

Grand spider 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 Swan Region on (08) 9368 4399.

Grand spider orchid (*Caladenia huegelii*) is a magnificent native terrestrial orchid that grows from 25-70cm tall. The leaf is pale green and velvety, 10-18cm long by 7-12mm wide. The underside of the leaf has irregular red-purple blotches near the base. The flower is 7-10cm across and found singularly or in pairs (rarely three) on the same stem. The most prominent feature is the long eyelash-like greenish-cream labellum fringing, with each segment extending up to 15mm long and sometimes bifurcate (split) near the apex. The prominent labellum (lip) is cream and maroon with club-like calli arranged in four rows through the center. Flowers are seen in late September to October, and rarely in early November. However, it is important to note that each plant may not flower every year.

Grand spider orchid has previously been confused with carousel spider orchid (*C. arenicola*) which is smaller and has longer petals with thickened tips; swamp spider orchid (*C. paludosa*) which has smaller flowers and shorter, thicker, hooked labellum fringing; and tuart spider orchid (*C. georgei*) which has smaller flowers, shorter petals and shorter labellum fringing. A closely related species, Scott River spider orchid (*C. thinicola*), occurs in coastal calcareous sands between Yallingup and Windy Harbour. It has smaller flowers and a more southern range of distribution than grand spider orchid.

Grand spider orchid is most commonly found on well-drained grey sandy soils in banksia/jarrah/allocasuarina woodlands between Wanneroo and Busselton. Within this habitat type, it is restricted to areas that also support a species of fungus essential to the germination and survival of the orchid. The fungus sends out hyphae into the cells of the underground stem just below the soil surface, and assists the orchid in the uptake of minerals and nutrients. Grand spider orchid also rarely extends into areas of adjoining calcareous sand, as it does near Wandii.

Grand spider orchid has a highly specialised pollination mechanism designed to attract males of a single species of thynnid wasp. It produces a pheromone (chemical attractant) that mimics the female thynnid wasp of the same species. Following the scent the male zigzags upwind and lands on the labellum of the flower, which is modified to loosely resemble the flightless female. When the male tries to fly off with the supposed female mate, the hinged labellum causes the wasp to knock against the column of the flower, resulting in either the deposit or removal of pollen.

Rarely the wasp (or nectar-feeding insects such as bees that are not attracted by pheromones) may transfer pollen between grand spider orchid and other orchids, such as common white spider orchid (*Caladenia longicauda*) resulting in hybridisation. These share features of both parents, and are paler in colouration and have longer segments than grand spider orchid. Hybridisation is not known to occur with the closely related carousel spider orchid (*Caladenia arenicola*), tuart spider orchid (*C. georgei*) or swamp spider orchid (*C. paludosa*), as they each have different wasp pollinators, and like grand spider orchid produce no nectar.

Due to small population size, increased threats from habitat degradation and clearing for urban development, the species was classified as Declared Rare Flora in 1990, under the *Wildlife Conservation Act 1950*, and ranked as Critically Endangered in 2004. It is also ranked Endangered under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*.



The flower of grand spider orchid, showing the 'eyelash' fringing and dark tip of the labellum. Photo – A. Brown

Recovery of a Species



CALM 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 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 CALM and implemented by regional or district recovery teams consisting of representatives from CALM, Botanic Garden and Parks Authority, community groups, private landowners, local shires and various government organisations.

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CALM has set up a Threatened Flora Recovery Team in the Swan Region to coordinate recovery actions addressing the most threatening processes affecting its survival in the wild.

Grand spider orchid is currently known from 33 mainly small populations, many of which are threatened by development. More than 85 per cent of known plants are located in just two populations. These sites are thus of high value for the conservation of the species, but maintenance of a range of other sites across the distribution of the species is important to ensure the conservation of the species and its genetic variation. CALM is very keen to know of any other populations. If unable to contact the regional offices on the above numbers, please contact CALM's Species and Communities Branch on (08) 9334 0422.

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

- continue to liaise with Shires, private property owners, Main Roads Western Australia and other relevant land managers in order to conserve and manage populations of the species; monitor the health of the populations regularly; search for new populations during the species' flowering period (September - early November); undertake weed control; develop and implement a fire management strategy; collect and store seed and tissue culture material at the Botanic Gardens and Parks Authority; investigate and understand the species' genetics and population dynamics; secure vital populations in Conservation Reserves under CALM management; and continue to support the vital public and volunteer efforts in preservation of areas of significant bushland.

Significant effort has been expended by CALM and the Department of Environment to seek protection for populations of grand spider orchid threatened by development. The Botanic Gardens and Parks Authority (BGPA) has successfully propagated this species from seed, and isolated the specific symbiotic mycorrhizal fungus necessary for germination and long-term plant survival. Survey within the known range of the species has recently resulted in the discovery of several small new populations. CALM staff are continuing to liaise with a number of developers with projects on land supporting populations of grand spider orchid.



The green-cream petals and sepals are held erect, and have red or pink lines or suffusions. Photo – A. Brown



The banksia woodland habitat of grand spider orchid. Photo – G. Stack



Compare the similarities and differences of Carousel spider orchid (left) and grand spider orchid (right). 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 by 10 per cent.

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