

This Conservation Advice was approved by the Minister / Delegate of the Minister on:
1/10/2008

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

Approved Conservation Advice for
***Grevillea maxwellii* (Maxwell's Grevillea)**

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

Grevillea maxwellii, Family Proteaceae, also known as Maxwell's Grevillea, is a prostrate to spreading shrub 0.3–1.2 m high, to 1.5 m across, with pinkish-orange to pink-red flowers, becoming redder with age (Olde & Marriott, 1995; Robinson & Coates, 1995; Makinson, 2000). Leaves are up to 7.5 cm long and have 3–6 lobes, each divided into three smaller lobes (Brown et al., 1998). Fruits are about 10 mm long, with woolly and glandular hairs (Makinson, 2000).

Conservation Status

Maxwell's Grevillea 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 1992* (Cwlth). The species is also listed as rare flora under the *Wildlife Conservation Act 1950* (Western Australia) and is categorised as critically endangered.

Distribution and Habitat

Maxwell's Grevillea is endemic to Western Australia, where it occurs only in the Pallinup River area, east of the Stirling Ranges (Olde & Marriott, 1995; Brown et al., 1998). This species was first collected in 1840 and then not seen again until 1966. Prior to 1994, it was known from just 81 plants in two populations on the southern side of the river (Brown et al., 1998; CALM, 2001). Maxwell's Grevillea is now known from nine populations and a total of around 700 plants (Phillimore et al., 2001). This species occurs within the South Coast (Western Australia) Natural Resource Management Region.

Maxwell's Grevillea grows on the crest of hills, often near rocky outcrops, and slopes to the river, in shallow, brown loamy soil over granite. It grows in association with a low open heath and disappears as the soil depth increases downslope to be replaced by mallee, *Eucalyptus occidentalis* and *Acacia acuminata* (Brown et al., 1998). Much of the suitable habitat along the Pallinup River has been cleared (Olde & Marriott, 1995; Robinson & Coates, 1995; Brown et al., 1998).

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

Threats

The main identified threats to Maxwell's Grevillea are habitat degradation from weed invasion (mainly wild oats, *Avena* sp.) (CALM, 2001; Phillimore et al., 2001), and the extinction vulnerability from stochastic events (Brown et al., 1998). Weeds compete with this species, increase grazing pressure, and increase fire hazard due to the easy ignition of high fuel loads. (Phillimore et al., 2001).

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The main potential threats to Maxwell's Grevillea include drought and inappropriate fire regimes (Phillimore et al., 2001; ANRA, 2007). Drought reduces flowering, seed set, population recruitment, and increases mortality (Phillimore et al., 2001). Maxwell's Grevillea germinates following fire: too frequent fire would deplete the soil seed bank and infrequent fire would suppress recruitment (Phillimore et al., 2001).

Maxwell's Grevillea may be susceptible to dieback caused by root rot fungus *Phytophthora cinnamomi*. A small trial showed 75% mortality; however, one management guide suggests this species has a low susceptibility rating (Phillimore et al., 2001; DEH, 2006).

Research Priorities

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

- 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.
- Identify appropriate intensity and interval of fire to promote seed germination.
- Further research the susceptibility of Maxwell's Grevillea to *Phytophthora cinnamomi* (Phillimore et al., 2001).

Regional and Local Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of Maxwell's Grevillea.

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.
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.
- Manage any changes to hydrology that may result in changes to water table levels and/or increase run-off.
- 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

- Develop and implement a management plan for the control of weeds within known local populations.
- Identify and remove weeds in the local area, which could become a threat to Maxwell's Grevillea, using spot spraying or hand weeding (Phillimore et al., 2001).
- 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 Maxwell's Grevillea.

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Fire

- Develop and implement a suitable fire management strategy for Maxwell's Grevillea.
- 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

- Implement suitable hygiene protocols to protect known sites from outbreaks of dieback caused by *Phytophthora cinnamomi*.

Conservation Information

- Raise awareness of Maxwell's Grevillea within the local community.

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.
- Rehabilitate habitat where Maxwell's Grevillea may have occurred previously to enable current populations to expand (Phillimore et al., 2001).

This list does not necessarily encompass all actions that may be of benefit to Maxwell's Grevillea, 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

- Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus *Phytophthora cinnamomi* (EA, 2001),
- Several management and threat abatement plans address the problem of *Phytophthora cinnamomi* in Western Australia (Dieback Working Group, 2000; CALM, 2003), and
- Maxwell's Grevillea Interim Recovery Plan 2001–2004. This plan details management prescriptions to aid the recovery of the species (Phillimore et al., 2001).

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

Information Sources:

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