

Approved Conservation Advice for
***Thelymitra* sp. Kangaloon (D.L.Jones 18108) (Kangaloon Sun-orchid)**

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

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

Thelymitra sp. Kangaloon (D.L.Jones 18108), Family Orchidaceae, also known as the Kangaloon Sun-orchid, is a terrestrial orchid, with a flower stem growing to 56 cm high. The narrow fleshy leaf grows to 35 cm long, and has a purplish base. The plant produces two to 15 dark blue flowers with darker longitudinal veins (Jeanes, unpubl.).

Conservation Status

The Kangaloon Sun-orchid is listed as **critically endangered**. This species is eligible for listing as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) as, in 2008, the Minister considered the Threatened Species Scientific Committee's (TSSC) advice under section 189 of the EPBC Act and amended the list under section 184 to include *Thelymitra* sp. Kangaloon (D.L.Jones 18108). The TSSC determined that this species met Criterion 2 of their eligibility criteria because of its very restricted geographic distribution, which is precarious for the survival of the species due to a variety of current and potential threats (TSSC 2008).

Distribution and Habitat

The Kangaloon Sun-orchid occurs at three locations near Robertson in the Southern Highlands of New South Wales. The three populations grow in seasonally swampy sedgeland on grey silty clay loam at 600-700 m above sea level. This species occurs within the Southern Rivers Natural Resource Management Region.

Butlers Swamp, Stockyard Swamp and Wildes Meadow Swamp occur within the *Temperate Highland Peat Swamps on Sandstone* endangered ecological community.

Threats

The main identified threats associated with the Ecological Community in which the species occurs include inappropriate fire regimes, grazing, illegal collection, hydrology changes from road works, and drying out of swamps from climate change and suburban development.

Potential threats include long-wall coal mining and pumping of the aquifer beneath the swamp habitat, although borefield trials in 2007 and 2008 indicate that there is no connection between the regional aquifer system and the perched water associated with the swamp habitat.

Research Priorities

Research priorities that would inform future regional and local priority actions include:

- Design and implement a monitoring program.
- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat at flowering time (during October and November) to obtain estimated total population size and to locate any additional populations/occurrences.

- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Determine pollination vectors.

Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of the Kangaloon Sun-orchid.

Habitat Loss, Disturbance and Modification

- Monitor known populations to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- Identify populations of high conservation priority.
- Manage threats to areas of vegetation that contain populations/occurrences of the Kangaloon Sun-orchid.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on the Kangaloon Sun-orchid.
- Ensure road widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where the Kangaloon Sun-orchid occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to water table levels and/or increased run-off, sedimentation or pollution.
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to the Kangaloon Sun-orchid, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the Kangaloon Sun-orchid, using appropriate methods.

Trampling, Browsing or Grazing

- Develop and implement a stock management plan for roadside verges and travelling stock routes.
- Manage known sites on private property to ensure appropriate cattle and/or sheep grazing regimes are conducted outside the growing season (i.e. when the plants are not fertile).

Fire

- Determine appropriate fire regimes.
- Implement an appropriate fire management regime for local populations.
- Provide maps of known occurrences to local and state rural fire services and seek inclusion of mitigative measures in bush fire risk management plan(s), risk register and/or operation maps.

Conservation Information

- Raise awareness of the Kangaloon Sun-orchid within the local community.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed and mycorrhizal fungi collection and storage.
- Investigate options for linking, enhancing or establishing additional populations.

- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

Existing Plans/Management Prescriptions that are Relevant to the Species

Sydney Catchment Authority, Strategic Management Plan.

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

Information Sources:

Evans WR (2007). Report on the connectivity between Butlers Swamp and the regional groundwater system of the Upper Nepean area.

Jeanes J (unpubl.). Circumscription of *Thelymitra kangaloonica* Jeanes *sp. nov.*

Jones DL (2006). A complete guide to native orchids of Australia including the island territories, Reed New Holland, Sydney.

Kellogg Brown & Root Pty Ltd (KBR) (2008). Upper Nepean (Kangaloon) Borefield Environmental Assessment, prepared for Sydney Catchment Authority, Sydney.

Vallee L, Hogbin T, Monks L, Makinson B, Matthes M and Rossetto M (2004). Guidelines for the translocation of threatened plants in Australia - Second Edition, Australian Network for Plant Conservation, Canberra.