

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

Approved Conservation Advice for
***Drakaea concolor* Hopper & A.P. Brown nom. inval. (Kneeling Hammer-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

Drakaea concolor Hopper & A.P. Brown nom. inval., Family Orchidaceae, also known as Kneeling Hammer-orchid, is an erect, tuberous herb that grows to 30 cm high. It has a small, heart-shaped leaf to 3 cm wide. The plant has a single flower to 4 cm long, with a hammer-like labellum on a hinged claw. Glands on the labellum give off a scent which attracts male flower wasps which then try to mate with the labellum and in the process pick up or deposit pollen. Flowering occurs from August to September (Brown et al., 1998; Patrick, 2001; DEC, 2008).

Conservation Status

Kneeling Hammer-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 vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). The species is also listed as declared rare flora under the *Wildlife Conservation Act 1950* (Western Australia).

Distribution and Habitat

Kneeling Hammer-orchid is endemic to Western Australia and is known from 16 populations east of Kalbarri. Of these populations, 11 are located in Kalbarri National Park, three occur on private land, one on a road verge and one on land owned by a Shire. The total population of mature, flowering plants is estimated to be 120 and the extent of occurrence is approximately 6300 km². There are insufficient data to determine the area of occupancy. Drought and grazing are thought to have caused a reduction in plant numbers in recent years (DEC, 2008).

Kneeling Hammer-orchid grows in sandy soil over sandstone, in clearings among thick scrub or low, dense heath. Associated species include *Melaleuca megacephala*, *Ecdeiocolea monostachya*, *Actinostrobilus arenareus*, *Thryptomene saxicola*, *Petrophile conifera* and *Dryandra sessilis* (Brown et al., 1998; Patrick, 2001; DEC, 2008). This species occurs within the Northern Agricultural (Western Australia) Natural Resource Management Region.

The distribution of this species is not known to overlap with any EPBC Act-listed threatened ecological community.

Threats

The main identified threats to Kneeling Hammer-orchid are fire and grazing. The species is unable to grow in dry conditions. There is evidence of feral rabbits (*Oryctolagus cuniculus*), goats (*Capra hircus*) and pigs (*Sus scrofa*) grazing on the species at numerous populations. This species should be protected against fire during its vegetative and flowering phase (Brown et al., 1998; Patrick, 2001; DEC, 2008).

The main potential threats to Kneeling Hammer-orchid include roadworks, which could affect populations occurring on road verges and private land; and maintenance and clearing of firebreaks, which affect one population (DEC, 2008).

Research Priorities

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

- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- Undertake seed germination trials to determine the requirements for successful establishment, including mycorrhizal association trials.
- Determine pollinating agent

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Kneeling Hammer-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.
- Ensure road widening and maintenance and other activities involving substrate or vegetation disturbance in areas where Kneeling Hammer-orchid occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to water table levels.
- Manage any disruptions to water flows.
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.
- Investigate formal conservation arrangements, management agreements and/or covenants on private land, and for crown and private land investigate inclusion in reserve tenure if possible.

Trampling, Browsing or Grazing

- Implement the Threat Abatement Plans for the control and eradication of feral rabbits, goats and pigs in the region.
- Manage total grazing pressure at important/significant sites through exclusion fencing or other barriers.

Fire

- Develop and implement a suitable fire management strategy for Kneeling Hammer-orchid that ensures plants are not burnt during their vegetative and flowering phase.
- 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.

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.

This list does not necessarily encompass all actions that may be of benefit to Kneeling Hammer-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

- Wildlife Management Plan No 26, Declared Rare and Poorly Known Flora in the Geraldton District (Patrick, 2001),
- Threat Abatement Plan for Competition and Land Degradation by Feral Goats (EA, 1999a),
- Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits (EA, 1999b), and
- Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs (EA, 2005).

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

Information Sources:

Brown, A, Thomson-Dans, C & Marchant, N (eds) 1998, *Western Australia's Threatened Flora*, Department of Conservation and Land Management, Western Australia.

Department of Environment and Conservation (DEC) 2008, Records held in DEC's Declared Rare Flora Database and rare flora files, Department of Environment and Conservation, Western Australia.

Environment Australia (EA) 1999a, *Threat Abatement Plan for Competition and Land Degradation by Feral Goats*, Biodiversity Group, viewed 4 July 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/goats/index.html>>.

Environment Australia (EA) 1999b, *Threat Abatement Plan for Competition and Land Degradation by Feral Rabbits*, Biodiversity Group, viewed 4 July 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/rabbits/index.html>>.

Environment Australia (EA) 2005, *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs*, Biodiversity Group, viewed 4 July 2008,

<<http://www.environment.gov.au/biodiversity/threatened/publications/tap/pig/index.html>>.

Patrick, SJ 2001, *Declared Rare and Poorly Known Flora in the Geraldton District*, Wildlife Management Plan No 26, Department of Conservation and Land Management, WA.

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.