

Calandrinias occur throughout Australia and although fairly common in a variety of habitats they are often overlooked. They are commonly known as Parakeelyas or the Four o'clock plant because many species close their flowers each day in response to low light and cooler temperatures. Additionally, flowers often don't open till midmorning or not at all on heavily overcast days, which helps explain why they can be easily missed. However, in the drier regions they are usually more visible with large flowering patches (Fig. 1) vying for attention with other wildflower displays. Those who are lucky enough to observe these stunning displays may not realise that these plants are also succulents.

Plant features

Calandrinias are succulent or semi succulent plants ranging in size from tiny 1cm diameter buttons to plants approximately 1m diameter, but none are particularly tall and many are prostrate or decumbent. Therefore these plants comprise part of the lower understorey with many

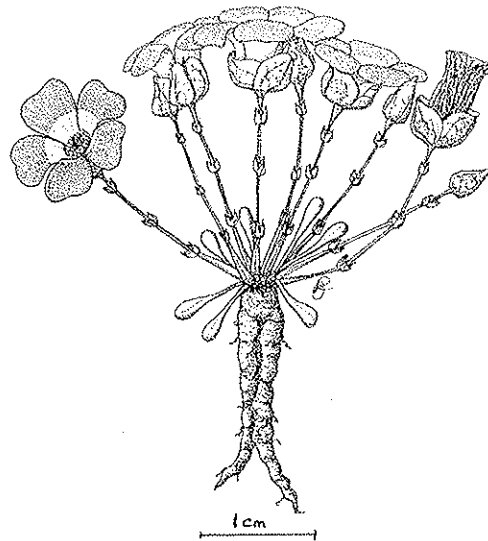


Fig 3: *C. crispisepala*

being annual herbs although several are short-lived perennials and another six are tuberous perennials. In the early part of their life cycle one might see a rosette of basal leaves on the soil surface. These basal leaves come in a variety of shapes including flat and spoon-like, round sectioned and elongated to bauble shaped. Some basal leaves are toothed or ribbed and some are quite large while others can be rather inconspicuous.

Stems eventually grow outwards from the centre of the rosette and can be either prostrate, semi erect to erect with some species displaying one or more habit types. Stems either have leaves scattered along their length or are leafless and may be branched. Basal leaves, stems and stem leaves can be green, grey-green, red-brown or a mix of other colours and sometimes these colours blend in uniquely with the substrate they grow upon. Flowers arise along the ends of stems and branches forming dense inflorescences for example as seen on *Calandrinia pumila* (Fig. 2) or can form solitary flowers on the ends of stems like *C. crispisepala* (Fig. 3).

The degree of succulence varies from species to species, most species having quite succulent basal leaves, stems or other parts, but members of the tuberous Calandrinias have twiggy stems and a couple also have fairly insignificant basal leaves. General plant shape varies enormously and some prostrate species can form unique patterns to anyone observing them from

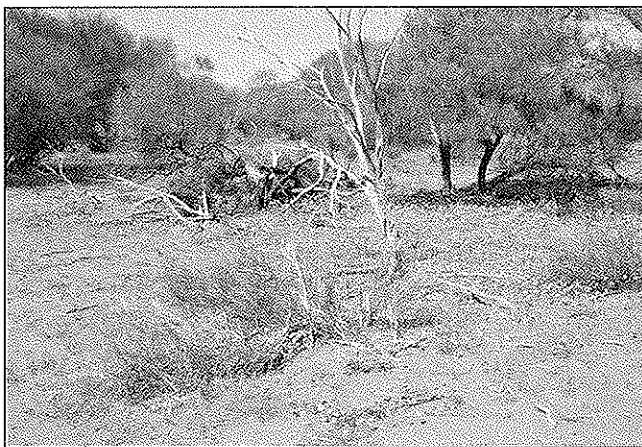


Fig 1: *C. remota* patch. (This really does suffer from loss of colour! The paler dots are the bright magenta flowers, set off spectacularly by the red mulga soil. Ed.)



Fig 2: *C. pumila*. (These flowers, though small, are a beautiful magenta/purple. Ed.)

