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#### No. 12 Conospermum

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This issue of **Seed Notes** will cover the genus *Conospermum* (smokebush).

- Description
- Geographic distribution and habitat
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- Seed collection
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## Conospermum (smokebush)

The English botanist, James Smith, named the genus Conospermum in 1798. The name comes from the Greek conos for cone and sperma meaning seed. This refers to the shape of the nut or fruit. Literally translated, the name means cone seed. The genus is commonly called smokebush. Plants of some species have massed white woolly flowers and resemble drifting smoke. Their potential for horticulture is excellent. Some species are used in the cut flower industry



and wild stands of these plants are being threatened by exploitation. Conospermum ephedroides. Photo – Sue Patrick

#### **Description**

Conospermum are perennial herbs, shrubs or small trees. All have simple and entire leaves. The juvenile leaves of all species are prominently three-nerved and longer and broader than the mature leaves. Many species are often inconspicuous when not in flower. Plants display either a corymbose (branched) or paniculate (where the stems of individual flowers are longer for those that are lower so all flowers are about the same level) inflorescence with tubular flowers in blue, white or cream. The flowers may be hairy or glabrous. The floral bracts are persistent.



Above left: Blue Conospermum flower. Photo – Anne Cochrane Left: Conospermum flexuosum. Photo – Sue Patrick









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#### Geographic distribution and habitat

Conospermum (family Proteaceae) is an endemic genus of Australia with its centre of distribution in southwest Western Australia. There are more than 50 species in the genus. Conospermum generally grow in well-drained sandy soils that have gravel incorporated. Some species are found at the edges of swampy sites. They are mostly found in heathlands. With respect to



Approximate distribution of Conospermum in Australia.

conservation, bush picking of flowering stems for the cut-flower trade can threaten the survival of even the most common species if exploitation occurs

## **Reproductive biology**



Above (left and right): Conospermum densiflorum ssp. unicephalatum. Photos – Anne Cochrane

*Conospermum* flowers are insect pollinated (native bees, hoverflies and other flies) and the flowers have an unusual

explosive mechanism that deposits pollen on visiting insects. In this way crosspollination is assured. Many species are obligate seeders, killed by fire and regenerating from seed. Others are resprouters and can survive fire or other disturbance, regenerating from rootstock. These latter appear to be quite long-lived.

Right: Conospermum acerosum inflorescence. Photo – Anne Cochrane



# **Seed collection**

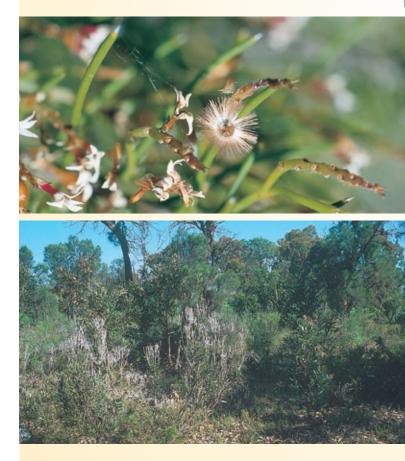
Seed set is often very low in some species in the genus and viable seed is hard to get, despite profuse flowering and fruiting. The fruit of many species ripens over a long period of time and only one seed is produced per fruit. The fruit is cone-shaped, with a hard seed coat that is often hairy. The fruits form along the scape of the old flowering spike and should be well-formed, light brown in colour and hard when

ripe. Hand collection can be tedious but it is possible to bag developing fruits. Stockings or muslin bags are effective.



Above: Conospermum densiflorum ssp. unicephalatum.

Below: Conospermum acerosum. Photos – Anne Cochrane



Above: Conospermum undulatum habitat. Above right: Conospermum undulatum. Photos – Anne Cochrane Right: Conospermum ephedroides. Photo – Sue Patrick





# Seed quality assessment

The best method to determine whether there is seed within the nut is to cut off a small portion of the seed coat/fruit wall using a scalpel blade to see whether firstly, there is an endosperm, and secondly, that the endosperm is firm and white. This must be done without damaging the seed inside the fruit. If the fruit is empty or the seed shrivelled, then it will not germinate and these fruits should be discarded.



Above: Conospermum densiflorum ssp. unicephalatum. Fruit on left has been dissected to reveal healthy white seed within the fruit wall.

Photo – Anne Cochrane

# Seed germination

Seed can sometimes be very difficult to propagate because of the hard fruit wall of the nut. By nicking off a small portion of the fruit wall, the seed will imbibe water and be ready to germinate. The addition of the growth hormone gibberellic acid at 25 mg per litre will speed up the process. Untreated fruits placed directly into soil may take many months to germinate. Smoke has been suggested as an aid to germination and seed



can be soaked in a smoke water solution for up to 24 hours before sowing.

Above: Germinating seed of Conospermum densiflorum ssp. unicephalatum. Photo – Anne Cochrane





Top: Conospermum caeruleum ssp. debile inflorescence. Above: Spreading habit of Conospermum caeruleum ssp. debile. Photos – Anne Cochrane

## **Recommended reading**

Bennett, E. M. 1995. Conospermum. Flora of Australia 16, 224-271. CSIRO, Melbourne.

Elliot, W. R. and Jones, D. L. 1984. Encyclopaedia of Australian Plants Suitable for Cultivation. Volume 3. Lothian Publishing, Melbourne.

George, A. S. 1984. *An Introduction to the Proteaceae of Western Australia*. Kangaroo Press, Sydney. Sainsbury, R. M. 1991. *A Field Guide* to Smokebushes and Honeysuckles (Conospermum and Lambertia). UWA Press, Perth.

Sharr, F. A. 1978. Western Australian Plant Names and their Meanings. A Glossary. University of Western Australia Press, Perth.







These **Seed llotes** aim to provide information on seed identification, collection, biology and germination for a wide range of seed types for Western Australian native species.



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