

## Approved Conservation Advice for *Acacia bynoeana* (Bynoe's wattle)

(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 and draft plans, records or management prescriptions for this species.

### Description

*Acacia bynoeana* (Bynoe's wattle) family Mimosaceae, also known as the tiny wattle, has a prostrate habit (Cowan, 2001), with stems lying on the ground but rising at the tip. Bynoe's wattle grows to 0.3 m high, with ribbed branchlets (Cowan, 2001). The inflorescences are simple, with globular heads (3.5-4 mm in diameter) borne on short hairy stems, bearing 16-20 light golden flowers (Cowan, 2001). Pods are tapered to both ends and seeds are longitudinal, oblong, 4 – 4.5 mm long, dull, mottled-brown (Cowan, 2001).

The single flower heads can appear between September and March, and seedpods mature between September and January (NSW OEH, 2012). The hairy branchlets distinguish Bynoe's wattle from the similar and more common three-veined wattle (*Acacia trinervata*) (NSW OEH, 2012).

### Conservation Status

*Acacia bynoeana* 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 endangered in New South Wales under the *Threatened Species Conservation Act 1995*.

### Distribution and Habitat

Bynoe's wattle is found in central eastern NSW, from the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains (NSW OEH, 2012). The species is currently known from about 30 locations, with the size of the populations at each location being very small (generally 1-5 plants) with only a few sites with 30-50 individuals (NSW OEH, 1999). It has recently been found in the Colymea and Parma Creek areas west of Nowra (NSW OEH, 2012). Bynoe's wattle occurs in heath or dry sclerophyll forest on sandy soils (NSW OEH, 2012). The species apparently prefers open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches (NSW OEH, 2012). However, due to the fragmented nature of the populations and their small size, the species is susceptible to heavy disturbance (NSW OEH, 1999).

Most of the known sites are not reserved, although populations are known from several reserves including Marramarra National Park, Castlereagh Nature Reserve, and Blue Mountains National Park (NSW OEH, 1999). Recent vegetation surveys in Royal National Park have not located the species. The species was also known from one site within Ku-ring-gai Chase National Park, but several subsequent searches of the site have failed to find any plants (NSW OEH, 1999).

The species occurs within the South East Highlands and Sydney Basin IBRA Bioregions, and the Hunter-Central Rivers and Hawkesbury-Nepean Natural Resource Management Regions.

The distribution of this species overlaps with the following EPBC Act-listed threatened ecological communities:

- Upland Basalt Eucalypt Forests of the Sydney Basin Bioregion
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland
- Western Sydney Dry Rainforest and Moist Woodland on Shale
- Temperate Highland Peat Swamps on Sandstone
- Shale/Sandstone Transition Forest
- Blue Gum High Forest in the Sydney Basin

### Threats

The main identified threats to Bynoe's wattle are (NSW OEH, 1999; 2012):

- Land clearing, leading to habitat loss and fragmentation
- Inappropriate habitat disturbance, noting that a level of disturbance is possibly required for species maintenance. Inappropriate disturbance can include extensive road, trail and power line maintenance, and a high frequency of vehicle use. As specimens are often found on trail margins, plants can be damaged by recreational vehicles, horse riding and pedestrian use
- Fragmentation of the populations. Due to the fragmented nature of the populations, their small size, fire mitigation activities and the proximity of urbanisation, the species is susceptible to catastrophic events and localised extinction
- Invasion of the species' habitat by weeds

The main potential threat to Bynoe's wattle is (NSW OEH, 1999; 2012):

- Inappropriate fire regimes. It is likely that Bynoe's wattle requires a low level of fire disturbance, but it can only cope with fires no more frequently than every 10-12 years (NSW OEH, 2012). More frequent and/or intense burning could threaten the species' survival

### Research Priorities

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

- Developing and implementing a monitoring program to determine trends in population numbers, recruitment and mortality, timing of life history stages, threats and the impacts of threat abatement activities. Implementing an annual monitoring and research program for all populations
- Identifying appropriate disturbance regimes that promote survival of the species (e.g. burning trials to determine optimal fire regimes for regeneration, such as vegetative regrowth and/or seed germination, and response to other prevailing fire regimes)
- More precisely assessing population size, distribution, ecological requirements and the relative impacts of threatening processes. Acquiring baseline population data on distribution, abundance and threats to known populations
- Accurately identifying and undertaking survey work in potentially suitable habitat to locate any additional populations
- Accurately surveying critical habitat, and producing maps identifying such habitat
- Establishing and implementing a method for investigating the effects of possible grazing by herbivores

## Regional/Local Priority Actions

The following regional and local priority recovery and threat abatement actions can be done to support the recovery of Bynoe's wattle:

### Habitat Loss, Disturbance and Modification

- Investigate formal conservation arrangements, management agreements and covenants on private land, and for crown and private land investigate and/or secure inclusion in reserve tenure if possible
- Monitor known populations to determine the species' status
- Monitor the progress of recovery, including the effectiveness of management actions and the need to adapt them if necessary
- Ensure there is no inappropriate disturbance in areas where Bynoe's wattle occurs, excluding necessary actions to manage the conservation of the species
- Implement a Roadside Marker Scheme (RMS) on roadside reserve populations, and encourage the responsible authority to appropriately manage the population(s). Meetings to be held with relevant councils and road authorities to discuss the implementation of the roadside marker scheme and management of these areas. Roadside markers are to be installed at 100% of recommended roadside reserve populations (Obst, 2005). Alert road and track maintenance staff to the presence of this threatened species, and mark Bynoe's wattle habitat onto maps used for planning road maintenance work (NSW OEH, 2012)
- Establish populations in cultivation (if natural populations reach critically low levels – less than 50 mature individuals)
- Where appropriate, create buffer zones of native vegetation around existing populations
- Improve connectivity between populations of this species by revegetation projects
- Where possible, limit movement of people through populations of Bynoe's wattle, use signs to alert visitors to the presence of this species, and advise how their behaviour can affect its survival (NSW OEH, 2012)

### Invasive Weeds

- Develop and implement a management plan for the control of all identified weeds in the region
- Ensure chemicals or other mechanisms used to eradicate weeds do not have a significant adverse impact on Bynoe's wattle

### Fire

- Develop and implement a suitable fire management strategy for the habitat of Bynoe's wattle. It is likely that the species can cope with fires no more frequently than every 10-12 years (NSW OEH, 2012). More frequent hazard reduction burning could threaten the species' survival. Ensure that personnel planning and undertaking hazard reduction burns are able to identify the species and are aware of its habitat (NSW OEH, 2012)
- Implement fire regimes which maintain floristic and structural diversity. Until optimal fire frequency is known, avoid repeated burning of habitat at intervals of less than five years (NSW OEH, 2012)
- Where appropriate 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
- Mark localities where Bynoe's wattle occurs onto maps used for planning hazard reduction work (NSW OEH, 2012)

### Conservation Information

- Raise awareness of Bynoe's wattle within the local community, and encourage community involvement in surveys. Build a network of government and nongovernment organisations and individuals to support management actions
- Engage interested nature conservation, land management and landholder groups in the activities of the program. Develop a fact sheet on this species including information on ecology, distribution and threats
- Support and encourage stakeholders across the region to actively develop skills and knowledge in managing this species. Use workshops to aid stakeholders in developing the skills and knowledge required to manage this species
- To manage the risk of losing genetic diversity, undertake appropriate seed collection and storage. Seeds from representative natural populations to be collected and stored
- Implement national translocation protocols (Vallee et al., 2004) if establishing additional populations is considered necessary and feasible
- Develop and maintain a database to efficiently and securely store survey and monitoring data

This list does not necessarily encompass all actions that may be of benefit to Bynoe's wattle, but highlights those that are considered to be of highest priority at the time of preparing the Approved Conservation Advice.

### **Existing Plans/Management Prescriptions that are Relevant to the Species**

- White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands. EPBC Act policy statement: nationally threatened species and ecological communities guidelines (DEH, 2006)
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland National Recovery Plan (NSW DECCW, 2010)

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

### **References**

- Cowan RS (2001). *Acacia bynoeana*. *Flora of Australia Online*. Australian Biological Resources Study, Canberra. Viewed 5 September 2013.  
Available on the Internet at:  
<http://www.environment.gov.au/biodiversity/abrs/online-resources/flora/index.html>
- Department of the Environment and Heritage (DEH) (2006). *White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands*. EPBC Act policy statement: nationally threatened species and ecological communities guidelines. DEH, Canberra.
- New South Wales Department of Environment, Climate Change and Water (NSW DECCW) (2010). *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland National Recovery Plan*. NSW DECCW, Sydney.
- New South Wales Office of Environment and Heritage (NSW OEH) (1999). *Acacia bynoeana* (a shrub) - endangered species listing, NSW Scientific Committee - final determination.  
Available on the Internet at:  
<http://www.environment.nsw.gov.au/determinations/AcaciaBynoeanaEndSpListing.htm>

New South Wales Office of Environment and Heritage (NSW OEH) (2012). Bynoe's wattle – profile.

Available on the Internet at:

<http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10006>

Obst C (2005). *South Australian Murray Darling Basin Threatened Flora Recovery Plan*. Report to the Threatened Species and Communities Section, Australian Government Department of the Environment and Heritage, Canberra.

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.