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Calandrinias

above. However, the most striking feature for most people is the bright coloured flowers, usually shades of pink, purple, magenta, but some are also white and one is even yellow flowered. Again, flowers vary from species to species both in shape and size and also in the number of petals. For example, *C. granulifera* has small white flowers with 6 or 7 relatively sharply pointed petals while *C. polyandra* has large (ie 25-35mm diameter) bright pink flowers with 5 very broadly rounded petal tips.

Mature plants form capsules a short period after pollination which eventually open by means of valves to release the seeds held inside. Species are either 3 or 4 valved and this character is used to classify subgroups in the genus while the small seeds with their distinctive patterns and shapes (Fig. 4) are very useful to identify each individual species.

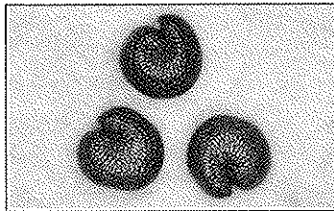


Fig. 4. *C. polyandra* seeds (magnified).

Naming rights

The genus *Calandrinia* is found in Australia and the Americas and belongs to the family Portulacaceae. This is a relatively large family world wide; Australia having only a few other members besides *Calandrinia*, including the common introduced weed, pigweed, *Portulaca oleracea*. Australian taxonomist Dr R Carolin's research from the early 1980s recognized that the Australian Calandrinias were quite different to the American species of the genus thus he suggested that our Calandrinias be renamed *Rumicastrum* as this appeared to be

an appropriate available name, but he did not publish new combinations. Strict taxonomic conventions rule that the name of a genus can only be designated to the first described species of a taxon and *Calandrinia* (named after Swiss botanist Jean Calandrin) was described by Kunth in 1816 from an American species. For many years Carolin's mooted name was just that and then an American author (M. Hershkovitz) published the name *Parakeelya* for the Australian Calandrinias. For a number of complex reasons this name has not been accepted in Australia yet. Therefore *Calandrinia* is still the generally accepted name, but that may change in the future.

How many species and where are they distributed?

Currently there are 64 species of *Calandrinia* recognized in Australia with 49 species recorded for WA and 23 species that have interstate or national distributions. Many species have broad regional preferences. For instance *C. uniflora* is distributed across northern Australia stretching from tropical QLD and NT to northern parts of the Kimberley. One of the most widely distributed species, *C. ptychosperma*, occurs in semiarid and arid regions throughout five mainland states while *C. balonensis* occurs in those same states, but in a narrower band of arid country. And there are also species with essentially southern distributions like *C. eremaea* or disjunct distributions like *C. granulifera* which occurs in the south west of WA, the south east of SA, in western VIC and eastern TAS. WA has the majority of species and a high percentage of those species are endemic to this state. It is important to realize that one third of the total number of species do not yet have published names and that ongoing revision and new discoveries will almost certainly increase this total.

There is still a lot of 'Calandrinia country' out there to explore.

Habitat preferences and ecology

Most Calandrinias prefer open habitats where competition from taller plants is avoided, but generally also like water gathering sites. Good places to look in the more arid zones include claypans, clay flats, salt lakes and associated lake dunettes, low open heathland or very open woodlands with sparse understorey, bottom of rocky slopes and riverbanks and beds. The coast has also a variety of open habitats that Calandrinias prefer like dunes and swales, spoil from limestone ridges and coastal wetlands. Other very prospective habitats include areas on and around granite whether or not these are located in arid areas or in the south west forests.

Generally little is known about the ecology of Calandrinias. Obviously succulence is a good survival mechanism for plants living in arid landscapes, but quite a number of Calandrinias do not live in arid areas. Likewise, little is known about their pollination with a good number thought to self-pollinate, although I have seen several species visited by ants, hover flies and other smaller insects. Response to fire is also unknown although this may be a rare event in the open habitats where they live. Many species are still poorly known and a few species are currently included on the list of priority flora (such as *C. kalanniensis*) because of this reason, but may well be more numerous and widespread with further investigations. There are no rare species designated at this stage although that situation may also change with ongoing research.

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