

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

Approved Conservation Advice for
***Darwinia squarrosa* (Fringed Mountain Bell)**

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

Darwinia squarrosa, Family Myrtaceae, also known as Fringed Mountain Bell and Pink Mountain Bell, is an erect bushy shrub that can grow up to 1 m tall (Brown et al., 1998; Robinson & Coates, 1995). It has fringed narrow or oval leaves up to 10 mm long, and fringed pink bracts 2 cm long (Keighery, 1985; Brown et al 1998). This species flowers from September to November (Rye & Hopper, 1981; Hopper et al., 1990).

Conservation Status

Darwinia squarrosa 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). *Darwinia squarrosa* is also listed as declared rare flora under Schedule 1 of the *Wildlife Conservation (Rare Flora) Notice 2008* within the *Wildlife Conservation Act 1950* (Western Australia).

Distribution and Habitat

Fringed Mountain Bell is restricted to the eastern peaks of the Stirling Range, Western Australia (Robinson & Coates, 1995). It was discovered in 1848 (Brown et al., 1998), and there are now 10 known populations, all of which occur within the Stirling Range National Park (Robinson & Coates, 1995). All were surveyed in 1988 and found to be in good condition (Robinson & Coates, 1995). This species occurs within the South Coast (Western Australia) Natural Resource Management Region.

Fringed Mountain Bell is confined to high, wet peaks from where it extends into wetter valleys (Keighery, 1985). It grows in peaty soil among schist rocks on mountain slopes (Rye & Hopper, 1981; Hopper et al., 1990; Robinson & Coates, 1995). The associated vegetation is dense scrub (Robinson & Coates, 1995; Brown et al., 1998).

The distribution of this species overlaps with the “Eastern Stirling Range Montane Heath and Thicket” EPBC Act-listed threatened ecological community.

Threats

The main potential threats to Fringed Mountain Bell include dieback caused by *Phytophthora cinnamomi* and frequent fires (Brown et al., 1998). Fringed Mountain Bell will re-establish from seed after fire, but may take 4–5 years before flowering and seeding again. Fire frequency at 5–6 years or less may eliminate this species (Robinson & Coates, 1995).

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.

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

- 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.
- Conduct research on the susceptibility of Fringed Mountain Bell to dieback caused by *Phytophthora cinnamomi* (Brown et al., 1998).

Regional and Local Priority Actions

The following priority recovery and threat abatement actions can be done to support the recovery of Fringed Mountain Bell.

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.
- Ensure track widening and maintenance activities (or other infrastructure or development activities) involving substrate or vegetation disturbance in areas where Fringed Mountain Bell occurs do not adversely impact on known populations.
- Minimise adverse impacts from land use at known sites.

Diseases, Fungi and Parasites

- Monitor sites for evidence of outbreaks of dieback caused by *Phytophthora cinnamomi*.
- Implement Threat Abatement Plan for Dieback caused by the Root-root Fungus *Phytophthora cinnamomi* (EA, 2001) to protect known sites.

Fire

- Develop and implement a suitable fire management strategy for the Fringed Mountain Bell to exclude fire from populations, where possible (Brown et al., 1998).
- 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.

This list does not necessarily encompass all actions that may be of benefit to Fringed Mountain Bell, 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-root Fungus *Phytophthora cinnamomi* (EA, 2001), and
- Montane Heath and Thicket of the South West Botanical Province, above 900m asl (Eastern Stirling Range Montane Heath and Thicket community) Interim Recovery Plan 1999–2002 (Barrett, 2000).

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

Information Sources:

Barrett, S 2000, *Montane Heath and Thicket of the South West Botanical Province, above 900m asl (Eastern Stirling Range Montane Heath and Thicket community) Interim Recovery Plan 1999–2002*, Department of Conservation & Land Management. Wanneroo, WA, viewed 2 June 2008
<<http://www.environment.gov.au/biodiversity/threatened/publications/recovery/montane/index.html>>.

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

Brown, A, Thomson-Dans, C & Marchant, N (eds) 1998, *Western Australia's Threatened Flora*, CALM, Como, pp. 1–220.

Environment Australia, 2001, *Threat Abatement Plan for Dieback caused by the Root-rot Fungus Phytophthora cinnamomi*, viewed 23 April 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/phytophthora/index.html>>.

Hopper, SD, van Leeuwen, S, Brown, AP & Patrick, SJ 1990, *Western Australia's Endangered Flora and other plants under consideration for declaration*, CALM, Perth.

Keighery, G 1985, 'Rediscovering Mountain Bells' in *Landscape*. 1 (June), vol. 1, Government Printing Office, Western Australia, pp. 3–10.

Robinson, CJ & Coates, DJ 1995, *Declared Rare & Poorly Known Flora in the Albany District*, WA Wildlife Management Program, Perth.

Rye, BL & Hopper, SD 1981, *A Guide to the Gazetted Rare Flora of Western Australia. Report No. 42*, Department of Fisheries & Wildlife WA, Perth, pp. 1–211.