Approved Conservation Advice for *Eucalyptus* sp. Howes Swamp Creek (M.Doherty 26)

(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

Eucalyptus sp. Howes Swamp Creek (M.Doherty 26), Family Myrtaceae, is a tree to 25 m tall with a thin wavy fibrous grey/brown bark stocking, and smooth cream branches. It has distinctive heart-shaped juvenile leaves 2-4 cm long, adult leaves 9-15 cm long. The fruit has 3 valves. It can easily be confused with *E. viminalis* (Benson and McDougall, 1998; NSW NPWS, 2000; NSW DEC, 2005). It has also been recorded as expressing similar characteristics as *E. angophoroides* and has previously been named as *Eucalyptus wollemiensis* ms. (Bell, 2008).

Conservation Status

Eucalyptus sp. Howes Swamp Creek (M.Doherty 26) is listed as **endangered**. This species is eligible for listing as endangered 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 endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth). *Eucalyptus* sp. Howes Swamp Creek is also listed as endangered under the *Threatened Species Conservation Act 1995* (New South Wales).

Distribution and Habitat

Eucalyptus sp. Howes Swamp Creek (M.Doherty 26) occurs within a small area of alluvium at Mellong Swamp on Howes Swamp Creek in Wollemi National Park. Approximately 20 adult trees and 12 juvenile trees are present (NSW NPWS, 2000). This species occupies a habitat 200 x 100 m in size that has a sheltered south facing aspect on alluvium adjacent to permanent water bodies. The lower Mellong Creek area where this species occurs is part of a large wetland complex comprising eight swamps, each approximately one square kilometre in area. These swamps dry out on the surface after less than three months without rain. The swamp complex is unique within the Sydney Basin (Benson et al., 1996). This species occurs in open woodland adjacent to swamp areas. Associated species in the area include *E. piperita* subsp. *piperita, Angophora floribunda, E. parramatensis* and *E. amplifolia* Understorey species include *Dillwynia glaberrima, Acacia parvipinnula, Banksia spinulosa, Banksia serrata, Oxylobium* spp., *Pultenaea* spp. and *Melaleuca thymifolia* (NSW NPWS, 2000).

Recorded as *Eucalyptus wollemiensis* ms. in the NSW seedbank database, Mount Annan Botanic Gardens maintains a collection of *Eucalyptus* sp. Howes Swamp Creek (M.Doherty 26) seeds and plants as part of the NSW seed bank project (Johnstone, pers. comms., 2010).

This species occurs within the Sydney Basin Bioregion and the Hawkesbury Nepean Natural Resource Management Region/s.

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

Threats

Eucalyptus sp. Howes Swamp Creek (M.Doherty 26) grows in a remote area within national park and therefore is relatively free of threats. However, as there is only one population of this species, it is vulnerable to stochastic events. Inappropriate fire regimes may be the most significant potential threat to this species as the area is prone to frequent fire events, with at least three fires affecting the locality within the last ten years (DECCW, 2005).

Research Priorities

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

- Investigate taxonomic status using appropriate methodologies including DNA marker analysis.
- 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.
- Undertake seed germination and/or vegetative propagation trials to determine the requirements for successful establishment.
- Identify optimal fire regime for regeneration, (vegetative regrowth and seed germination) and its response to other prevailing regimes;
- Identify its tolerance for moisture regimes and desiccation of its swampland habitat.

Regional and Local Priority Actions

The following regional priority recovery and threat abatement actions can be done to support the recovery of *Eucalyptus* sp. Howes Swamp Creek (M.Doherty 26).

<u>Habitat Loss, Disturbance and Modification</u>

- Monitor known population for changes in status and operation of threats.
- Manage any known, potential or emerging threats.
- Monitor the effectiveness of any management actions implemented and adapt them if necessary.

<u>Fire</u>

- Develop and implement a suitable fire management strategy for the habitat of *Eucalyptus* sp. Howes Swamp Creek (M.Doherty 26).

<u>Enable Recovery of Additional Sites and/or Populations</u>

- Maintain and augment the ex-situ collection .

This list does not necessarily encompass all actions that may be of benefit to *Eucalyptus* sp. Howes Swamp Creek, 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

- Wollemi National Park Plan of Management (NSW NPWS, 2001).

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

Information Sources:

Bell SAJ (2008). Rare or threatened vascular plant species of Wollemi National Park, central eastern New South Wales. *Cunninghamia.* 10(3):331–371 Sydney: New South Wales, Royal Botanic Gardens

Benson D and McDougall L (1998). Ecology of Sydney plant species: Part 6 Dicotyledon family Myrtaceae. *Cunninghamia*. 5(4):809-987. Sydney: New South Wales, Royal Botanic Gardens.

Department of Environment, Climate Change and Water (DECCW) (2005). *Eucalyptus* sp. *Howes Swamp Creek* – profile. Department of Environment, Climate Change and Water, New South Wales. Available on the Internet at: http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10900

Johnstone R (2010). Personal communication by email, 19 May 2010. Seed Bank Officer, Mount Annan Botanic Garden, New South Wales.

New South Wales National Parks and Wildlife Service (NSW NPWS) (2001). Wollemi National Park Plan of Management. New South Wales National Parks and Wildlife Service, Hurstville, NSW. Available on the Internet at: http://www.environment.nsw.gov.au/resources/parks/pomfinalwollemi.pdf

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.