

**Approved Conservation Advice for
Gastrolobium modestum (Broad-leaved Gastrolobium)**

(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

Gastrolobium modestum, Family Fabaceae, also known as the Broad-leaved Gastrolobium, is a shrub that grows to 0.5 m high and 1–3 m broad. Stems are prostrate to ascending, with the former creating runners that often root at nodes (i.e. stoloniferous) in ground litter. Flowers are cream to pale green, infused with pale pink (Crisp, 1995; Atkins, 1998; Williams et al., 2001; Chandler et al., 2002).

Conservation Status

Broad-leaved Gastrolobium 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, under its previous name, *Brachysema modestum Crisp ms*, as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). The Broad-leaved Gastrolobium is also listed as declared rare flora that is rare or likely to become extinct under the *Wildlife Conservation Act 1950* (Western Australia) and managed as vulnerable by the Western Australian Government.

Distribution and Habitat

Broad-leaved Gastrolobium occurs in southwestern Western Australia, near Busselton, south of Perth (Chandler et al., 2002). This species is endemic to Western Australia, where it is known from two populations near the Whicher Range. As there are only two populations, the extent of occurrence is estimated to be the distance between these, which is approximately 35 km². There are no data available to determine if there was a past decline in extent of occurrence, however there is evidence that 90% of its associated habitat (Busselton Ironstone community) has been destroyed (English, 1999). The area of occupancy for this species is estimated to be approximately 0.24 km². The species is considered to be severely fragmented. A 2001 survey of population one recorded the number of individuals as being in the hundreds. Population two was surveyed in 1996, with numbers of individuals recorded in the thousands (DEC, 2007).

Broad-leaved Gastrolobium grows in what appears to be a transitional vegetation community between ironstone outcrops and adjacent sand over clay habitats (Brown et al., 1998), on the edges of an ironstone flat and drainage lines, with variable, shallow soils of red clay-loam to grey sand (Crisp, 1995; Chandler et al., 2002),

This species occurs within the Jarrah Forrest and Swan Coastal Plain Bioregions and the South West Natural Resource Management Region.

The distribution of this species is associated with the “Shrublands on Southern Swan Coastal Plain Ironstones” EPBC Act-listed threatened ecological community.

Threats

The main identified threats to Broad-leaved Gastrolobium are clearing for agriculture, disturbance from pine harvesting operations (Williams et al., 2001) and

destruction/disturbance by other activities such as rogaining (similar to orienteering) and motor sports that take place in the area (DEC, 2007).

The main potential threats to Broad-leaved *Gastrolobium* include dieback caused by *Phytophthora cinnamomi* which is known to exist in the habitat of Broad-leaved *Gastrolobium*; however susceptibility of the species to the disease is unknown. Even if Broad-leaved *Gastrolobium* is resistant to the disease *in situ*, *Phytophthora cinnamomi* may have indirect impacts on the species through altering the composition and structure of the vegetation community.

Other potential threats include inappropriate fire regimes and changes to hydrology (DEC, 2007).

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 vegetative propagation trials to determine the requirements for successful establishment.

Regional Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of Broad-leaved *Gastrolobium*.

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 there is no disturbance in areas where Broad-leaved *Gastrolobium* occurs, excluding necessary actions to manage the conservation of the species/ecological community.
- Manage any changes to hydrology that may result in changes to water table levels and/or increased run-off, salinity, sedimentation or pollution.
- Manage any disruptions to water flows.
- Investigate formal conservation arrangements, management agreements and covenants on crown land and investigate inclusion in reserve tenure if possible.
- Manage any other known, potential or emerging threats.

Fire

- Develop and implement a suitable fire management strategy for the habitat of Broad-leaved *Gastrolobium*.
- Identify appropriate intensity and interval of fire to promote seed germination.
- Where appropriate 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.

Conservation Information

- Raise awareness of Broad-leaved *Gastrolobium* within the local community.

- Frequently engage with private landholders and land managers responsible for the land on which populations occur and encourage these key stakeholders to contribute to the implementation of conservation management actions.

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.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of Broad-leaved *Gastrolobium*.

Habitat Loss, Disturbance and Modification

- Control access routes to suitably constrain public access to known sites on public land.
- Minimise adverse impacts from land use at known sites.
- Manage any disruptions to water flows.
- Protect populations of the listed species through the development of conservation agreements and/or covenants.

Fire

- Implement an appropriate fire management regime for local populations.

Diseases, Fungi and Parasites

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

This list does not necessarily encompass all actions that may be of benefit to Broad-leaved *Gastrolobium*, 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

- Western Australian Wildlife Management Program No. 33: Declared rare and poorly known flora in the Central Forest Region (Williams et al., 2001).
- Shrubland association on Southern Swan Coastal Plain Ironstone (Busselton area) (Southern Ironstone Association), Interim Recovery Plan No. 44 (English, 1999).
- 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:

Atkins, KJ (1998). Conservation Statements for threatened flora within the regional forest agreement region for Western Australia. Department of Conservation and Land Management, Western Australia. Pp 1-95

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Crisp, MD (1995). Revision of *Brachysema* (Fabaceae: Mirbelieae). Australian Systematic Botany 8:307-353.

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<http://www.environment.gov.au/biodiversity/threatened/publications/recovery/southern-ironstone/index.html>

Environment Australia (EA) (2001). Threat Abatement Plan for Dieback Caused by the Root-rot Fungus *Phytophthora cinnamomi*. Department of Environment, Water, Heritage and the Arts. Viewed 8 December 2009,

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Williams, K, Horan, A, Wood, S and Webb, W (2001). Declared Rare and Poorly Known Flora in the Central Forest Region - Wildlife Management Program No. 33. Department of Conservation and Land Management, Western Australia. Viewed 8 December 2009,

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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.