

Approved Conservation Advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for
***Caladenia xantholeuca* (Flinders Ranges White Caladenia)**

This Conservation Advice has been developed based on the best available information at the time this Conservation Advice was approved; this includes existing plans, records or management prescriptions for this species.

Description

Caladenia xantholeuca, Family Orchidaceae, also known as Flinders Ranges White Caladenia, White Rabbits or Flinders Ranges Spider-Orchid, is a herb with slender, hairy stems 15–25 cm tall. It has a single, narrow, hairy leaf 15–24 cm long. It produces 1–4 white flowers approximately 25 mm across. The dorsal sepal is erect, incurved, with an obtuse tip, 12–16 mm long and 3–4 mm wide. The lateral sepals are outward facing, lanceolate, with obtuse tips, 17–21 mm long and 5–6 mm wide. Petals are wide-spreading, lanceolate, with acute tips, 16–18 mm long and 3.5–4 mm wide. The labellum is ovate and recurved at the apex, 6.5–7.5 mm long and 6–7 mm wide; the apex margins are fringed with 3–4 pairs of blunt, yellow teeth. Yellow calli are on slender stalks, in two rows, and inclined forward (Jones, 1991).

Morphological differences have been observed between specimens from Mt Remarkable National Park and Telowie Gorge, and it is likely that true *C. xantholeuca* is only from Telowie Gorge (R. Bates, 2008, pers. comm.). However, until this matter is resolved, this account treats this species *sensu lato* (including both specimens).

Conservation Status

Flinders Ranges White Caladenia is listed as **endangered**. This species is eligible for listing as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as endangered under Schedule 1 of the *Endangered Species Protection Act 1998*. This species is also listed as endangered under the National Parks and Wildlife Act (South Australia).

Distribution and Habitat

Flinders Ranges White Caladenia is endemic to South Australia and is known to have occurred in three sub-populations in the Southern Flinders Ranges. Two sub-populations were recorded from Mt Remarkable National Park in 1978 (DEH, 2006), and another in Telowie Gorge Conservation Park in 1982. Its total extent of occurrence, based on herbarium collections, is approximately 18km², with a total occupancy of about 0.5 hectares (Quarmby, 2006); however, this species has not been detected since 1982 despite targeted searching, and it is possible that it may now be extinct (Quarmby, 2006; R. Bates, 2008, pers. comm.). Due to the high possibility of extinction, all sub-populations are considered to be critical for conservation (Quarmby, 2006).

Flinders Ranges White Caladenia occurs in *Callitris glaucophylla* woodland, often on south-facing slopes in heavily shaded areas, where it grows on mossy rock ledges and red-brown loam soils (Quarmby, 2006). This species occurs within the Northern and Yorke (South Australia) Natural Resource Management Region.

The distribution of this species overlaps with the “Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia” EPBC Act-listed threatened ecological community.

Threats

The main threats identified to Flinders Ranges White Caladenia are lack of recruitment and weed invasion, both of which are considered a high threat to recovery. The main cause of the recent decline is thought to be below average autumn and winter rainfall (Quarmby, 2006). Introduced grasses and thistles are known to have invaded all known historical populations of this species (Quarmby, 2006).

Potential threats to Flinders Ranges White Caladenia include inappropriate fire regimes and herbivory by rabbits (*Oryctolagus cuniculus*) and macropods (Quarmby, 2006; J. Quarmby, 2008, pers. comm.). This species was observed in the Telowie Gorge CP a few years after fire, but has not been recorded since (R. Bates pers. comm. cited in Quarmby, 2006). Although lack of high autumn-winter rainfall is likely to be the main factor limiting flowering in this species, fire may also play an important role in stimulating flowering (Quarmby, 2006). This species occurs in habitats likely to be affected by *Phytophthora cinnamomi* (EA, 2001).

Research Priorities

Research priorities that would inform regional priority actions include:

- Mapping potential habitat for this species using GIS modelling (Quarmby, 2006).
- Search historical localities for extant populations, and evaluate the suitability of these habitats for this species (Quarmby, 2006). This would only be recommended in high rainfall years or after fire (J. Quarmby, 2008, pers. comm.).
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Determining appropriate fire regimes and rainfall requirements for germination in this species.
- Determine the response of this species to soil disturbance.
- Investigate the precise taxonomic relationship between of *C. xantholeuca* from Mt Remarkable National Park and those from Telowie Gorge using appropriate methodologies including DNA marker analysis.
- Determine the pollinator species for *Caladenia xantholeuca* (R. Bates, 2008, pers. comm.).

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of *C. xantholeuca*.

Habitat Loss, Disturbance and Modification

- Ensure track widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where *C. xantholeuca* previously occurred do not adversely impact on known populations.

Invasive Weeds

- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on *C. xantholeuca* (if species is re-discovered).
- Identify and remove introduced grasses and weeds from localities where this species is recorded, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the species, using appropriate methods.

Trampling, Browsing or Grazing

- Where appropriate, manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

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- Implement Threat Abatement plan for the control and eradication of feral rabbits (EA, 1999).

Fire

- Develop and implement a suitable fire management strategy for *C. xantholeuca*.
- Provide maps of historical records to local and state Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans, risk register and/or operation maps.

Diseases, Fungi and Parasites

- If necessary, implement appropriate management actions to minimise the adverse impacts *Phytophthora cinnamomi* on this species.

Conservation Information

- Raise awareness of *C. xantholeuca* within the local community.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed and mycorrhizal fungi collection and storage, if flowering populations are discovered.

This list does not necessarily encompass all actions that may be of benefit to *C. xantholeuca*, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Existing Plans/Management Prescriptions that are Relevant to the Species

- Recovery Plan for Twelve Threatened Orchids in the Lofty Block Region (Quarmby, 2006),
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (EA, 1999),
- Mount Remarkable National Park Management Plan (DEH 2006), and
- Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus *Phytophthora cinnamomi* (EA, 2001).

These prescriptions were current at the time of publishing; please refer to the relevant agency's website for any updated versions.

Information Sources:

Bates, RJ (Native Orchid Society of South Australia) 2008, Personal Communication.

Department for Environment and Heritage (DEH) 2006, *Mount Remarkable National Park Management Plan*, Adelaide, South Australia.

Environment Australia (EA) 1999, *Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits*, Biodiversity Group, Environment Australia, viewed 7 July 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/rabbits/index.html>>.

Environment Australia (EA) 2001, *Threat Abatement Plan For Dieback caused by the root-rot fungus Phytophthora cinnamomi*, Environment Australia, viewed 7 July 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/phytophthora/pubs/phytophthora.pdf>>.

Jones, D.L. 1991, 'New Taxa of Australian Orchidaceae', *Australian Orchid Research*: 2, Australian Orchid Foundation, Essendon.

Quarmby, JP 2006, *Recovery Plan for Twelve Threatened Orchids in the Lofty Block Region of South Australia 2007 – 2012*, Department for Environment and Heritage, South Australia.

Quarmby, J (Department of Environment and Heritage, South Australia) 2008, Personal Communication.