

This conservation advice was approved by the Minister / Delegate of the Minister on: 3/07/2008.

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

**Approved Conservation Advice for
Olax angulata (Minnie Waters Olax)**

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

Description

Olax angulata, Family Olacaceae, also known as Minnie Waters Olax or Square-stemmed Olax, is an erect shrub to about 1 m high, that may be at least partially parasitic on surrounding vegetation. It has flat, elliptic, blue-green or yellowish-green leaves with a short apical point, which are arranged in two rows along the prominently angular stems. The species flowers in spring, producing single small white flowers among the upper leaves. The flowers are probably unisexual, with male and female flowers on separate plants. The fruit are egg-shaped, glossy, yellowish-green, single-seeded, and often present at the same time as some flowers (George, 1984; Gardner, 1992; NSW NPWS, 2002; DECC, 2005a).

Conservation Status

Minnie Waters Olax 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 Schedule 2 of the *Threatened Species Conservation Act 1995* (NSW).

Distribution and Habitat

Minnie Waters Olax is known only from a small area east of Grafton, on the NSW north coast, near Minnie Waters and Wooli. It occurs mainly within Yuraygir National Park and on nearby Crown leasehold land (Quinn et al., 1995). The species is locally common in these areas, with the main population near Minnie Waters comprising about 5500 individuals. A disjunct population in Banyabba Nature Reserve was discovered in 2006, which contains about ten plants (Redman, pers. comm., 2008). Minnie Waters Olax is often associated with Wallum Banksia (*Banksia aemula*) and grows in sandy soils in low-lying coastal heaths and in heathy woodlands near swamps (Gardner, 1992; DECC, 2005a).

This species occurs within the Northern Rivers (NSW) Natural Resource Management Region.

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

Threats

The main identified threats to Minnie Waters Olax include invasion of its habitat by weeds, particularly Bitou Bush (*Chrysanthemoides monilifera* subsp. *rotundata*) and frequent and/or hot fire (NSW NPWS, 2002). The species is known to sprout after fire from basal stem buds and from soil-stored seed (Sheringham & Westaway, 1995), but Quinn et al. (1995) report that a severely burnt population near Illaroo camping area did not appear to have regenerated after seven months. Germination of a large number of seedlings was observed in a small area behind a dune near Minnie Waters in late 2006 after a period of drought. This was possibly due to a combination of factors including aspect, exposure and prolonged dry weather (Redman, pers. comm. 2008).

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The main potential threats to Minnie Waters Olax include clearing of habitat for urban development, track widening, track and road maintenance, and trampling by visitors (NSW NPWS, 2002).

Research Priorities

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

- More precisely assess population size, distribution, ecological requirements and the relative impacts of threatening processes.
- Investigate seed viability, dormancy, longevity and factors affecting germination, in natural environment and in storage (DECC, 2005b).
- Undertake survey work in suitable habitat and potential habitat to locate any additional populations/occurrences/remnants, including survey of areas adjacent to Fortis Creek to determine status of the species there (DECC, 2005b).

Regional and Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Minnie Waters Olax.

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 Minnie Waters Olax.
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Minnie Waters Olax populations.
- Ensure road and track widening and maintenance activities in areas where Minnie Waters Olax occurs do not adversely impact on known populations.
- Protect known and potential habitat from clearing and development.
- Consider populations of Minnie Waters Olax on land controlled by Clarence Valley Council during environmental and operational planning as well as during biodiversity certification of environmental planning instruments (DECC, 2005b).
- Control access routes to suitably constrain public access to known sites on public land.
- Suitably control and manage access on private land.
- Assess status of Crown Land in the Minnie Waters area and examine its potential for protection status upgrading.
- Minimise adverse impacts from land use at known sites, especially populations identified in areas of high visitor use (DECC, 2005b).
- Investigate formal conservation arrangements such as the use of covenants, conservation agreements or inclusion in reserve tenure.

Invasive Weeds

- Implement the recommendations of the NSW Threat Abatement Plan for control of Bitou Bush in the local region (DEC, 2006).
- Identify and remove weeds in the local area, which could become a threat to Minnie Waters Olax, using appropriate methods. Prioritise sites for weed management and implement control measures.
- Manage sites to prevent introduction of invasive weeds, which could become a threat to Minnie Waters Olax, using appropriate methods.

