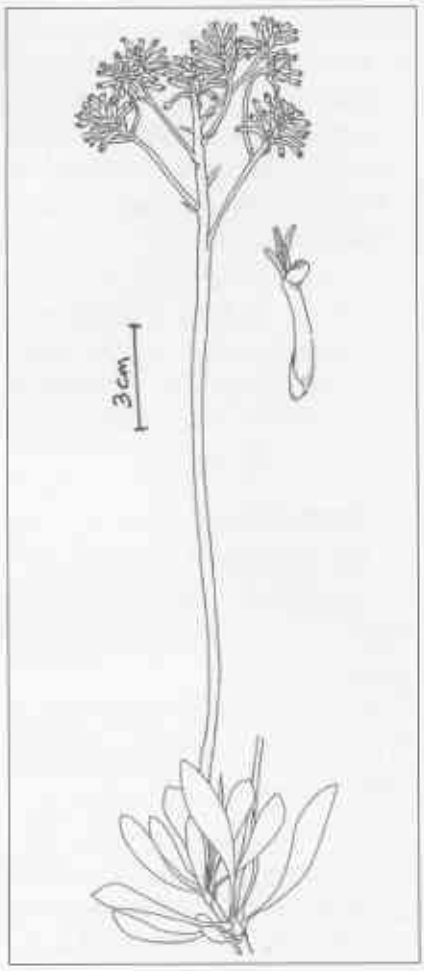
FLORA

SMOKEBUSH

Penny Hussey

Across the drab sandplain, a swirl of grey, bending, floating back, ephemeral as a drift of smoke, enigmatic, beautiful, alien; Smokebush has always fascinated newcomers to Australia - there's nothing like this in Europe! But not all smokebushes are grey and furry, some are smooth, and blue or cream rather than white. All have a delicate beauty.

Smokebushes (*Conospermum*) are in the Banksia Family (Proteaceae). The name *Conospermum* (which means 'cone-shaped seed') was given to the genus by Sir James Smith, an English botanist who had founded the Linnean Society in 1788. He published the name in 1798, in the Society's 'Transactions', from material brought back from explorations around Port Jackson. Eleven species of this solely Australian genus do occur in the east, but the centre of distribution is WA, where there are 42 species. Most of them prefer sandplain, either deep sand or an admixture of gravel, but some are confined to swamps. They are mostly shrubs but, in the absence of fire, some can grow into small trees. Like all in their family they have 4-lobed flowers.



C. brownii

Despite being widespread and often common across the south-west, there is no record of any use by Aboriginal people – not even a name. Certainly, most species grow in sandplain country, areas which tended to be low in exploitable resources and so mostly ignored by humans. The great nineteenth century botanist, Baron Ferdinand von Mueller, suggested that farmers plant Common Smokebush, *C. stoechadis*, on "the worst desert country" as he asserted that "all kinds of pasture animals browse with avidity on the long tender and downy flower-stalks and spikes, without touching the foliage, thus not destroying the plant by close cropping". Was he correct, has anyone noticed? My feeling is that stock would eat the whole plant!

In recent years smokebushes have become prized for their beauty and so a trade in them as cut flowers developed. Twenty years or so ago, when commercial picking of wildflowers from the bush was at its height, tens of thousands of smokebush stems were harvested, dried and often dyed before export to fit in with the designer colour of the year. Nowadays there is very little bush picking, and greater concentration on cultivation and sale as fresh flowers. One species that the Dept. of Agriculture is working hard on is the beautiful blue, salt-tolerant Blue Lace, *C. eatoniae* (for colour pic see 'Managing Your Bushland' p147) but it is not proving easy (see Farmnote 110/99 'Smokebush for cut flower production' AgWA). This plant is much in demand in Japan, and commands a high price.

Smokebushes always attract interest, wherever you see them. One species I remember well is the Victoria Desert Smokebush, *C. toddii*. It is, as far as I know, the only specimen that I have collected which is cited as a reference in 'Flora of Australia'! It came about this way.

