

Xerochrysum *bracteatum*

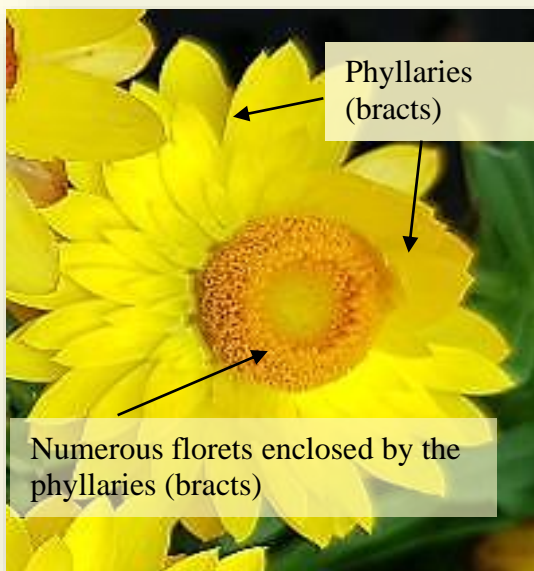
Golden Everlasting Daisies

Golden Everlasting Paper Daisies (*Xerochrysum bracteatum*) are extraordinary in that they occur in every state and territory of Australia as annuals or low growing perennials. They inhabit an equally extraordinary diversity of habitats, including woodlands, forests, rainforests, even alpine areas and the arid zone.

The name *Xerochrysum*, is really appropriate as the Greek *xerós* (ξηρός) means *dry*, and *chrysós* (χρυσός), gold. These words describe *phyllaries*, or *bracts*, the colourful, petal-like structures that surround a disc composed of myriad tiny flowers (florets) crowded together, enclosed by the phyllaries. To all intents and purposes, it looks like one flower.



The cells of the phyllaries (bracts - parts that look like petals) are dry and papery, comprised of hydrated cells but have characteristically thickened secondary cell walls. These cells resemble *sclerenchyma*, toughened cells normally found in sturdy stems



and the petioles (stalks) supporting flowers, but not in flower petals themselves. Maybe the bracts of everlasting daisies include a new type of plant cell. The bracts can also move *hygroscopically*, moving inwards to enclose the florets, or bending outwards to expose the florets, depending on the hydration of cell walls. Paper Daisies are well suited to dry environments so it sounds contradictory that this movement is to *enclose* the florets when the humidity is *too high*, rather than to trap water when the humidity is *too low*!

In the wild, flowers of *Xerochrysum bracteatum* are white or yellow, and from the 1790s, were some of the earliest Australian natives to be cultivated in Europe. In Germany, from about the 1850s, a famous plant breeder, Carl Ebritsch, developed many new colours, including pink, red, orange and bronze and these became increasingly popular throughout Europe. There has long been debate about the origin of these colours, and it was thought that Golden Everlasting Paper Daisies may have been hybridised with *Helichrysum* species from Asia or Africa. Newly published work by botanist Tim Collins has shed fresh light on the issue. Using DNA techniques, he and his



St Helena is a very long way from Australia



Golden Everlastings, *X. bracteatum*
Red circle – *X. macranthum*

colleagues have been able to show that these boldly coloured varieties are hybrids between *X. bracteatum* and *X. macranthum*, a mostly white flowered species from the south-west of Western Australia but some having the pink colour from which the now very extensive range of colours was developed.

There is a fascinating historical element to Collins study. He was surprised to find that there is a thriving naturalised population of Golden Everlasting Paper Daisies on the island of Saint Helena, an isolated outpost of the British Empire in the Atlantic Ocean almost 2,000 km off the west coast of Africa. It is well known that the Empress Joséphine, wife of Napoléon Bonaparte, was an avid and extremely knowledgeable collector of exotic plants in her gardens at Malmaison. The *type* specimen of *Xerochrysum*, *X. bracteatum*, the Golden Everlasting, was described from cultivated plants in her gardens, now known to have been grown from seed collected at Port Jackson (Sydney Harbour).

In 1815, after his loss at the *Battle of Waterloo*, Napoléon was exiled by the British to Saint Helena. He developed a



garden at his residence and seed of the Golden Everlastings that had been a favourite of both Napoléon and Joséphine, were sent from Malmaison to St Helena during his time in exile. Collins and his colleagues investigated the possibility of hybridisation between the Golden Everlastings and other species on Saint Helena, but this was not the case. They found that the Paper Daisies on Saint Helena were genetically most closely related to the Golden Everlastings that they had collected from naturally occurring populations in the Sydney Basin and in the NSW South Coast Bioregion.

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Distribution map: Drawn from data accessed from Atlas of Living Australia:

https://biocache.ala.org.au/occurrences/search?q=lsid:http://id.biodiversity.org.au/node/apni/2891029#tab_mapView

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