

FLORA

## ORCHIDS OF A SMALL BUSHLAND REMNANT IN THE WHEATBELT

**B**USHLAND remnants in the BWA Wheatbelt are often small and more or less degraded, but they provide a refuge for a surprising number of native orchid species, some of which are found no-where else. I'd like to describe to you my experiences with just one of these bushland remnants, located west of the small town of Babakin.

Although small (108 ha), the area contains a variety of different habitats, including an area of open wandoo woodland, mallee heath and tall shrubland. In places, sandy soils dominate, while in others, heavier clay loams are found. There are also a small granite outcrop and even a seasonally moist drainage line. Each of these areas contains its own suite of orchids which, when combined, total over 65 species.

All the orchids in this area are terrestrial and annually resprout from underground tubers (small, potato-like structures) following autumn rains. They flower during the autumn, winter, spring and early summer and then die back to dormant tubers again to survive the long, hot summer.

All produce thousands of tiny, pepper-like seeds which are wind-dispersed and require a specific fungus to germinate. This association continues throughout the

by Andrew Brown



*Thelymitra sargentii*

life cycle of each orchid plant and is essential for its survival. The fungus sends tiny threads called hyphae into the outside layers of the orchid's underground stems. The plant digests these, providing itself with essential sugars and starches that it is unable to manufacture.

Orchid flower shape varies enormously, as it is designed to attract specific pollinators. Some have bizarre flowers that hardly resemble flowers at all, like the greenhoods, or the elbow orchid.

### Orchids at Babakin

You may be surprised to learn that orchids can be found flowering in the bushland for over 10 months of the year, with the first appearing after the autumn rains in Apr-May, and the last in Nov-Dec. Some species are quite common and widespread throughout the bushland. The cowslip orchid (*Caladenia flava*) grows in most habitats and is often found in large numbers. Rarer species are restricted to specific habitats, for instance, the elbow orchid (*Spiculaea ciliata*) is found on a single granite outcrop.

Autumn flowering species, including the diminutive pygmy orchid (*Genoplesium nigricans*), the common white bunny orchid (*Eriochilus dilatatus*) and the unusual hare orchid (*Leporella fimbriata*), use the energy that has been stored in their tuber from the previous year to rapidly send up a flowering shoot. This happens so

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Andrew Brown finds an underground orchid.

quickly that flowering can occur within 2-3 weeks from the time that they sprout.

May-June is the time of year when the rare underground orchid (*Rhizanthella gardneri*) blooms. Found exclusively under broombush (*Melaleuca uncinata*), this orchid is an unusual plant which spends almost its entire life below the surface of the earth. Just the tips of the fleshy overlapping floral bracts emerge in autumn and early winter, but they are hidden by a layer of leaf and bark litter. The species lacks true leaves and does not produce chlorophyll, instead it relies entirely on an association with soil fungi for its survival.

Also found flowering at this time are the winter spider orchid (*Caladenia drummondii*) and two shell orchid species. Although the only spider orchid to flower at this time of year, the winter spider orchid is often difficult to locate in its preferred habitat of open mallee heath, due to its subdued maroon, brown and cream colouration. By contrast, the green-veined shell orchid (*Pterostylis scabra*) and brown-veined shell orchid (*P. aspera*) are easy to spot as they grow in large colonies, sometimes amounting to thousands of plants spread over several square metres of ground. Shell orchids are

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interesting in that they have different shaped leaves, depending on whether or not they are in flower. Non-flowering plants have rosettes of broad leaves which lie flat on the ground, while flowering plants produce only narrow stem leaves that are held well up from the ground.

A few species flower in July. These include the laughing leek orchid (*Prasophyllum gracile*) which is found in shallow soil pockets on granite and along a small drainage line and the little pink fairy orchid (*Caladenia reptans*) which forms clumps of up to 10 or so flowering plants in shrubland areas.

### The best time is spring

Easily the best time to see orchids at Babakin is between mid-Aug and mid-Oct. As many as 46 species flower at that time of the year, including most of the spider orchids, sun orchids, donkey orchids, mignonette orchids and blue orchids.

In late Aug, the rosy-cheeked donkey orchid (*Diuris aff. corymbosa*) appears in great abundance. It is the most widespread donkey orchid in the remnant and, although most common along the edge of a winter-damp drainage line and the moist surrounds of a small granite outcrop, it is found scattered in most habitats. A population of the bee orchid (*D. laxiflora*) can be seen growing in the moist seepage area and a few weeks later a small colony of the granite donkey orchid,

(*D. picta*) can be seen in the same habitat. This orchid is a widespread species of inland areas and this population is the furthest west that it has been recorded.

One of the most attractive orchids found in the remnant is the clown orchid (*Caladenia roei*). Appearing in early Sept., it occupies a variety of habitats, including in mallee heath, tall shrubland and thickets of low shrubs surrounding granite. Other spider orchids that are found in these habitats and flower at the same time of year include the blood spider orchid (*C. filifera*), the fringed mantis orchid (*C. falcata*), the chameleon orchid (*C. dimidia*), the slender spider orchid (*C. pulchra*), the cowslip orchid (*C. flava*), the crimson spider orchid (*C. footeana*) and the pink candy orchid (*C. hirta*).

