

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

Approved Conservation Advice for
***Anigozanthos viridis* subsp. *terraspectans* (Dwarf Green Kangaroo Paw)**

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

Anigozanthos viridis subsp. *terraspectans*, Family Haemodoraceae, also known as Dwarf Green Kangaroo Paw, is a small rhizomatous herb with narrow leaves 5–20 cm long and 0.1–0.2 mm wide, that are almost semi-circular in cross-section. The flowering stem is 10–15 cm tall and is held at a 45° to 80° angle, with the curved, paw-like flowers opening away from the stalk. On each flower, green in colour, there are 6 lobes which are turned backwards and are covered in feathery hairs on the outside of the perianth. The floral tube is 4.5–6 cm long and 4–5 mm wide, with the narrowest point above the middle. There are six stamens arranged in two rows, with the outer pair lower than the four inner ones. The seeds are greyish-brown. Flowering occurs from August to December (Brown et al., 1998).

Dwarf Green Kangaroo Paw can be distinguished from Green Kangaroo Paw (*Anigozanthos viridis* subsp. *viridis*) by its shorter flowering stems and smaller, narrower flowers (Brown et al., 1998; Patrick & Brown, 2001).

Conservation Status

Dwarf Green Kangaroo Paw 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). Dwarf Green Kangaroo Paw is also listed as declared rare flora under the *Wildlife Conservation Act 1950* (Western Australia).

Green Kangaroo Paw (*Anigozanthos viridis* subsp. *viridis*) is currently not listed under the EPBC Act or the *Wildlife Conservation Act 1950* (Western Australia).

Distribution and Habitat

Dwarf Green Kangaroo Paw is endemic to Western Australia, where it is known from six populations occurring in an area west of Cataby. An estimated total of 1889 mature plants have been recorded, with the largest population, containing approximately 800 plants, occurring along road verges. The extent of occurrence is approximately 100 km². Insufficient data are available to determine the area of occupancy (DEC, 2008). This species appears to be in moderately healthy condition, but the populations have not been re-surveyed for a number of years.

The distribution of Dwarf Green Kangaroo Paw is limited compared with the Green Kangaroo Paw, which can be found from north of Perth down to the southwest of Western Australia (W.A. Herbarium, 2008).

Dwarf Green Kangaroo Paw occurs in winter-wet depressions where it grows on grey sandy clay loam, or grey sand, in low post-fire regenerating heath. It is associated with species such as Slender-leaved Banksia (*Banksia leptophylla*), melaleucas (*Melaleuca* spp.), Compact Featherflower (*Verticordia densiflora*), coneflowers (*Conostylis* spp.) and sedges (Brown et al., 1998; Patrick & Brown, 2001).

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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 threats to Dwarf Green Kangaroo Paw are inappropriate fire regimes and physical disturbance. The occurrence of the species along road verges makes it particularly susceptible to road maintenance activities and fragmentation.

The main potential threat to Dwarf Green Kangaroo Paw is dieback caused by *Phytophthora cinnamomi*. The species' susceptibility to dieback is currently unknown, but a vigorous outbreak occurred near one population in 1989 and any further outbreaks may affect this population if the species is found to be susceptible (Brown et al., 1998; Patrick & Brown, 2001).

Research Priorities

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

- Re-survey three populations to obtain accurate grid references for these populations.
- Design and implement a monitoring program or, if appropriate, support and enhance existing programs.
- 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.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.
- Conduct research to determine the species' susceptibility to dieback caused by *Phytophthora cinnamomi*.

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Dwarf Green Kangaroo Paw.

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.
- Suitably control and manage access on private land.
- Minimise adverse impacts from land use at known sites, especially by ensuring road markers are in place.
- Ensure road widening and maintenance or other activities involving substrate or vegetation disturbance in areas where Dwarf Green Kangaroo Paw occurs do not adversely impact on known populations.
- 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.

Fire

- Develop and implement a suitable fire management strategy for Dwarf Green Kangaroo Paw.

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- Identify appropriate intensity and interval of fire to promote vegetation regeneration.
- 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

- Develop and implement suitable hygiene protocols to protect known sites from further outbreaks of dieback caused by *Phytophthora cinnamomi*.
- If necessary, implement appropriate management actions to minimise the adverse impacts of existing *Phytophthora cinnamomi* infestations.

Conservation Information

- Raise awareness of Dwarf Green Kangaroo Paw within the local community, particularly local councils, landowners and land managers. Place signage around areas where it can occur to alert locals and visitors of its existence. Organize field days to search for additional populations.
- Maintain liaisons with private landholders and land managers of land on which populations occur.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed 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 Dwarf Green Kangaroo Paw, 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. 28, *Declared Rare and Poorly Known Flora in the Moora District* (Patrick & Brown, 2001), 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:

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.

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Patrick, SJ & Brown, AP 2001, *Declared Rare and Poorly Known Flora in the Moora District*, Wildlife Management Plan No. 28, Department of Conservation and Land Management, Western Australia, viewed 19 August 2008, <http://www.dec.wa.gov.au/pdf/nature/flora/flora_mgt_plans/moora_2000/moora_wmp28.pdf>.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia - Second Edition*, Australian Network for Plant Conservation, Canberra.

Western Australian Herbarium 2008, *FloraBase: the Western Australian Flora*, Department of Environment and Conservation, accessed 19 August 2008, <<http://florabase.dec.wa.gov.au>>.