



PLANT

*Caladenia gladiolata*

Bayonet Spider-orchid

AUS	SA	AMLR	Endemism	Life History
E	E	E	State	Perennial

Family ORCHIDACEAE



Photo: © Joe Quarmby

**Conservation Significance**

Endemic to SA. The AMLR distribution is disjunct, isolated from other extant occurrences within SA. Within the AMLR the species' relative area of occupancy is classified as 'Extremely Restricted'.<sup>3</sup>

In 1997, following advice from the Endangered Species Scientific Subcommittee, the EPBC conservation rating of *Caladenia gladiolata* was upgraded from Vulnerable to Endangered.<sup>7</sup>

**Description**

Spider-orchid with a single, hairy, broadly lanceolate leaf, producing one or rarely two greenish-yellow flowers with a longitudinal red line terminating in large, flat, reddish-brown, glandular, clubbed tips. Flowers are 3 to 4 cm in diameter and are strongly scented with a spicy or musky odour.<sup>5</sup>

Synonym: *Arachnorchis gladiolata*.<sup>4</sup>

**Distribution and Population**

Restricted to the AMLR and Southern Flinders Ranges (Davies 1995).<sup>7</sup> Once common, but now rare, known from only four disjunct sub-populations.<sup>6</sup> Total population size estimated at approximately 500 – 100 mature individuals.<sup>6</sup> In the AMLR, only one very small sub-population is known, at Scott Creek CP. Extent of occurrence and population size has declined

significantly over the last 50 years.<sup>5</sup>

There are no pre-1983 records.<sup>3</sup>

**Habitat**

Found in woodland, grassland and grassy open forest on fertile loam soils.<sup>2</sup> Occurs in *Eucalyptus leucoxylon*, *E. fasciculosa* woodland in Scott Creek CP. Understorey vegetation includes *Acacia pycnantha*, *Spyridium parvifolium*, *Astroloma humifusum* and *Gonocarpus tetragynus*. All known sub-populations grow on moderate to steep slopes on sandy loam soils with scattered shale and quartzite.<sup>5</sup>

Native vegetation surrounding sub-populations is considered to be critical habitat for its survival.<sup>5</sup>

Within the AMLR the preferred broad vegetation groups are Heathy Woodland and Grassy Woodland.<sup>3</sup>

Within the AMLR the species' degree of habitat specialisation is classified as 'High'.<sup>3</sup>

**Biology and Ecology**

Usually produces a leaf in April-May. Plants do not produce a leaf or flower every year, and can remain dormant for several years, especially in periods of drought (DEH 2006a).<sup>5</sup>

Flowering is possible from July, but mostly September to October.<sup>1</sup> Observed to flower profusely after soil disturbance (R. Bates *pers. comm.*). Flowering is affected by drought (J. Quarmby *pers. comm.* 2009).

By mid-October the leaf shrivels and the pollinated flowers develop into seed capsules. Underground tubers are all that remain over the summer months. Average longevity of plants is not known, but assumed to be more than fifteen years.<sup>5</sup>

Pollinated by male thynnid wasps (*Zaspilothynnus* sp.) which are attracted to the flowers by pseudo-pheromones.<sup>2</sup>

Known to hybridise with *Caladenia stellata*, *C. aff. patersonii*, *C. tensa*, and *C. woolcockiorum* particularly following disturbance.<sup>5</sup>

Does not require fire to induce flowering, and increased flowering does not follow a fire. Flowering in Mount Remarkable NP has declined significantly after the wildfires of 1982 and 1988, probably due to the

**Further information:**

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Prepared as part of the Regional Recovery Plan for Threatened Species and Ecological Communities of Adelaide and the Mount Lofty Ranges, South Australia 2009 - 2014





## ADELAIDE AND MOUNT LOFTY RANGES SOUTH AUSTRALIA

Threatened Species Profile

Department  
for Environment  
and Heritage

dense regeneration of vegetation post-fire (R. Bates *pers. comm.* 2006).<sup>5</sup>

### Aboriginal Significance

Post-1983 records indicate the AMLR distribution borders Kaurna and Peramangk Nations.<sup>3</sup>

Tubers of *Caladenia* spp. are recorded as a traditional Aboriginal food source in the eastern states (Flood 1980).<sup>1</sup>

### Threats

The species' decline is attributed to past broadscale vegetation clearance and resultant habitat loss, degradation and fragmentation.<sup>5</sup>

Key direct threats include weed competition, grazing (native, domestic and feral animals), lack of pollination and recruitment, wild fires and subsequent dense regrowth of vegetation, inbreeding and loss of genetic diversity, and illegal collection (Biodiversity Group 1999a).<sup>5,7</sup>

Susceptibility to *Phytophthora* unknown, however it is regarded as a potential threat. Some 18% of sub-populations occur within a Moderate Risk Zone for *Phytophthora* and many of the plants that grow in association with *Caladenia gladiolata* are known to be susceptible (Velzeboer et al. 2005).<sup>5</sup>

Slashing and soil disturbance may be beneficial, however optimal timing and frequency are yet to be determined. Frequent prescribed burning or vegetation slashing (<5 year intervals) especially during the growing season may reduce reproductive success and recruitment.<sup>5</sup>

Additional current direct threats have been identified and rated for this species. Refer to the main plan accompanying these profiles.

### Regional Distribution



Map based on filtered post-1983 records.<sup>3</sup> Note, this map does not necessarily represent the actual species' distribution within the AMLR.

### References

Note: In some cases original reference sources are not included in this list, however they can be obtained from the reference from which the information has been sourced (the reference cited in superscript).

- 1 Australian National Botanic Gardens (2007). *Aboriginal Plant Use - NSW Southern Tablelands*. Available from <http://www.anbg.gov.au/apu/index.html> (accessed August 2007).
- 2 Bates, R. J., ed. (2007). *South Australian Native Orchids. Electronic version, August 2007*. Native Orchid Society of South Australia.
- 3 Department for Environment and Heritage (2007). *Adelaide and Mount Lofty Ranges Regional Recovery Pilot Project Database*. Unpublished data extracted and edited from BDBSA, SA Herbarium (July 2007) and other sources.
- 4 Jones, D. L. (2006). *A complete guide to native orchids of Australia including the island territories*. New Holland Publishers, Australia.
- 5 Quarmby, J. P. (2006). *Recovery Plan for Twelve Threatened Orchids in the Lofty Block Region of South Australia 2007 - 2012*. Department for Environment and Heritage, South Australia.
- 6 Quarmby, J. P. (2009). *Draft Recovery Plan for Twelve Threatened Orchids in the Lofty Block Region of South Australia 2007 - 2014*. Department for Environment and Heritage, South Australia.
- 7 Turner, M. S. (2001). *Conserving Adelaide's Biodiversity: Resources*. Urban Forest Biodiversity Program, Adelaide.

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