### Fire can induce flowering

In most years the common red beak orchid (*Pyrorchis nigricans*) appears in areas of sandy, unburnt shrubland only as leaves, often known as elephants' ears. The rabbit orchid (*Leptoceras menziesii*), which is found in a single winter-wet area also produces masses of leaves that come up year after year without ever producing one or two flowers. However, if the habitat of either of these orchids is burnt in the summer, the following Sep-Oct almost every plant bursts into bloom. Several of the leek orchids, including the frilled leek orchid (*Prasophyllum sargentii*) and the blue orchids, such as the powder blue china orchid

### DID YOU KNOW - ? LOVE POTION

The word 'orchid' comes from the greek for 'testicle' since in the common european species the two tubers - the current year's being used up and the next year's being filled up - hang like a nicely balanced pair of nuts ... This led early herbalists to believe that you could increase a man's vigour by feeding him orchid tubers - the nice firm one, of course! (If you want to slow the brute down, you'd make a paste from the flaccid one ...)

Aboriginal people ate the tubers of many different orchids (see 'Bush Tucker Plants of the South-west', CALM 1997) but there's no record of them being considered an aphrodisiac.

Penny Hussey

(*Cyanicula ashbyae*), are also stimulated into flowering by fire. It is believed that chemicals produced in the smoke are the trigger that promotes flowering.

The purple enamel orchid (*Elythranthera brunonis*) is one of the most distinctive orchids found at Babakin. Appearing in Sept, its glossy purple flowers are like no other species and are therefore readily identified.

In late Sept-Oct the granite sun orchid (*Thelymitra* aff. *macrophylla*) and freckled sun orchid (*T. sargentii*) burst into colourful bloom. The sun orchids differ from all other orchids found there in that they lack a prominent labellum (lip). In sun orchids the labellum is just like the other petals and sepals in shape and provides evidence of the ancestral link orchids have with members of the lily family. The sun orchids are also interesting in another way. As their name suggests, they open only on warm sunny days, remaining closed at night and when the weather is cool and cloudy. Perhaps the most beautiful sun orchid here is curly locks (*T. spiralis*). Although uncommon, it is always well worth searching for in the shallow soils that surround the granite outcrop. Its mauve and purple striped flowers are a delight to see. It flowers a little earlier than most, reaching its peak in Aug.

In early Oct the South African orchid (*Monadenia bracteata*) flowers in disturbed areas near the edge of the remnant, often among introduced grasses. This orchid first appeared in WA near Albany in 1944 and since then has spread as far as Northampton and Esperance. It also now occurs in South Australia and Victoria.

The last orchid to flower is the elbow orchid (*Spiculaea ciliata*). An unusual plant, it stores all the moisture and nutrients that it needs within the stem, so that, as the base of the stem begins to wither and die in late spring, the plant continues to grow. It flowers in the hot dry months of Nov and Dec when the shallow soil in which it grows has become powder dry. This species is

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*Pterostylis barbata*

*Pterostylis sargentii*

pollinated by a small wasp which mistakes the labellum of the flower for a female insect.

### Bizarre pollination mechanisms

All the orchids in this remnant are pollinated by insects. The hare orchid, for example, is pollinated by male flying ants that swarm for only on or two days in a year. These primitive ants are attracted to the wingless females of their species by a chemical odour known as a pheromone. The orchid has a similar scent which is not detectable to humans but on warm days it attracts the male ant to the labellum of the flower which, due to its colouration and shape, tricks the insect into thinking that it is mating with a female of its own species. Several other orchids in the bushland use similar trickery to attract pollinators, eg the narrow-lipped dragon orchid (*Drakonorchis mesocera*), the elbow orchid and the clown orchid.

The white bunny orchid uses quite a different strategy to attract pollinators. It produces nectar and a sweet scent to attract native bees to

the flowers and the pygmy orchid attracts minute gnats. It is thought that these are attracted to the flower by its drab colour and odour.

Other orchids found at Babakin use a variety of different, and sometimes devious, methods to attract pollinators. The brightly coloured cowslip orchid attracts beetles and the occasional bee; the leek orchids produce pseudo pollen and nectar to attract a variety of beetles, bees and wasps; donkey orchids mimic associated pea flowers to attract native bees and sun orchids also attract native bees but use a combination of colour and scent.

This spring, why not look at some remnant bushland near you? I'm sure you will be surprised at how many interesting native orchid species are finding refuge there.

*Andrew Brown is a botanist working with WATSCU at the Wildlife Research Centre, Woodvale. His speciality is orchid distribution and taxonomy. He can be contacted on 08 9405 5166.*

*Andrew provided us with a list of all 65 orchids found at Babakin. It is too long to print here, but if you would like a copy, ring 08 9334 0427 and we'll send you one.*

*Line drawings by Sue Patrick*

### LFW orchid news

Elaine and Henk Hendriks have at least 16 orchids in their remveg at Muntadgin. On the LFW visit, literally dozens of the first species to flower, the white bunny orchid, were observed. Elaine hopes this is the precursor to a bumper year - for both crop and bush! Andrew will be visiting this site during an excursion to Merredin in Sept.

Judy Schilling of West Dale fenced off a patch of wandoo woodland behind the house, and, within one year, donkey orchids had returned.

Has anyone else had a similar experience?