






Napoleón's exile on St. Helena: Everlasting love and Australian paper daisies

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ABSTRACT

The Australian and New Guinean everlasting paper daisy genus *Xerochrysum*, widely grown around the world as Strawflower, Everlasting or Immortelle, was recently revised. The first and type species, *Xerochrysum bracteatum*, was described in 1803 as *Xeranthemum bracteatum* from a plant cultivated in the Empress Joséphine's garden at Malmaison. During our project, we learned that *Xerochrysum* was naturalised in St. Helena, the place of Napoleón Bonaparte's last exile, and is presumed to have been introduced by him. We conducted genetic analyses to test the derivation of the St. Helena plants. Comparisons with some colourful hybrid cultivars and naturally occurring populations in Australia found the St. Helena plants to be most similar to *Xerochrysum bracteatum* s. str. of the Sydney Basin. The St. Helena plants were without admixture of another species as would be expected if they were more recently escaped ornamental cultivars. Our results support the conclusion that the St. Helena *Xerochrysum* were introduced during Napoleón's exile, likely as a reminder of his wife's garden.

Keywords: cultivars, Empress Joséphine, Gnaphalidae, history, Malmaison, *Xerochrysum*.

Picture the exiled former emperor Napoleón Bonaparte, imprisoned by the British on the remote island of St. Helena, gazing at daisies and remembering his wife, the Empress Joséphine, and a happier time. This vision is where our team of plant systematists found itself in a surprise twist in the discovery and documentation of Australia's stunning biodiversity.

Australia's plants and animals have a long history of admiration from around the world (Janick, 2007; Mabberley, 2020), yet today our unique biodiversity is still surprisingly poorly known and, in many instances, critically endangered (Taxonomy, 2018). Australia is a nation that exports raw products to the world. Currently it is iron ore and coal that top the list, but in the early days of the colony at Port

Jackson, it was our natural heritage in the form of seeds and plants (Mabberley, 2020).

We begin the story in 1803, when the French botanist Étienne Pierre Ventenat (1757–1808; <https://www.biodiversitylibrary.org/bibliography/70396>) was documenting the Empress Joséphine's garden at Malmaison, a manor house just outside Paris, and the large collections of exotic flora held in its orangery. A spectacular golden daisy with papery bracts attracted his eye. Like any good botanist, he tried to recognise this plant and recall its name, but it did not match anything known to him. Ventenat (1803) then described this plant as a new species, but we know it today as a popular Australian plant grown around the world: *Xerochrysum bracteatum* (Vent.) Tzvelev (syn. *Helichrysum bracteatum* (Vent.)

St. Helena, last home of Le Petit Caporal

St. Helena, one of the most remote islands in the world was picked by the British government as the exile location of Napoleón Bonaparte (affectionately called “le petit caporal” by his troops).



Tree fern thicket of St. Helena

The flora of St Helena includes 45 endangered endemic species of plants and there are ongoing programs to conserve and replant the great forest on the island.

Panoramic view of St. Helena
Photo by Jannas Du Plessis



Figure 1. Cultivar of *Xerochrysum* Tzvelev. Cultivars, including what are referred to as 'forms', 'varieties', and 'wild selections', have uncertain ancestry due to many growers use of and referral to a broadly defined *X. bracteatum* s. lat. Photo by T.L. Collins.

Andrews; *Bracteantha bracteata* (Vent.) Anderb. & Haegi), commonly known as the Immortelle, Straw Flower, or Golden Everlasting Paper Daisy (Figure 1).

Napoleón Bonaparte was exiled by the British to the island of St. Helena in the South Atlantic Ocean in 1815, where he remained until his death in 1821 (Brunyee, 2015). During Napoleón's six years of exile, parcels of food and books were sent to St. Helena, purportedly including 'seeds of everlasting daisies ...to remind him of Joséphine's garden' (Hamilton, 1999).

Our research aimed to clarify and document the species diversity in *Xerochrysum*, which occupies widely varying habitats in Australasia. This type of research underpins the conservation of plants in the wild and can inform the horticultural

development of new cultivars and varieties (Figure 2). Horticulturists are inventive and industrious, and European growers had developed new colourful hybrid cultivars in the 1850's (Moore, 1861), and today the Immortelle continues to be improved and win awards at horticultural shows around the world in varying shades of yellow, pink, orange, purple and white (<https://www.hortweek.com/xerochrysum-mnp-wins-ipm-essen-top-bedding-plant-prize/ornamentals/article/1523670>; Figure 2).

