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Department of Biodiversity,  
Conservation and Attractions

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# Underground orchid

E n d a n g e r e d F l o r a o f W e s t e r n A u s t r a l i a

**If you think you have seen this plant, please call the Department of Conservation and Land Management's Narrogin District on (08) 9881-9200 or Esperance District on (08) 9071-3733.**

As its name suggests, the underground orchid (*Rhizanthella gardneri*) spends its entire life under the ground. Not even the inflorescence emerges above the soil surface. This makes it unique among the 400 plus species of Western Australian orchids. Only one other orchid (*Rhizanthella slateri*) lives underground and it occurs in NSW.

John Trott discovered the underground orchid near Corrigin in May 1928. It was described by Richard Rogers in August of the same year. The species was then found six more times up until 1959, each time by chance during ploughing of recently rolled and burnt bushland. There was then a gap of 20 years before it was again seen (1979), this time some 300km south of previous known locations near the town of Munglinup. During surveys by members of the WA Native Orchid Study and Conservation Group two populations were found in this area. In 1981, 1982 and 1985 the above group located three more populations within 50km of the original sighting at Corrigin. Since that time no further populations have been located.

Flowering begins in late May or early June when each plant produces up to 100 small, inward facing, reddish coloured flowers, surrounded by six to 12 large, cream or pinkish-cream bracts. These bracts form a tulip-like head that curves over the flowers leaving a small opening at the soil surface. A layer of leaf and bark litter covers this opening. The plants have a horizontal rhizome six to 12cm below the ground level, which is succulent and produces a formalin-like odour when cut. Once pollinated each flower produces a berry-like indehiscent fleshy fruit containing 20 to 50 seeds. This type of fruit is unique amongst the Western Australian orchids as all other orchid genera produce a dehiscent pod from which thousands of minute seeds are dispersed by the wind.

Plants occur in thickets of broom honey-myrtle amongst scattered emergent *Eucalyptus* and *Acacia*. Soil is either sandy-clay or sandy-loam. The relationship with broom honey-myrtle is unique in the orchid world with a symbiotic micorrhizal fungus forming a link between the orchid and the *Melaleuca*.

It is known that small fungal gnats pollinate flowers of the underground orchid. These are small enough to get through the gaps in the leaf and bark litter that cover the tulip-like inflorescence of the orchid. They are then able to crawl into the tiny opening at the top of the floral bracts and down to the flowers that encircle the inside of the capitulum.



Once exposed the protective bracts move outwards exposing the tiny inward facing flowers. Photo – A.Brown

The species is currently ranked as Critically Endangered due to there being little left of its specialized habitat (thickets of broom honey-myrtle), which survive as small disjunct remnants in the central and southern Wheatbelt. A combination of drought and the death of aging mature plants threaten much of the orchids habitat. Little recruitment of broom honey-myrtle is evident and the once large thickets are becoming smaller and more open. This has resulted in vastly increased light levels and a significant drop in the level of leaf litter held at the base of plants, causing the soil to become hard baked and dry. Just 23 flowering plants were found during intensive surveys of three populations in the Corrigin area in May-June 2001.

The Department has set up Threatened Flora Recovery Teams in the Narrogin and Esperance Districts to coordinate recovery actions that address the greatest threats to the survival of the species in the wild (see overleaf).

The species is known from just six populations in two widely separated areas and the Department is keen to know of any others.

If unable to contact the district office on the above number, please phone the Department's Wildlife Branch on (08) 9334 0422.

## Recovery of a Species



The Department is committed to ensuring that Critically Endangered flora does not become extinct in the wild. This is done through the preparation of a Recovery Plan or Interim Recovery Plan (IRP), which outlines the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of threatened taxa in the wild and begin the recovery process.

IRPs are prepared by the Department and implemented by Regional or District Recovery Teams consisting of representatives from the Department of Conservation and Land Management, community groups, private landowners, local shires and various government organisations.

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**Recovery actions that have been, and will be, progressively implemented to protect the species include:**

**Protection from current threats:** These include control of weeds; seed collections; genetic studies; liaising with land holders and Local Government workers to ensure accidental damage does not occur; conducting further surveys; and regular monitoring of the health of populations.

**Protection from future threats:** These include researching the biology and ecology of the species; propagation; translocations; development of a fire management strategy; ensuring that relevant authorities, landowners and Departmental personnel are aware of the species' presence and the need to protect it, and that all are familiar with the threats identified in the Interim Recovery Plan.



An exposed Underground orchid viewed from above. Photo – A.Brown



Occasionally up to 10 flowering plants of the Underground orchid have been found under a single broom honey-myrtle. Photo – A.Brown

IRPs will be deemed a success if the number of individuals within the population and/or the number of populations have increased.

This poster was prepared by the Department of Conservation and Land Management.



Habitat of the Underground orchid. Note the many dead broom honey-myrtle plants. Photo – A.Brown