Seed Notes for Western Australia

No. 12 Conospermum

IN THIS ISSUE

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

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

Geographic distribution and habitat

Conospermum (family Proteaceae) is an endemic genus of Australia with its centre of distribution in south-west 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 conservation, bush picking of flowering stems for the cut-flower trade can threaten the survival of even the most common species if exploitation occurs.

Approximate distribution of Conospermum *in Australia.*

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 cross-pollination 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

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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.

Seed Notes
for Western Australia

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

THREATENED FLORA SEED CENTRE

They have been written and compiled by Anne Cochrane, Manager of DEC's Threatened Flora Seed Centre.

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