



PLANT

Lycopodium deuterodensum

Bushy Clubmoss

AUS	SA	AMLR	Endemism	Life History
-	E	E	-	Perennial

Family LYCOPODIACEAE



Photo: © Darrell Kraehenbuehl

Conservation Significance

In SA, the distribution is confined within the AMLR, disjunct from the remaining extant distribution in other States. Within the AMLR the species' relative area of occupancy is classified as 'Extremely Restricted'. Relative to all AMLR extant species, the species' taxonomic uniqueness is classified as 'Very High'.³

Potentially critically endangered but no provision for this classification exists in the NPW Act.⁵

State and Regional conservation rating of Endangered, but owing to a much higher frequency throughout south-eastern Australia is not listed under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*.⁶

Description

Small perennial lycopod to 0.5 m high. Grows from an underground rhizome and bears small lanceolate leaves on erect arial branches with terminal strobili that produce spores during wetter periods of the year (see Jessop and Toelken 1986).⁶

Distribution and Population

Also occurs in QLD, NSW, VIC, TAS and NZ. In SA, confined to the SL region.¹

The Mount Lofty population has been estimated between 100 to 300 individuals in one general location in Cleland CP and on adjacent private

property. It is uncertain whether the population currently occupies the entire habitat available.⁶

Rediscovered in 1980 after almost a century of being presumed extinct (Bates 1981). The former population at Morialta is now considered extinct and currently there are no other known populations in South Australia (Lang and Kraehenbuehl 2001). The nearest extant occurrence is in the Grampians, VIC.⁶

Post-1983 AMLR filtered records from Cleland CP.³

Pre-1983 AMLR filtered records at Cleland CP and Morialta CP.³

Habitat

Found at high elevation (approximately 635m) on steep terrain with a protected, south-east facing aspect. The Mount Lofty site comprises steep hill slopes over sandstone and quartzite, which drain into a spring-fed gully swamp that flows into Cox Creek. The population is situated on the edge of a gully swamp within open Stringybark forest comprised of *Eucalyptus obliqua*, over wattles (*Acacia myrtifolia*), Silver Banksia (*Banksia marginata*) with a dense understorey of bracken, sedges, and native and introduced shrubs, herbs and grasses.⁶

Within the AMLR the preferred broad vegetation groups are Heathy Open Forest and Shrubland.³

Within the AMLR the species' degree of habitat specialisation is classified as 'High'.³

Biology and Ecology

No details of sporing time are known.¹ Establishes via vegetative mechanisms. Regrows from rhizome after fire.⁴

Aboriginal Significance

Post-1983 records indicate the AMLR distribution occurs on the border of Kurna and Peramangk Nations.³

Threats

Due to its narrow bioclimatic requirements there may be impacts due to climate change.⁶

Threats include:

- susceptibility to *Phytophthora*: plants deaths may be common on some infested sites but appear unaffected on others⁷
- weed invasion: competition from herb species

Further information:

Biodiversity Conservation Unit, Adelaide Region

Phone: (61 8) 8336 0901 Fax: (61 8) 8336 0999

<http://www.environment.sa.gov.au/>

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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



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ADELAIDE AND MOUNT LOFTY RANGES SOUTH AUSTRALIA Threatened Species Profile

Department
for Environment
and Heritage

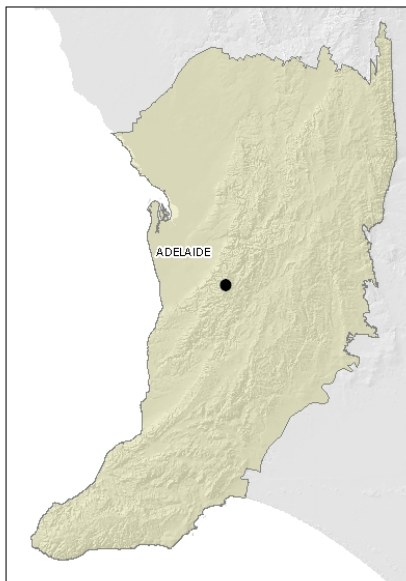
such as Rough Cat's Ear (*Hypochoeris radicata*), *Oxylobium lanceolatum* (a tall shrub native to WA is becoming dominant over the site), various exotic grasses such as Sweet Vernal Grass (*Anthoxanthum odoratum*) and Yorkshire Fog Grass (*Holcus lanatus*)

- competition from native species: increasing abundance of Coral Fern, Tangled Rope-rush and Bracken
- limited recruitment due to small population size
- human impacts: site disturbances including vandalism/damage to fencing and mountain-bike riding
- groundwater extraction: from private bore use.^{2,6}

Very limited occurrence within the AMLR, however the majority of known distribution occurs within 2 km of confirmed or suspected *Phytophthora* infestations.³

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.³ 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 Department for Environment and Heritage *Electronic Flora of South Australia species Fact Sheet: Lycopodium*

deuterodensum Herter. Available from <http://www.flora.sa.gov.au> (accessed September 2007).

2 Department for Environment and Heritage. (2007). Adelaide and Mount Lofty Ranges Regional Recovery Pilot Expert Flora Workshop, Unpublished Notes. Participants: Bickerton, D., Croft, T., Jury, T., Lang, P., Prescott, A., Quarmby, J. and Smith, K., Adelaide.

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 Department for Environment and Heritage (2007). *Combined Fire Response Database*. Unpublished data, extracted September 2007.

5 Department for Environment and Heritage. (2007). Summary of two Wetland Threatened Flora Workshops (unpublished spreadsheet).

6 Jury, T. (2007). *DRAFT Site Action Plan for Bushy club-moss below Carminow at Mount Lofty, Cleland CP, South Australia*. Threatened Plant Action Group, South Australia.

7 Velzeboer, R., Stubbs, W., West, A. and Bond, A. (2005). *Threatened plant species at risk from Phytophthora in South Australia*. South Australian Department for Environment and Heritage.

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