

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
Darwinia sp. Stirling Range (G.J. Keighery 5732) (Red 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 sp. Stirling Range (G.J. Keighery 5732), Family Myrtaceae, also known as Red Mountain Bell, is an open, straggly shrub growing to 1.5 m high (Hopper et al., 1990). It has pink to red flowers which bloom in October, with the styles emerging from the floral bracts. The leaves are dark green, 6 mm long, and almost stalkless. The leaf edges are fringed in short hairs (Western Australian Herbarium, 1995; Brown et al., 1998).

Conservation Status

Red Mountain Bell 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). The species is also listed as declared rare under the *Wildlife Conservation Act 1950* (Western Australia).

Distribution and Habitat

Red Mountain Bell is confined to a saddle on a mountain in the centre of the eastern part of the Stirling Range National Park (NP), Western Australia (Robinson & Coates, 1995; Brown et al., 1998). This species occurs within the South Coast (Western Australia) Natural Resource Management Region.

Red Mountain Bell is confined to one population. This population was burnt in April 1991, and has regenerated strongly from seed with up to 100 seedlings per square metre. There are around 10 000 individuals in this population (Robinson & Coates, 1995). This species occurs in dense heath on shallow, peaty, brown loamy sand over schist (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 potential threats to Red Mountain Bell include inappropriate fire regimes and dieback caused by the root rot fungus *Phytophthora cinnamomi* (Brown et al., 1998; ANRA, 2007). Frequent fires may result in seed bank depletion (Brown et al., 1998).

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 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.

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- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.

Regional and Local Priority Actions

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

Habitat Loss, Disturbance and Modification

- Monitor known population to identify key threats.
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary.
- If appropriate, control access routes to suitably constrain public access to known sites on public land.
- Manage threats to areas of vegetation that contain populations of Red Mountain Bell.

Fire

- Develop and implement a suitable fire management strategy for Red Mountain Bell.
- Identify appropriate intensity and interval of fire to promote seed germination and 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 the known site from further outbreaks of dieback caused by the root rot fungus *Phytophthora cinnamomi*.
- If necessary, implement appropriate management actions to minimise the adverse impacts of existing *Phytophthora cinnamomi* infestations.

Conservation Information

- Raise awareness of Red Mountain Bell within the local community, especially National Park users.

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 Red 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

- There are several management and threat abatement plans addressing the problem of *Phytophthora cinnamomi* in Western Australia (Dieback Working Group, 2000; CALM, 2003),
- Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus *Phytophthora cinnamomi* (EA, 2001),
- Management of *Phytophthora cinnamomi* for Biodiversity Conservation in Australia (DEH, 2006), and

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- 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:

Australian National Resource Atlas (ANRA) 2007, *Esperance Plains Biodiversity Assessment – Species at risk and their threatening processes*, Commonwealth of Australia, viewed 20 May 2008, <<http://www.anra.gov.au/topics/vegetation/assessment/wa/ibra-esp-species-threats.html>>.

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 20 May 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/recovery/montane/index.html>> .

Brown, A, Thomson-Dans, C & Marchant, N (Eds) 1998, *Western Australia's Threatened Flora*, pp. 1-220, Department of Conservation and Land Management (CALM) WA, Como.

Department of Environment and Heritage (DEH) 2006, *Management of Phytophthora cinnamomi for Biodiversity Conservation in Australia*, Department of Environment, Heritage and the Arts, viewed 20 May 2008, <<http://www.environment.gov.au/biodiversity/invasive/publications/p-cinnamomi/pubs/appendix4.pdf>>.

Department of Conservation and Land Management (CALM) WA 2003, *Phytophthora cinnamomi and Disease Caused by it Volume I – Management Guidelines*, viewed 20 May 2008, <http://www.naturebase.net/component/option.com_docman/task.doc_download/Itemid,1373/gid,311/>.

Dieback Working Group 2000, *Managing Phytophthora Dieback Guidelines for Local Government*, viewed 20 May 2008, <http://www.naturebase.net/component/option.com_docman/task.doc_download/Itemid,1373/gid,313/>.

Environment Australia 2001, *Threat Abatement Plan for Dieback Caused by the Root-Rot Fungus Phytophthora cinnamomi*, viewed 20 May 2008, <<http://www.environment.gov.au/biodiversity/threatened/publications/tap/phytophthora/pubs/phytophthora.pdf>>.

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

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

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia* (2nd ed.), Australian Network for Plant Conservation, Canberra.

Western Australian Herbarium 2007, *FloraBase*, Department of Environment and Conservation WA, viewed 20 May 2008, <<http://florabase.dec.wa.gov.au/browse/profile/13629>>.