

## Adventures of *Cryptandra*

I have always been fascinated by the names science applies to plants. When honouring a person, it is interesting to delve into the history of that person to see why such an honour should have been bestowed. The internet allows such investigation with ease, whereas previously long hours were spent at major libraries conducting "research". But to me it is more interesting when scientists have used characters of a plant in naming, as one can then see what the scientist saw, and hopefully use this stored information to remember the plant when next coming across it in the bush, or in a garden.

Whilst it is nice to know that Sir Joseph Banks was honoured with the naming of *Banksia*, it is much more stimulating to find out that *Cryptandra*, from Greek *kryptos*, hidden and *andros*, a man, has hidden its anthers within cupped petals. This is tangible evidence that we can see when taking a close look at the flowers with our 10x lens.

Within the confusing Family Rhamnaceae, the great Botanist Robert Brown is credited with sorting through difficult floral structure of the species collected in Australia in the early years of the nineteenth century. As an appendix of Matthew Flinders' "A Voyage to Terra Australis" Robert Brown published his "General remarks, geographical and systematical, on the botany of Terra Australis" (1814). In this publication he gave a detailed definition of the Family Rhamnaceae, describing all the important features which placed the various plants within this group. His description was so accurately prescriptive that it is still valid today.

However as with all good stories, there is a twist. There is no perfect line of evolution that we can follow using morphological clues to split the members of Rhamnaceae into Genera, so scientists have turned to DNA sampling to work through questions that have baffled for many years. These Genera have continually confused botanists, and some species have variously moved from one to another. Indeed, even Antoine-Laurent de Jussieu, coining "Rhamni" in his "Genera plantarum" (1789), questioned whether he had placed plants in their correct genus.

Siegfried Reissek first described *Stenanthemum* in 1858, separating some species from *Cryptandra* and *Spyridium*. George Bentham, p410 Vol 1, *Flora Australiensis*, (1863) notes that "most of the genera, even the most natural ones, are difficult to characterize. The differences in their flowers and fruits are very trifling", but he decided to maintain the genera as proposed by Reissek. But F.von Mueller (1883) found the differences 'so trifling' that he abandoned *Stenanthemum*, *Spyridium* and *Trymalium*, reducing them to synonymy with *Cryptandra*. In subsequent years various botanists tinkered, but no definitive grouping was determined.

Prominent botanist K.R.Thiele, (Kevin) currently curator of the Western Australian Herbarium, is well recognized for his research into Proteaceae, and with Pauline Ladiges produced a paper on the taxonomic arrangement of *Banksia* based on cladistic analysis. Although controversial, this work resulted in the transfer of *Dryandra* to *Banksia*, a decision still hotly debated. But Kevin is also charged with overseeing the treatment of Rhamnaceae for the Flora of Australia series, and for this work he has produced a succinct set of key points to establish the correct placement of *Cryptandra*, *Stenanthemum* and *Spyridium*.

Using morphological and cladistic analysis, and sequence data of Dr. Juergen Kellermann (currently Senior Botanist, State Herbarium South Australia) and others, he has established that each of the genera is a natural one, and also, that some species within the group are misplaced and need to be transferred to new genera. The work of botany is indeed detailed and baffling.

For ***Cryptandra***, a genus of about 40 species growing naturally from south east Q'land, across southern Australia to south west Western Australia, identifying features include:  
leaves that are revolute-terete with stipules that surround the base of the leaf petiole,

inflorescence of single flowers with imbricate (overlapping) bracts around the base of the flower, and a floral tube that may be short or long, but distinct.

At the base of the floral tube is a pentagonal shaped disk covered with short woolly hairs.

For **Stenanthemum**, (from the Greek *stenos*, meaning narrow, and *anthemon*, meaning flower, literally narrow-flowered), a genus of about 30 species, 23 of which occur only in south west Western Australia, identifying features include:

leaves which are usually broad and often folded, at least at the tip, with stipules that are free or joined behind the petiole. Inflorescence is a dense cauliflower-like head of small white flowers surrounded by small or large floral bracts.

The floral tube may be short or long. At the base of the floral tube is a glabrous disk, shaped such that the staminal filaments appear to join the disk on extended, albeit short, arms.



*Spyridium scortechinii* up close

For **Spyridium**, (from the Greek *spyridion*, meaning a little basket, referring to specialized leafy bracts that surround the flowers of many species), a genus of about 40 species found through southern temperate Australia, identifying features include:

leaves which are usually broad and rarely folded, with stipules that are free or joined behind the petiole.

Inflorescence is a cauliflower shaped head similar to *Stenanthemum* but usually looser, and surrounded by large floral bracts. The floral tube is very small. At the base of the floral tube is a glabrous disk circular in outline but indented where the staminal filaments join.