C. acerosum

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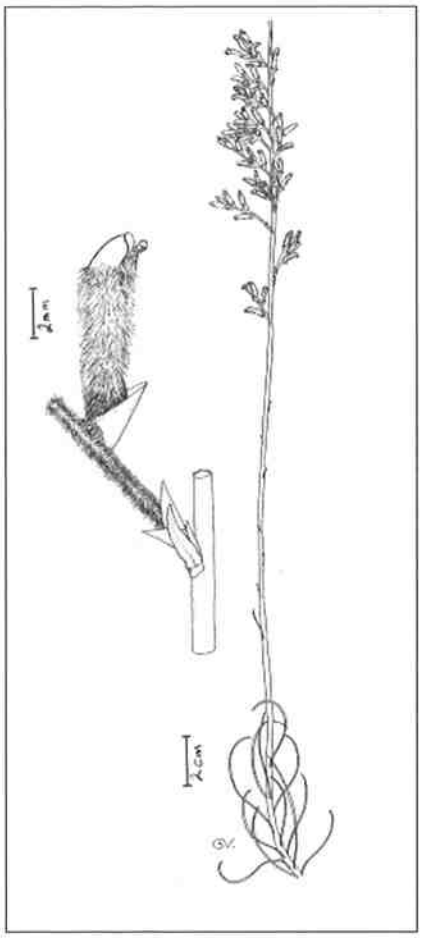
In 1975, a group of friends decided to celebrate the centenary of Ernest Giles' expedition across Australia by visiting Queen Victoria Spring, an isolated dot north of the Nullarbor. We had to get permission to travel through land controlled by the Cundelee Aboriginal Community - not easy to obtain – so I went to the Herbarium and asked if they would be interested in any plants I collected in this very remote area. "No," I was told, "don't bother. We're going ourselves, just a month later." So, as we sat around toasting Giles, for my own interest I identified the hundreds of flowering shrubs (it was an excellent year) as well as I could from my trusty 'Blackall' – and used the sprigs as kindling to light the evening fire. All except the smokebush, for which I couldn't find a near match in the book, so I carried that one back home with me.



C. galeatum

But it's funny how things work out - unfortunately for the professional botanists, a group of anthropology students who followed us in, so offended indigenous sensibilities that they closed the track to all visitors for the rest of the year! Thus my single plant specimen became the second collection of that species in the Herbarium.

Fortunately, nowadays there is much greater appreciation of amateur collectors so, if you think you have an interesting smokebush, work through your local Community Herbarium and get its location recorded. Most especially so if you happen to live – or be visiting - the area between Kellerberrin, Bruce Rock and Narembeen. *C. galeatum* occurs there, and it has only been collected five times! It is a typical low shrub with 4-5 cm thread-like leaves and a tall spike of white-woolly flowers with a dark blue or blackish throat, flowering in spring. It grows on white sand and may be common after a fire, but is seldom seen otherwise.

Most smokebushes seem to be fire disturbance opportunists, appearing in large numbers when smoke stimulates the soil seed bank. They live for a few years then die back, remaining on site only as seeds. It is this refusal to germinate without a smoke signal that has frustrated horticulturalists trying to bring smokebushes into cultivation.

As an example of smokebush response to fire, readers who have driven from Gidgegannup to Toodyay will have noticed the Morangup Nature Reserve on the north side of the road. In 1982, under somewhat controversial conditions, most of the area was cleared, burnt and planted to clover. It was subsequently bought by the State Government and allowed to regenerate. In the first few years after regeneration started, there was spectacular flowering of *C. glumaceum*, Hooded Smokebush, but you would be lucky to find even one plant now. But because you can't see them, does not mean they have died out at the site – they will still be present in the soil seed bank. This is a very difficult concept for non-Australian botanists/ecologists to grasp!

C. glumaceum

Smokebush bee

Smokebushes have a rather specialised method of pollination. They are visited by particular native bees from the genus *Leioproctus*, that have a proboscis covered in stiff bristles. Most smokebushes' anthers are contained within their small, tight-lipped flowers, where there is also a trigger mechanism that causes the anthers to burst explosively when a bee pokes in its proboscis. When the anthers explode, the pollen becomes packed onto the proboscis, and the bee then

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Smokebush (cont.)

transfers it to the pollen baskets on its hind legs.

Some of these small smokebush bees, eg *Leioproctus pappus*, have densely white hairy bodies, milky wings and white eyes, so are well camouflaged among the smokebush flowers.

Can you find any smokebush bees? *L. pappus* has only been recorded on three species, *C. incurvum*, *C. stoechadis* and *C. triplinervum*, but it is probably much more widespread. There are also several other genera of small bees found on smokebushes – as well as many smokebush species where no pollinators have been recorded. Terry Houston of the WA Museum would be very interested to know of your observations (email: terry.houston@museum.wa.gov.au). Look very carefully at the flowers to see the insect, and take a photo if you have a suitable camera, or collect a specimen of the bee. Unless you are 100% certain which species you are looking at, it would be wise to collect a piece of the smokebush too.

The more we study Western Australia's fascinating plants, the more we realise how little we really know about them. Can you help to increase our knowledge of smokebushes?

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Illustrations by C. Vasiliu from 'Flora of Australia' Vol 16.