

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

Approved Conservation Advice for
***Pterostylis arenicola* (Sandhill Greenhood Orchid)**

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

Pterostylis arenicola, Family Orchidaceae, also known as Sandhill Greenhood Orchid, is a solitary tuberous terrestrial herb with flowering stems that elongate to 25 cm tall as the flowers develop. It has several leaves in a flat basal rosette to 8 cm across, which often senesce at flowering. Plants can have 1–10 flowers that are red-brown and pale green in colour. The galea (upper lip of the flower) is about 2 cm long, the apex with a fine decurved point. The lateral sepals are deflexed (bent sharply downwards). The lamina is rounded with short sparse hairs along the margins, strongly veined, and with long fine divergent apices. The labellum is oblong, thick, red and channelled, with short marginal hairs (Obst, 2005; Bates, 2007).

Conservation Status

Sandhill Greenhood Orchid is listed as **vulnerable**. This species is eligible for listing as vulnerable 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 1992* (Cwlth). The Sandhill Greenhood Orchid is also listed as vulnerable under the *National Parks and Wildlife Act 1972* (South Australia).

Distribution and Habitat

Sandhill Greenhood Orchid is endemic to South Australia and is restricted to a small proportion of its former distribution. It is known from several populations at Tailem Bend, Grange, Potter's Scrub in Coorong National Park, Paltaloch (near Meningie), and other locations on the Narrung Peninsula (Obst, 2005). This species' area of occupancy is approximately 3600 km² (CPBR, 2007) and the total population size is unknown. Despite the loss of 90% of its former habitat, this species' population has increased since 1980 due to improved management and habitat protection (Bates, 2007). This species occurs within the South Australian Murray Darling Basin Natural Resource Management Region.

Sandhill Greenhood Orchid occurs within mallee and native pine woodland. The overstorey of the mallee communities are usually dominated by *Eucalyptus porosa*, *Eucalyptus diversifolia*, *Acacia pycnantha*, and *Allocasuarina verticillata*, with understorey typically composed of open shrub, heath, sedge and grass. The native pine communities are dominated by *Callitris preissii* and *Acacia verticillata*, with understoreys consisting mainly of native grass and saltbush (DEH, 2005; Obst, 2005). This species generally occurs on sloping or undulating sites on sand and sandy loam. Sandhill Greenhood Orchid occurs in areas with mild winters and warm to hot summers with winter dominant rainfall ranging from 320–470 mm (Obst, 2005).

The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities:

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions,
- Iron-grass Natural Temperate Grassland of South Australia, and
- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia.

Threats

The main identified threats to Sandhill Greenhood Orchid are:

- Weeds such as Bridal Creeper (*Asparagus asparagoides*), Perennial Veldt Grass (*Ehrharta calycina*), other invasive grasses, and African Boxthorn (*Lycium ferocissimum*).
- Grazing and soil disturbance by macropods at the Meningie population, rabbits (*Oryctolagus cuniculus*), hares (*Lepus capensis*), and livestock.
- Inappropriate fire regimes threaten numerous populations near Meningie and Taillem Bend (Obst, 2005).

The main potential threats to Sandhill Greenhood Orchid include dieback caused by *Phytophthora cinnamomi*, and the illegal collection of plants (Obst, 2005).

Research Priorities

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

- Collect baseline population data on the distribution, abundance, and threats to known populations for locations of Sandhill Greenhood Orchid, especially where no such data has been previously collected (Obst, 2005).
- Conduct surveys and produce maps of known critical habitat; identify and survey potential habitat (Obst, 2005).
- Determine the impact which herbivores are having on this species (Obst, 2005).
- If *Phytophthora cinnamomi* is identified at a relevant site, determine dieback risk to this species.
- Investigate the potential and efficacy of DNA-based or other identification approaches of individual plants and/or populations to provide a means for detecting and prosecuting illegal collection from the wild (see for example Palsboll et al., 2006).
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment, including mycorrhizal association trials. Past propagation trials have been unsuccessful (Obst, 2005).
- Determine the pollinating agent.

Regional and Local Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of Sandhill Greenhood Orchid.

Habitat Loss, Disturbance and Modification

- Develop and implement a management action to suppress illegal collection of this species.
- 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.
- Control access routes to suitably constrain public access to known sites on public land.
- Minimise adverse impacts from land use at known sites.
- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to Sandhill Greenhood Orchid, using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the species, using appropriate methods.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Sandhill Greenhood Orchid.

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1/10/2008

Trampling, Browsing or Grazing

- Develop and implement a management plan to mitigate grazing impacts.
- Prevent grazing pressure at known sites through exclusion fencing or other barriers.
- Develop and implement a grazing management plan in consultation with landholders who have Sandhill Greenhood Orchid on their properties.
- Provide information to the Kangaroo Management Program, South Australia Department of Environment and Heritage, about sites where macropods adversely impact populations of Sandhill Greenhood Orchid.
- Implement the Threat Abatement Plan for the control and eradication of feral rabbits in the region.

Fire

- Develop and implement a suitable fire management strategy for Sandhill Greenhood Orchid.
- Provide maps of known occurrences 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 of existing *Phytophthora cinnamomi* infestations.
- Implement suitable hygiene protocols to protect known populations against outbreaks of *Phytophthora cinnamomi*.

Enable Recovery of Additional Sites and/or Populations

- Investigate options for linking, enhancing, or establishing additional populations.
- Undertake appropriate seed and mycorrhizal fungi collection and storage.
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible.

This list does not necessarily encompass all actions that may be of benefit to Sandhill Greenhood Orchid, 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

- South Australian Murray Darling Basin Threatened Flora Recovery Plan (Obst, 2005),
- Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus *Phytophthora cinnamomi* (EA, 2001), and
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (EA, 1999).

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

Information Sources:

Centre for Plant Biodiversity Research (CPBR) 2007, Australia's Virtual Herbarium, viewed 13 June 2008, <<http://www.cpbr.gov.au/cgi-bin/avh.cgi>>.

Bates, B 2007, *South Australian Native Orchids CD*, Native Orchid Society of South Australia: Adelaide. Files from the CD are also partly available as "Orchids of South Australia" at <<http://www.nossa.org.au/>>. Versions of the CD may differ in content.

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Obst, C 2005, *South Australian Murray Darling Basin Threatened Flora Recovery Plan*, Report to the Threatened Species and Communities Section, Australian Government Department of the Environment and Heritage, Canberra.

Palsboll, PJ, Berube, M, Skaug, HJ & Raymakers, C 2006, 'DNA registers of legally obtained wildlife and derived products as means to identify illegal takes', *Conservation Biology*, vol. 20, pp. 1284-1293.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia* (2nd ed.), Australian Network for Plant Conservation, Canberra.