For each of these 3 Genera, the fruiting structure is distinctly different, and consistent, and is another key to determining where a particular species sits.

The differences might appear minor, but are consistent within the now accepted groupings, and importantly for us, are morphologically discernable. DNA sequencing has confirmed the placement of various species within the recommended Genera.

My aim in researching this was to verify the placement of the much traveled *Stenanthemum scortechinii*, as described by Mueller. It has been moved back to *Cryptandra*, then again to *Stenanthemum*, and finally arrived at its correct home as *Spyridium scortechinii*, as described in *Telopea* 10(4) 2004, p823-829. The paper titled ' *Spyridium burragorang* (Rhamnaceae), a new species from New South Wales, with new combinations for *Spyridium buxifolium* and *Spyridium scortechinii*' by Kevin Thiele, and Judy West, then at the Australian National Herbarium in Canberra, details the problems of determining the placement of plants within current Genera, and corrects anomalies. So ends the saga.

Maybe when next confronted with an unpopular name change, one should spare a thought for the intense and detailed studies undertaken by botanists before such apparently unnecessary changes are published.

The Tribe Pomaderreae within the Family Rhamnaceae contains many desirable plants. Although not many are grown these days, early catalogues list a range of *Pomaderris*, *Cryptandra* and *Spyridium*. As we find the changing weather patterns cause longer drier spells, it might be that a resurgence of the smaller plants of this group occurs, again finding favour as garden subjects.

Plants that we could grow include:

***Cryptandra amara***, Bitter Cryptandra, growing naturally in open heathy country through the eastern states, is a slow growing dwarf or small shrub to 0.5m. It flowers from autumn through spring, and is happy in semi shade or full sun. Like many in this group, *C. amara* tolerates dryness once established, and is a great filler in open rockeries.

***Cryptandra ericoides***, Heathy Cryptandra, from southern Q'land to south of Sydney on rocky heaths, is similar, or smaller than *C. amara*. Flowers are borne through autumn and winter. This was once a popular garden plant, preferring sun and good drainage.

***Cryptandra propinqua***, Silky Cryptandra, growing naturally on drier heathy country from Q'land through NSW, Vic and into SA., is a compact, wiry, dwarf shrub to 40cm which flowers through winter and spring. It is a drought tolerant, showy, heavy flowerer, and is a great infill for rockeries in sun or semi shade

***Spyridium scortechinii***, has a number of common names including Ball Cryptandra, Corroboree Flower and Cotton Bush, alluding to the very shaggy flower heads, is found in SE Q'land and eastern NSW, and is a prostrate to low mounding shrub, depending on the form. On the south coast of NSW, the best collection has been from a roadside cutting at Bodalla, on the Potato Point Rd. This form stays flat and spreads about 1m. There are forms described as growing to 2m high, but I have rarely come across any taller than about 0.5m The plant is very accommodating in the garden, easily maintained and long flowering, from autumn to early summer. Once established the plants are very happy to survive on little rain, and maintain a compact habit.

***Spyridium cinereum***, Tiny Spyridium is a compact dwarf shrub to 0.5m, with attractive grey foliage. It occurs in coastal heaths in the south east, Nadgee to Mallacoota, and also in the Grampians. During spring and summer the plant is covered with masses of white flowers. In cultivation it does best in semi shade, and needs some water until well established.

***Spyridium parvifolium***, Dusty Miller in reference to the roundish dull grey green foliage, is possibly the most widely grown of this group, especially the dwarf prostrate forms from East Gippsland. The plants is found from SE NSW, through Vic to SE SA and in Tas. Generally a low spreading plant, some forms of wetter forests around Melbourne can be up to 1.5m high. An interesting feature is the whitish floral bracts below the numerous flowerheads from late winter to early summer. A very adaptable plant which makes a lovely backdrop for smaller plants, especially in semi shade, where its soft greyish foliage is seen at its best.

Rarely do we see these plants in nurseries today, so we might need to grow our own.

Propagation of Cryptandra is a somewhat slow process with cuttings of firm new growth often taking 6 months to root. Generally tip cuttings taken from February to April will be reliable. Flower buds should be removed

With Spyridium, cuttings are best taken of just firm new growth, taken from November to January do best, and using growth from plants growing in semi shade has proved most successful in my experience.

#### References:

Brown, R. General remarks, geographical and systematical, on the botany of Terra Australis, pp533-612 in Matthew Flinders, A voyage to Terra Australis, Vol 2 (1814)

Bentham, G. and Mueller, F. Flora Australiensis A description of plants of the Australian territory, Vol 1, Rhamnaceae, pp409-445 (1863)

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Elliot, R. and Jones, D. *Encyclopaedia of Australian Plants suitable for cultivation*, Vols 3, 9.