

Conospermum and Synaphea

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Proteaceae get their name from the Greek god Proteus who changed his shape at will. If you could catch him he would foretell your future, but you could never catch him and never know your future because he would change his shape. From this feature of Proteus comes the adjective protean which has positive connotations of flexibility, versatility and adaptability. So of the genera in Proteaceae, which is the most protean? The most diverse in shape? I will nominate Conospermum for this honour, and its sister genus Synaphea for the opposite honour, the least diverse.

Ironically, the diversity within Proteaceae is based on a very simple flower, arguably the simplest in the plant kingdom. Most plants have an outer whorl of sepals, which may be either protective or decorative, and an inner whorl of petals which are usually decorative. In most dicots they come in fives, and in most monocots they come in threes. In Proteaceae, however, there is just one whorl and it has four parts which are called tepals. There are also four stamens and they are opposite the tepals (that is, not alternative). Usually the stamen filaments are joined to the tepals so that the tepals carry the anthers and thus serve the function of the three outer whorls of other flowers.

So where do Conospermum and Synaphea fit into the Proteaceae classification? For both of them, the flowers are zygomorphic (one side is a mirror image of the other), though this is not strongly marked in some species of Conospermum. Again for both of them, one anther is missing but it is the lower anther in Conospermum and the upper one in Synaphea. However, you do not have to look at the anthers to distinguish them. For Conospermum, the flowers are white, blue and grey or pink but never yellow, and the leaves are always entire.

For Synaphea the flowers are always yellow and the leaves are usually dissected.

At the publication of Eleanor Bennett's revision of the genus in Flora of Australia Volume 16 (1995), Conospermum had 53 species. Most species were confined to Western Australia, but 11 occurred only in the eastern states ranging from five species in New South Wales down to only one species in Tasmania. Although we tend to think of the genus as "smokebushes", the tabulation on page 24 shows that those with woolly flower heads are in the minority.

The genus was divided into three subgenera by Eleanor Bennett. Two of these are small, with three species each. All of them occur in the far southwest corner of Western Australia. The sub-genus *Isomerium* scarcely matches anyone's expectations for Conospermum, looking instead rather like a bizarre wedding bush. In contrast, the sub-genus *Chilurus* looks rather like someone has grafted rush flowers onto the bush (see page 24). The largest sub-genus is of course called Conospermum. Its primary subdivision depends on whether the flowers are woolly.

The non-woolly group is further divided into four sections depending on the shape of the inflorescence and on whether the leaves are confined to the base of the plant. The section *Paniculata* includes *C. glumaceum* (from the Latin, meaning husk). In this species the bracteole subtending the flower is enlarged and is creamy yellow becoming brown with age (see photos on page 24, 25). In the section *Scaposa*, the flowers are arranged in a dense spike or corymb and in several species the younger, immature flowers in the centre of the group are dark blue while the outer flowers are white (page 24). One of these (*C. brownii*) is referred to by Sainsbury (Field Guide to

"Sister" Genera within
Proteaceae
Grevillea-Hakea
Isopogon-Petrophile
Conospermum-Synaphea
Banksia-Dryandra
Long Live the Sisterhood!

Smokebushes and Honeysuckles) as “Blue-eyed Smokebush” without apparently noticing the irony in the name (Say “brownii” out loud!).

The woolly group comprises the section *Eriostachya* (meaning woolly head (of corn)). This is the group that gives rise to the name "smokebushes" because, from a distance, the flowers look like smoke drifting through the bush (page 25).

Success in cultivating members of the genus appears to be patchy. For many species, Sainsbury writes "not known to be in cultivation" and for many others "difficult to establish". There are a couple of exceptions: *C. stoechadis* is noted as, "once established, can be long-lived in cultivation. However there is a high mortality rate in the first two years." Greater success has been achieved with *C. triplinervium* (the tree smokebush). It is recorded as the easiest to grow in cultivation and is used to good effect in the garden around the Ecology Centre in Bold Park (see photo page 25).

In some respects, *Synaphea* contrasts with *Conospermum*. It can sometimes be difficult to recognize a plant as a *Conospermum*, but there is so much diversity that it is easier to recognise the species. *Synaphea* on the other hand is always instantly recognizable when in flower. The bright yellow inflorescences are attractive and characteristic.

Synaphea spinulosa was one of the first two Australian plants to be named under the Linnaean binomial system. However it was named from a sample of leaf and was thought to be a species of fern. *Synaphea* was not named until 1810. It is therefore the younger sister (*Conospermum* dates from 1798).

The genus was revised by Alex George in the same volume of *Flora of Australia*. He recognized 50 species, most of which were new. Several of the new species are confined to



The adult leaves are often complex (and interesting) shapes. However, the juvenile leaves are simple. The picture shows the sequence of increasing complexity of leaf shapes emerging 12 months after a control burn

quite small areas. For example, *S. boyaginensis* is confined to the Boyagin Nature Reserve; *S. quartzitica* is known only from a single locale on a quartzite hill. Since then, six more species have been named, and *Florabase* lists a further 16 forms that are given manuscript names.

