Purdie's donkey orchid

Endangered flora of Western Australia

If you think you have seen this orchid, please call the Department of Environment and Conservation's (DEC's) Swan Region on (08) 9368 4399 or South West Region on (08) 9725 4300.

Commonly known as Purdie's donkey orchid, *Diuris purdiei* has (when flowering) five to 10 narrow, spirally-twisted leaves. These arise from the base of the plant and are enclosed at their base by two prominent sheaths. Each plant has up to 10 flowers on a single spike to 45 centimetres high. The pale yellow, distinctively flattened flowers have magenta brown markings at the base of the labellum (lip) and on the underside of the petals. The labellum has a broad, ridged middle lobe and smaller fringed lobes on each side. It partially conceals the long, narrow, greenish lateral sepals. The small upper sepal is erect. The fruit is a small urn-shaped capsule with many fine seeds.

Unlike most other donkey orchids, Purdie's donkey orchid has flattened flowers that face upward. Photo – Andrew Brown

Purdie's donkey orchid flowers from late September to mid October, but only in the season after a hot summer or early autumn fire. Plants in unburnt habitat will not flower and consist of one or two narrow and very inconspicuous leaves. The plant dies back to cylindrical underground tubers over summer.

This species can be distinguished from other donkey orchids by the way it holds its flowers flat, looking up to the sky, the brown blotchy markings on the underside of the flower and the tiny dorsal sepal. Small beetles and native bees pollinate the species.

Purdie's donkey orchid occurs from the southern metropolitan area to Harvey, growing on sandy clay soils in low-lying areas subject to winter inundation. It is limited to flattish areas and does not occur in more steeply sloped winter-wet habitat. Plants grow in dense heath with scattered emergent paperbark (*Melaleuca preissiana*) and Christmas tree (*Nuytsia floribunda*). Sedges and herbaceous species are prominent in the years following fire as the vegetation regenerates.

Extensive clearing has reduced the habitat available to Purdie's donkey orchid, which is now known only from widely scattered pockets of remnant vegetation. However, it may still exist in long unburnt areas, and further searches after summer fire may result in the discovery of new populations.

Several large populations of Purdie's donkey orchid that occur south of Mandurah are secure in nature reserves. However, maintenance of a range of other sites across the distribution of the species is also important to ensure the conservation of this orchid and its genetic variation. A number of populations in the Perth metropolitan area occur on private land and, partly due to the size of vegetation remnants, support relatively small numbers of plants. Protection of areas containing larger populations in the metropolitan area is therefore a priority.

Recovery of a species

DEC is committed to ensuring that critically endangered taxa do not become extinct in the wild. This is done through the preparation of a Recovery Plan or Interim Recovery Plan (IRP), which outline the recovery actions that are required to urgently address those threatening processes most affecting the ongoing survival of the threatened species in the wild and begin the recovery process.

IRPs are prepared by DEC and implemented by regional or district recovery teams consisting of representatives from DEC, Botanic Gardens and Parks Authority, community groups, private landowners, local shires and various government organisations.

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Above: Typical habitat is broad, flat, winter-wet areas between Perth and Harvey.

Right: Purdie's donkey orchid has numerous narrow leaves that resemble regenerating sedges and other plants that appear following fire.

Photos – Andrew Brown

DEC is very keen to know of any new populations. It is ideal that DEC is notified of any currently flowering populations as soon as possible after discovery to optimise the chances of DEC staff completing a full survey before the population becomes vegetative again. If you are unable to contact the regional offices on the numbers provided, please contact DEC's Species and Communities Branch on (08) 9334 0422.

Due to increased threats from habitat degradation and clearing for development, the species was declared as rare flora in 1982 under the Western Australian *Wildlife Conservation Act 1950* and is currently ranked as endangered. It is also ranked endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

DEC has set up threatened flora recovery teams in the Swan and South West regions to coordinate recovery actions addressing the most threatening processes affecting its survival in the wild.

IRPs will be deemed a success if the number of individuals within the population and/or the number of populations have increased by 10 per cent.

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

- continued liaision with shires, private property owners and other relevant land managers in order to conserve and manage populations of the species;
- monitoring the health of the populations in the first flowering season after fire;
- searching for new populations in appropriate habitat burnt the previous summer;
- developing and implementing a fire management strategy;
- collecting and storing seed and tissue culture material at the Botanic Gardens and Parks Authority;
- controlling access to reserves to reduce trampling of habitat and rubbish dumping; and
- preventing clearing of vegetated population sites where Purdie's donkey orchid was known to occur previously, even if unseen for some years.

The Botanic Gardens and Parks Authority has successfully propagated this species from seed and have isolated the specific symbiotic mycorrhizal fungus necessary for germination and long-term plant survival. Surveys for Purdie's donkey orchid in appropriate habitat after summer fire have recently resulted in the discovery of several new populations.

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