

**Approved Conservation Advice for**  
***Eremophila rostrata* (Beaked Eremophila)**

(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**

*Eremophila rostrata*, Family Myoporaceae, also known as the Beaked Eremophila, is an erect, rounded shrub, that can grow to 3 m in height. The species has glossy dark green leaves approximately 1 mm in diameter and pendulous scarlet (light pink inside) flowers (Stack and English, 2003). The species is composed of two subspecies; *Eremophila rostrata* subsp. *rostrata* and *Eremophila rostrata* subsp. *trifida*.

The flowering period for the species is June to October (Western Australian Herbarium, 2005). The two subpopulations that occur northeast of Geraldton flower from June to July, and the two subpopulations that occur southeast of Geraldton flower from September to October.

**Conservation Status**

The Beaked Eremophila is listed as **critically endangered**. This species is eligible for listing as critically endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as, in 2008, the Minister considered the Threatened Species Scientific Committee's (TSSC) advice under section 189 of the EPBC Act and amended the list under section 184 to include the Beaked Eremophila. The TSSC determined that this species met criteria 2, 3 and 4 of the eligibility criteria based on a very low population size that is likely to continue to decline, and a very restricted geographic distribution which is precarious for the survival of the species.

Under the *Western Australian Wildlife Conservation Act 1950*, the Beaked Eremophila has been listed as two subspecies; *Eremophila rostrata* subsp. *rostrata* and *Eremophila rostrata* subsp. *trifida*. Both subspecies are listed as Declared Rare Flora, and both are managed as critically endangered (according to IUCN criteria) by the Western Australian Government.

**Distribution and Habitat**

The Beaked Eremophila is endemic to Western Australia, and is known from four subpopulations that occur in two geographically separate areas, 280 km apart.

Two subpopulations occur north of Cue (approximately 360 km northeast of Geraldton) within the Rangelands Natural Resource Management region, and two small subpopulations occur southeast of Perenjori (approximately 200 km southeast of Geraldton) within the Northern Agricultural Natural Resource Management region (DEC, 2008).

The extent of occurrence of the species is calculated to be approximately 550 km<sup>2</sup> and its area of occupancy is estimated to be less than 1 km<sup>2</sup>. The total population size of the Beaked Eremophila is approximately 90 mature plants (DEC, 2008).

The Beaked Eremophila is found in two geographically separate areas with quite different habitats. North of Cue, the species grows on stony, buff coloured saline clays at the base of quartzite hills in an open shrubland (to 2.5 m) of *Acacia* and *Eremophila* species over open low shrubs of *Ptilotus polakii*. Southeast of Perenjori, the species grows in red brown clay loam in open mallee woodland (to 6 m) of mallee Eucalyptus species, *Acacia coolgardiensis*

(Spinifex Wattle), *Melaleuca uncinata* (Broom Bush) and *Ptilotus exaltus* (Purple Mulla Mulla) (Stack and English, 2003).

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

### **Threats**

The current threats to the species are inappropriate road maintenance works and inappropriate fire regimes. Potential threats to habitat include weed invasion and salinity. Mining is also considered a potential threat to the two subpopulations north of Cue. One of the subpopulations southeast of Perenjori has been impacted by stock grazing in the past, however this population has now been fenced (Stack and English, 2003).

### **Research Priorities**

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

- Design and implement a monitoring program for the species.
- More precisely assess ecological requirements and demographic information, including;
  - the species' response to disturbance (e.g. fire);
  - Develop and implement disturbance trials. Conduct research into the effectiveness of burning, smokewater and soil disturbance in stimulating the germination of soil stored seed of the Beaked Eremophila. The results of the trials should be monitored regularly, and if successful, further trials undertaken (Stack and English, 2003).
  - the pollination biology of the species and the requirements of pollinators;
  - seed viability;
  - conditions necessary for germination;
  - the reproductive strategies, phenology and seasonal growth of the species;
  - longevity of plants and time taken to reach maturity (Stack and English, 2003); and
  - undertake genetic analyses to 1/ assess current gene flow (using markers and analyses capable of distinguishing population divergence on an evolutionary timescale, from that which might be due to more recent impacts), and 2/ identify populations with low genetic diversity that might benefit from artificial introduction of genetic material from other populations from which they have relatively recently diverged.
- Undertake survey work in suitable habitat and potential habitat to locate any additional subpopulations of the Beaked Eremophila. Surveys should ideally be undertaken during the species' main flowering period (June to October), and include surveys of areas after known disturbance events (Stack and English, 2003).
- Undertake seed germination and/or vegetative propagation trials to determine the requirement for successful establishment.

### **Priority Actions**

The following priority recovery and threat abatement actions can be done to support the recovery of the Beaked Eremophila.

#### **Habitat Loss, Disturbance and Modification**

- Monitor known populations to identify key threats.
- Ensure road widening and maintenance activities involving substrate or vegetation disturbance in areas where the Beaked Eremophila occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to water table levels and/or increased run-off, sedimentation or pollution.
- Manage any disruptions to water flows.

- Monitor habitat degradation (including weed invasion and salinity), population stability (expansion or decline), pollinator activity, seed production, recruitment, longevity and predation (Stack and English, 2003).
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on the species (e.g. from herbicide drift/application).
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- 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 the Beaked Eremophila, using appropriate methods.
- Manage the site to prevent introduction of invasive weeds, which could become a threat to the Beaked Eremophila, using appropriate methods (e.g. hand removal, spot spraying).

#### Trampling, Browsing or Grazing

- Continue to prevent grazing at sites where the species is known to occur, through exclusion fencing or other barriers.

#### Fire

- Develop and implement a suitable fire management strategy for the Beaked Eremophila.
- Identify appropriate intensity and interval of fire to promote seed germination.
- Where appropriate provide information of known occurrences to local and State Rural Fire Services and seek inclusion of mitigative measures in bush fire risk management plans.

#### Conservation Information

- Raise awareness of the Beaked Eremophila within the local community through site visits, signage (e.g. roadside markers), and posters/information brochures (to be distributed to local land owners, local naturalist groups, relevant authorities and volunteer organisations) (Stack and English, 2003).
- Maintain liaison 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 the Beaked Eremophila, 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**

An Interim Recovery Plan for the Beaked Eremophila (2003-2008) was prepared by Stack and English (2003) for the Western Australian Department of Environment and Conservation. Relevant actions identified within this plan have been included in the priority actions above.

The species is also included in the CALM 'Declared Rare and Poorly Known Flora in the Geraldton District, Wildlife Management Program No. 26' (Patrick, 2001).

These prescriptions were current at the time of publishing; please refer to the Western Australian Department of Environment and Conservation website for any updated versions.

**Information Sources:**

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

Patrick SJ (2001). *Declared Rare and Poorly Known Flora in the Geraldton District*. Western Australian Department of Conservation and Land Management. Wildlife Management program No. 26.

Stack G and English V (2003). Beaked Eremophila (*Eremophila rostrata* ms) Interim Recovery Plan No. 151 2003-2008. Western Australian Department of Conservation and Land Management. Perth.

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.

Western Australian Herbarium (2005). FloraBase – The Western Australian Flora. Department of Environment and Conservation.  
Available on the Internet at: <http://florabase.calm.wa.gov.au/>