There appears to be little information on cultivation of the species. Perhaps this is partly because we are blessed with large numbers of other plants with bright yellow flowers and therefore less incentive to cultivate this genus. However, those species in which the inflorescence is elongated and held well above the canopy of the shrub would make an attractive addition to any garden.

Conospermum Simplified classification

Perianth lobes more or less equal

Lobes about as long as tube

Sub-genus Isomerium (3 species)

Conospermum flexuosum



Lobes longer than tube

Sub-genus Chilurus (2 sections, 3 species)

Conospermum teretifolium



Perianth two lipped

Sub-genus Conospermum (5 sections, 47 species)

Flowers not woolly (4 sections, 27 species)

Section Paniculata



C. glumaceum

Section Axillaria



C. amoenum

Section Scaposa



C. densiflorum

Flowers woolly (1 section, 20 species)

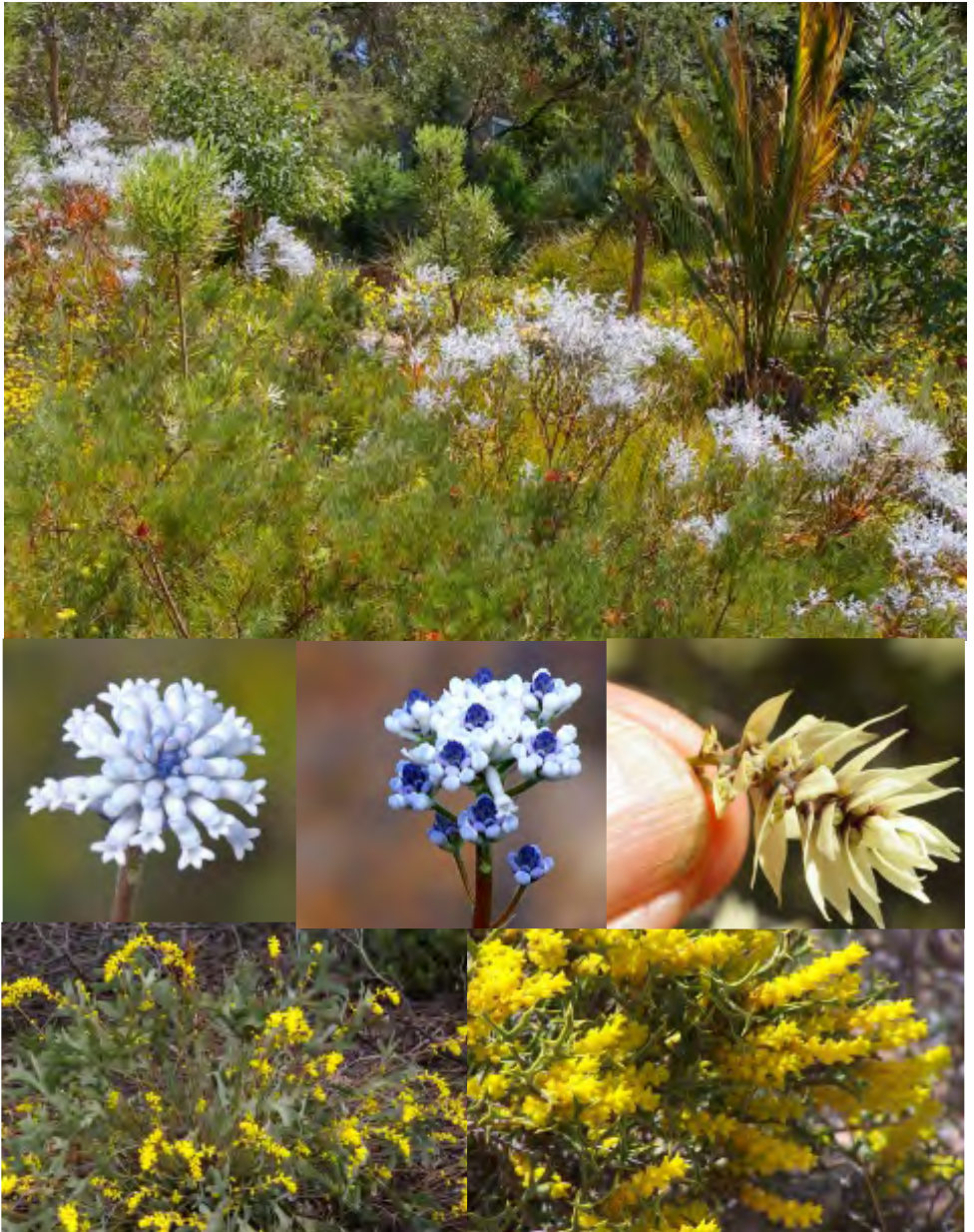
Section Eriostachya



C. distichum



C. triplinervum



Top: *Conospermum triplinervum* in the garden of the Ecology Centre, Bold Park.
 Middle: *Conospermum huegellii*, *Conospermum brownii*, "thumb-nail" of the author with *Conospermum glumaceum*.
 Bottom: *Synaphea petiolaris*, *Synaphea spinulosa*.