

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

Approved Conservation Advice for
Angophora inopina

This Conservation Advice has been developed based on the best available information at the time this conservation advice was approved.

Description

Angophora inopina, Family Myrtaceae, also known as Charmhaven Apple, is a small to large tree, up to 8 m high. It is often multi-stemmed. The bark consists of short fibres and the flowers are creamy white (Benson & McDougall, 1998). Flowering takes place principally between mid-December and mid-January, but is generally poor and sporadic.

Conservation Status

Angophora inopina 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 vulnerable under the *Threatened Species Conservation Act 1995* (NSW).

Distribution and Habitat

Angophora inopina is found in open dry sclerophyll woodland of *Eucalyptus haemastoma* and *Corymbia gummifera* with a dense shrub understorey. The woodland occurs on deep white sandy soils over sandstone, often with some gravelly laterite (NSW Scientific Committee, 1998). This species produces lignotubers (swelling at the base of the stem or just under the soil). While this promotes vegetative growth following disturbance, it may suppress the production of fruits and seeds.

This species occurs within the Hunter–Central Rivers (NSW) Natural Resource Management Region. It has a patchy distribution, ranging from of Lake Macquarie to north of the Hunter River (Tierney, 2004). The largest and most intact stands occur in the Wyong and Lake Macquarie local government areas, where approximately 1250 ha of occupied habitat have been mapped (Wyong Shire Council, 2003). The known distribution of the species covers an area which is being rapidly developed (NSW Scientific Committee, 1998).

The distribution of this species overlaps with the ‘White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland’ EPBC Act-listed threatened ecological community.

Threats

The main identified threats to *A. inopina* are habitat loss, fragmentation and water table alteration from residential, agricultural and industrial developments; frequent fire; grazing and trampling by animals; and competition from weeds, in particular Whiskey Grass (*Andropogon virginicus*) (NSW Scientific Committee, 1998; Bell, 2004).

Research Priorities

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

- Design and implement a monitoring program.

Regional Priority Actions

The following regional priority actions and threat abatement actions can be done to support the recovery of *Angophora inopina*.

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.
- Manage threats to areas of vegetation that contain populations/occurrences/remnants of *A. inopina*.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on *A. inopina*.
- Ensure development activities (residential, agricultural and industrial) in areas where *A. inopina* occurs do not have a significant adverse impact on known populations.
- Manage any changes to hydrology which may result in changes to the water table levels, increased run-off, sedimentation or pollution.
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.

Invasive Weeds

- Develop and implement a management plan for the control of Whiskey Grass in the local region.

Trampling, Browsing or Grazing

- Develop and implement a stock management plan for roadside verges and travelling stock routes.
- Develop and implement a management plan for grazing by domestic animals.

Fire

- Develop and implement a suitable fire management strategy for *A. inopina*.
- 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.

Conservation Information

- Raise awareness of *A. inopina* within the local community.

Enable Recovery of Additional Sites and/or Populations

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

Local Priority Actions

The following local priority recovery and threat abatement actions can be done to support the recovery of *Angophora inopina*.

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.
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants.
- Minimise adverse impacts from land use at known sites.

Invasive Weeds

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

Trampling, Browsing or Grazing

- Manage known sites on private property to ensure appropriate grazing regimes are conducted outside the growing season.
- Prevent grazing pressure at known sites on leased crown land through exclusion fencing or other barriers.

Fire

- Identify appropriate intensity and interval of fire to promote seed germination (noting that some relevant work has already been done) (Tierney, 2004).

This list does not necessarily encompass all actions that may be of benefit to *A. inopina*, 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

- NSW Priority Action Statement for *Angophora inopina* (DEC, 2005).

Information Sources:

Bell, SAJ 2004, 'Distribution and habitat of the vulnerable tree species, *Angophora inopina* (Myrtaceae), on the Central Coast of New South Wales', *Cunninghamia*, vol. 8, pp. 477-484.

Benson, D & McDougall, L 1998, 'Ecology of Sydney plant species: Part 6 Dicotyledon family Myrtaceae', *Cunninghamia*, vol. 5, pp. 809-987.

Department of Environment & Conservation New South Wales (DEC) 2005, *A. inopina (Angophora inopina) - Priority actions* (New South Wales Threatened Species Priority Action Statement), viewed 11 March 2008, <<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10053>>.

New South Wales Scientific Committee 1998, *Final Determinations of the New South Wales Scientific Committee*, viewed 11 March 2008, <<http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Angophora+inopina+a+tree+-+vulnerable+species+listing>>.

Tierney, DA 2004, 'Towards an understanding of population change for the long-lived resprouting tree *Angophora inopina* (Myrtaceae)', *Australian Journal of Botany*, vol. 52, pp. 31-38.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M and Rosetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia – Second edition*, Australian Network for Plant Conservation, Canberra.

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