A statement for the purposes of approved conservation advice
(s266B of the *Environment Protection and Biodiversity Conservation Act 1999*)

Approved Conservation Advice for *Darwinia* sp. Muchea (B.J.Keighery 2458) (Muchea 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. Muchea (B.J.Keighery 2458), Family Myrtaceae, also known as the Muchea Bell, is a tangled, domed shrub growing to 0.6 m high. Flowers are green and the flowering period is from October to November (WA Herbarium, 2006).

Conservation Status

The Muchea Bell is listed as **critically endangered** under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as critically endangered under Criterion 2 and endangered under Criterion 3 as its geographic distribution is very restricted and precarious for its survival. The species is also listed as Declared Rare Flora under the Western Australian *Wildlife Conservation Act 1950*.

Distribution and Habitat

The Muchea Bell is known from three populations in swampy, seasonally wet habitat in the Muchea area, approximately 70km north of Perth. The area of occupancy is estimated to be 0.03 km^2 with an estimated population size of 1300 mature individuals. This species occurs within the Swan Natural Resource Management Region.

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

Threats

The major threats to Muchea Bell include grazing by rabbits, weed invasion, changes in hydrology, inappropriate fire regimes, land clearing and dieback caused by *Phytophthora cinnamomi*.

Research Priorities

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

- Design and implement a monitoring program.
- 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.

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of Muchea 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.
- 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.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of the Muchea Bell.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on the Muchea Bell.
- Ensure road widening and maintenance activities in areas where the Muchea Bell occurs do not adversely impact on known populations.
- Manage any changes to hydrology that may result in changes to the water table levels, increased run-off, sedimentation or pollution.
- Manage any disruptions to water flows.
- Protect populations of the listed species through the development of conservation agreements and/or covenants.

Invasive Weeds

- Identify and remove weeds in the local area, which could become a threat to the Muchea Bell using appropriate methods.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to the Muchea Bell, using appropriate methods.

Trampling, Browsing or Grazing

- Prevent grazing pressure at known sites on leased crown land through exclusion fencing or other barriers to prevent rabbit grazing.

Fire

- Implement an appropriate fire management regime for local populations.
- Identify appropriate intensity and interval of fire to promote seed germination.
- Provide maps of known occurrences to local and state rural fire services and seek inclusion of mitigative measures in bush fire risk management plan(s), risk register and/or operation maps.

Diseases, Fungi and Parasites

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

Conservation Information

- Raise awareness of the Muchea Bell 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.

This list does not necessarily encompass all actions that may be of benefit to the Muchea Bell, but highlights those that are considered to be of highest priority at the time of preparing the conservation advice.

Information Sources:

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 (2006). FloraBase – The Western Australian Flora. Department of Conservation and Land Management. Available on the Internet at: http://florabase.calm.wa.gov.au/