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Fire

- Develop and implement a suitable fire management strategy for Minnie Waters Olax. In accordance with the NSW Rural Fire Service's Bush Fire Environmental Assessment Code (RFS, 2004a) and its component Threatened Species Hazard Reduction List, Part 1: Plants (RFS, 2004b), populations should not be burnt more than once every ten years. Mechanical forms of hazard reduction including slashing, trittering (simultaneous mowing and mulching) and tree removal should not be used in areas where the species is known to occur.
- Identify appropriate intensity and interval of fire to promote seed germination and/or 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.
- Implement draft fire management strategy for Yuraygir National Park (DEC, 2005) by excluding fire from areas with known populations of Minnie Waters Olax or, if fire is unavoidable restricting it to less than 10% of a local population within any burn.
- Avoid use of earthmoving equipment or fire retardant in areas where the species is known to occur (DEC, 2005).

Conservation Information

- Raise awareness of Minnie Waters Olax within the local community.
- Liaise with local Coastcare and Landcare groups to co-operate in the management of known populations.

Enable Recovery of Additional Sites and/or Populations

- Undertake appropriate seed collection and storage in collaboration with the Royal Botanic Gardens and for the NSW Seedbank (BGT, 2008).
- 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 Minnie Waters Olax, 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

- Yuraygir National Park and Yuraygir State Conservation Area Plan of Management (NSW NPWS, 2003),
- NSW Priority Action Statement for *Olax angulata* (DECC, 2005b),
- Yuraygir National Park and State Conservation Area Draft Fire Management Strategy (DEC, 2005),
- NSW Threat Abatement Plan for Invasion of Native Plant Communities by *Chrysanthemoides monilifera* (bitou bush and boneseed) (DEC, 2006), and
- Threatened Species Hazard Reduction List—Part 1: Plants (RFS, 2004b).

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

Information Sources:

Botanic Gardens Trust (BGT) 2008, 'NSW Seed Bank', viewed 27 March 2008
<http://www.rbg Syd.nsw.gov.au/science/hot_science_topics/nsw_seedbank>.

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Department of Environment & Climate Change NSW (DECC) 2005a, *Square-stemmed Olax (Olax angulata)—Profile*, viewed 27 March 2008,

<<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10574>>.

Department of Environment & Climate Change NSW (DECC) 2005b, *Square-stemmed Olax (Olax angulata)—Priority Actions*, viewed 27 March 2008,

<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/pas_profile.aspx?id=10574>.

Department of Environment & Conservation NSW (DEC) 2005, *Yuraygir National Park and State Conservation Area Draft Fire Management Strategy*, Department of Environment & Conservation, Sydney South, NSW.

Department of Environment & Conservation NSW (DEC) 2006, *NSW Threat Abatement Plan—Invasion of native plant communities by Chrysanthemoides monilifera (bitou bush and boneseed)*, Department of Environment & Conservation, Hurstville, NSW.

Gardner, CL 1992, 'Olacaceae', in *Flora of New South Wales*, ed. GJ Harden, University of NSW Press, Kensington, NSW, vol. 3, p. 45.

George, AS 1984, 'Olacaceae' in *Flora of Australia*, ed. AS George, Australian Government Publishing Service, Canberra, ACT, vol. 22, p. 25.

NSW National Parks and Wildlife Service (NPWS) 2002, *Threatened Species of the Upper North Coast of NSW: Flora*, NSW National Parks and Wildlife Service, Coffs Harbour, NSW.

NSW National Parks and Wildlife Service (NPWS) 2003, *Yuraygir National Park and Yuraygir State Conservation Area Plan Of Management*, NSW National Parks and Wildlife Service, Grafton, NSW.

NSW Rural Fire Service (RFS) 2004a, *Bushfire Environmental Assessment Code*, viewed 27 March 2008, <http://www.rfs.nsw.gov.au/file_system/attachments/State/Attachment_20060201_50568EEE.pdf>.

NSW Rural Fire Service (RFS) 2004b, *Threatened Species Hazard Reduction List—Part 1: Plants*, viewed 27 March 2008,

<http://www.rfs.nsw.gov.au/file_system/attachments/State/Attachment_20050304_5C7BDF1C.pdf>.

Quinn, FC, Williams, JB, Gross, CL & Bruhl, JJ 1995, 'Olax angulata A.S.George' in *Report on rare and threatened plants of north-eastern New South Wales*, prepared for New South Wales National Park and Wildlife Service and Australian Nature Conservation Agency, pp. 182–3.

Redman, D (National Parks & Wildlife Services NSW). Personal communication. 13 March 2008.

Sheringham, P & Westaway, J 1995, *Significant Vascular Plants of Upper North-eastern New South Wales: A Report by the NSW National Parks and Wildlife Service to the Natural Resources Audit Council*, NSW National Parks and Wildlife Service, Hurstville, NSW.

Vallee, L, Hogbin, T, Monks, L, Makinson, B, Matthes, M & Rossetto, M 2004, *Guidelines for the Translocation of Threatened Plants in Australia - Second Edition*, Australian Network for Plant Conservation, Canberra.