We wanted to know where the daisies described by Ventenat at Malmaison came from and also: where did they go? A chance conversation in the university tearoom between then PhD student Tim Collins and Dr John Nevin revealed that *Xerochrysum* continues to grow wild on St. Helena and is thought to be plant-escapees from Napoleón's garden (Lambdon, 2013). Golden Everlastings and their cultivars are known to escape cultivation (Tropicos, 2020) and grow wild and weedy around the world. Sadly, Joséphine's Golden Everlastings can no longer be found in the garden at Malmaison (<https://musees-nationaux-malmaison.fr/chateau-malmaison/le-parc-de-malmaison>).

If we could compare the genetics of the St. Helena everlastings with naturally occurring populations in Australia, perhaps we could determine the location of the original 1790's collections that went to Europe and Joséphine's garden, and also confirm whether the naturalised plants on St. Helena are indeed from the time of Napoleón's garden or are more recently introduced cultivars. As the plant described by Ventenat from the Empress Joséphine's garden in Malmaison is the Type Specimen for the genus *Xerochrysum* (*X. bracteatum* (Vent.) Tzvelev, *Novosti Sist. Vyssh. Rast.* 27: 151 (1990)), it is the point of truth for defining what we mean when we refer to the genus.

When contacted by Tim, the good people at the St. Helena National Trust immediately grasped the excitement of this project. They thoughtfully collected samples and sent them to the University of New England in Armidale via Kew Gardens in London (Figure 2B).

We sequenced the DNA of the St. Helena samples, as well as some colourful hybrid cultivars and compared them with many different species and populations of

Gumwoods

The geographic isolation that made St Helena an ideal prison for Napoleón also led to the evolution of several endemic lineages of Compositae, such as the rare St Helena "gumwood" *Commidendrum robustum* (Roxb.) DC.

Panoramic view of St. Helena with *Commidendrum robustum* in the foreground
Photo by Rebecca Cairns-Wick

Pierre-Joseph Redoute's masterpiece.

Painting of *Xerochrysum bracteatum* (Vent.)
Tzvelev (syn. *Xeranthemum bracteatum* Vent.)
by Pierre-Joseph Redouté published in the
book *Jardin de la Malmaison*





Figure 2. A. Cultivar *Xerochrysum* 'Dwarf Mixed'. B. Capitulescence of *Xerochrysum bracteatum* (Vent.) Tzvelev grown from seed collected at Longwood, St. Helena. C. Capitulescence of *Xerochrysum macranthum* (Benth.) Paul G. Wilson growing in the wild, Western Australia. Photos, A-B, T.L. Collins, C, A.N. Schmidt-Lebuhn.

Xerochrysum that we collected from around Australia. The results showed us that the colourful hybrid cultivars originated from crossing *X. bracteatum* (Golden Everlasting) from populations growing naturally near Sydney with the Western Australian endemic, *X. macranthum* (Benth.) Paul G. Wilson (White Strawflower; Figure 2C).

The plants from St. Helena populations do not contain any White Strawflower (*X. macranthum*) ancestry in their genome and are most similar to naturally occurring Golden Everlasting (*X. bracteatum*) populations in the Sydney Basin. Yet they have much lower genetic diversity, as could be expected after many generations of isolation on the island. Our results support the conclusion that St. Helena populations were introduced by or for Napoleón Bonaparte from the Sydney Basin (Collins et al., 2021).

The story of Napoleón and Joséphine's Paper Daisies has elements of a fairy-tale with daisies crossing oceans and centuries for the memories of lost love. The science behind this fairy-tale helps answer longstanding questions of the identity of the weedy plants on St. Helena and the origins of the colourful hybrid cultivars, but it has also illuminated species diversity in Australia. Based on this knowledge, we recently published 12 new species of *Xerochrysum* including some identified as Critically Endangered (Collins et al., 2022). But that is a story for another time.

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