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# Seed Notes

## for Western Australia

No. 14 Hakea

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This issue of **Seed Notes** will cover the genus *Hakea*.

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- Geographic distribution and habitat
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## Hakea

The first collection of *Hakea* was made in 1770 by Joseph Banks and Daniel Solander from the Endeavour expedition. The genus was described in 1797 by Schrader and Wendland, and named after Baron von Hake, a 19th century patron of botany, in Hanover. Plants were introduced into cultivation in England before that time.



*Hakea neurophylla*. Photo – Sue Patrick



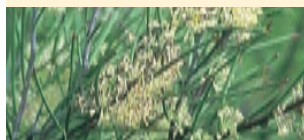
## Description

Most hakeas are shrubs, ranging from small to low medium height. They can be useful for screening or as groundcovers. Without fruits, *Hakea* and *Grevillea* can be confused. Both have flowers with four tepals (petals and sepals combined), an erect or recurved limb in bud and a similar range of leaf and pollen presenter shapes. But the fruits are very different. *Hakea* fruits are generally

woody and persistent; whereas *Grevillea* has non-woody and non-persistent fruits. Most *Hakea* species have tough, pungent foliage that may be terete (needle-like), flat or divided into segments. The leaves are generally a similar colour on both sides. Plants are usually single or multi-stemmed shrubs, with smooth bark, although there are 'corkwood' hakeas with thick, deeply furrowed bark. Many *Hakea* can resprout after fire or disturbance, and these tend to be the species exhibiting multiple stems. The flowers are generally bisexual and range in colour from cream to green to pink, red, orange and mauve. Flowering is mainly in winter and spring with fruits maturing the following summer. Many species are attractive with showy flowers or interesting foliage and several have been used in cultivation for some years. They are generally tolerant of a wide range of soils and climatic conditions.



Top: Red flowering Hakea. Photo – Andrew Crawford  
Above: *Hakea lasiocarpa*. Photo – Anne Cochrane



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## Geographic distribution and habitat

The genus is endemic to Australia and 75 per cent of the species are concentrated in south-western Australia. There are more than 150 known species growing in temperate, semi-arid, arid and sub-tropical zones in habitats that range from forests to tropical hills and desert plains.



Approximate distribution of Hakea in Australia.



Above: *Hakea varia*. Photo – Sue Patrick

## Reproductive biology

*Hakea* flowers are pollinated by birds and insects. Nectar-eating birds and wasps often visit flowers and the dense foliage of some species provides refuge for birds and insects. The fruit of the *Hakea* ranges in shape from round to flattened and ellipsoid, and may be smooth or ribbed. There is a characteristic beak at one end of the fruit or follicle. Some fruits are very ornamental and used in floral art. *Hakea* seed consists of a single body and a papery wing that allows for wind dispersal once the woody fruits have opened.

The seed body fits into depressions in the fruit and is often ornately sculptured in some way. There are generally two seeds held within a fruit, although one may be shrivelled or flattened and malformed. Seeds should maintain their viability for many years if stored dry and cool under standard genebank conditions.



*Hakea cucullata*.  
Photo – Sue Patrick

## Seed collection

Seed collection of *Hakea* is easy, although pungent foliage may mean that wearing gloves is required. Some species produce copious quantities of seed whereas the fruit production of others is sparse. Fruits range in colour from grey to brown when ripe, although once matured some may remain greenish in colour. The fruits of many species are hidden within the foliage and may sometimes be difficult to remove from branches. Secateurs must be used to remove fruit and care must be taken not to damage the stems. Seed is usually retained in the woody fruit on the plant for at least one year but fruit will open when the plant dies or after a fire. Some species release seed when the fruit has ripened (e.g. *H. ruscifolia* and *H. prostrata*). Once taken off the plant seed will release from ripe fruits after several days to several weeks under warm dry conditions. Fruits can be kept in a paper bag until they open.



Above: *Hakea undulata*.

Above right: *Hakea aculeata*.

Right: *Hakea lasiocarpa* fruit.

Below and below right: *Hakea* follicles.

Photos – Anne Cochrane





## Seed quality assessment

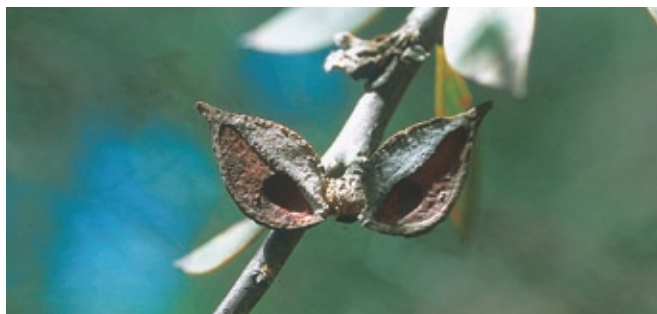
The seed coat of the *Hakea* should be dark brown to black when mature with a white solid endosperm. Seed may be predated or shrivelled in the fruit and it is necessary to check for signs of insect damage, such as frass and holes due to grub infestation. Any flattened or shrivelled seed should be discarded as this will not germinate.



Above: *Hakea lasiocarpa*.

Below: *Hakea follicles*.

Photos – Anne Cochrane



## Seed germination

*Hakea* are normally propagated from seed but some species can be successfully struck from cuttings. No special treatment is needed for germination of seed and seedlings usually emerge in three to six weeks after sowing. Sow directly into the ground or into pots or dishes for planting out later. It is also possible to germinate *Hakea* seed on moist filter paper or sponge.



Above: *Hakea* fruits shapes and sizes. Photo – Anne Cochrane

Below left: *Hakea preissii*. Photo – Sue Patrick

Below right: *Hakea oldfieldii*. Photo – Anne Cochrane





## 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.



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

Concept by Grazyna Paczkowska.

Designed by DEC's Graphic Design Section.

The **Seed Notes** are available from [www.naturebase.net](http://www.naturebase.net)

## Seed Notes

are published by the Perth Branch of the Wildflower Society of Western Australia (Inc.) with assistance from the Western Australian Lotteries Commission and the Department of Environment and Conservation (DEC).

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Above: *Hakea amplexicaulis*. Above right: *Hakea lissocarpha*.



Photos – Andrew Crawford

## Recommended reading

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