

NSW SCIENTIFIC COMMITTEE

Eucalyptus approximans Maiden (Myrtaceae)

Review of Current Information in NSW

January 2008

Current status:

The NSW Scientific Committee recently determined that *Eucalyptus approximans* meets criteria for listing as Vulnerable in NSW under the *Threatened Species Conservation Act 1995* (TSC Act), based on information contained in this report and other information available for the species. *Eucalyptus approximans* is currently not listed under Commonwealth legislation.

Species description:

Eucalyptus approximans is described by Hill (2002, p. 158) as follows: "Mallee to 5 m high; bark smooth, white, green or grey, shedding in ribbons. Juvenile leaves disjunct, lanceolate, glossy green. Adult leaves disjunct, narrow-lanceolate, 7-10 cm long, 0.6-0.9 cm wide, green, glossy, concolorous. Umbellasters 7-flowered; peduncle terete, 4-10 mm long; pedicels terete, 1-4 mm long. Buds clavate, 3-6 mm long, 3-4 mm diam., scar absent; calyptra hemispherical, shorter than and as wide as hypanthium, minutely warty. Fruit cylindrical or hemispherical, 6-8 mm long, 5-7 mm diam.; disc flat; valves enclosed."

Taxonomy:

There has been some confusion as to the nomenclature surrounding this species. *Eucalyptus approximans* was originally described by Joseph Maiden in 1920 from Barren Mountain in north-eastern NSW. Since this original description two other mallee Eucalypts, *E. codonocarpa* and *E. microcodon*, have occasionally been included within a broadly circumscribed *E. approximans*. Brooker (2000; 2006), for example, believed *E. codonocarpa* and *E. microcodon* to be the same entity and placed them both under the name of *E. approximans* subsp. *codonocarpa*. The plants on Barren Mountain were treated by Brooker (2000; 2006) as *E. approximans* subsp. *approximans*. Bean (1997) also treated *E. codonocarpa* and *E. microcodon* as synonymous but gave this entity specific rank i.e. *E. codonocarpa*. Bean (1997) also recognised the population of plants on Barren Mountain as a narrow endemic but, in contrast to Brooker (2000; 2006), at specific rank i.e. *E. approximans*. Hill (2002) treated all three taxa as distinct species and agreed with Bean (1997) that the name *Eucalyptus approximans* should only refer to the taxon growing on Barren Mountain.

In this report, the name '*Eucalyptus approximans*' is applied in the strict sense (i.e. plants from Barren Mountain only) consistent with the original listing under the NSW TSC Act when it commenced in 1995. This taxonomic concept is also consistent with (Hill 2002) but it should be noted that it still conflicts with the latest published treatment by Brooker & Kleinig (2006). All taxonomists, however, agree that the plants on Barren Mountain are a distinct taxon and the contention simply refers to the rank at which it should be recognised.

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Distribution and number of populations:

Eucalyptus approximans, in the strict sense, is endemic to Barren Mountain which is located approximately 10 km east of Ebor on the Northern Tablelands of NSW (Figure 1). This area is mostly reserved within New England National Park (NP) although the northern and eastern bases of the mountain are just outside the reserve boundary on privately owned land. The vegetation structure varies greatly across Barren Mountain (Clarke *et al.* 2000) with the stands of *E. approximans* typically interrupted by areas of wet and dry heath on waterlogged and rocky soils respectively (expert advice). Despite this patchiness of the species occurrence on Barren Mountain, it is appropriate to consider the whole area as containing a single, more or less continuous population of *E. approximans*. All the mallees across the range are likely to have the potential to interbreed and the alternative of recognising a very large number of small subpopulations, usually separated only by tens of metres, would be impractical.

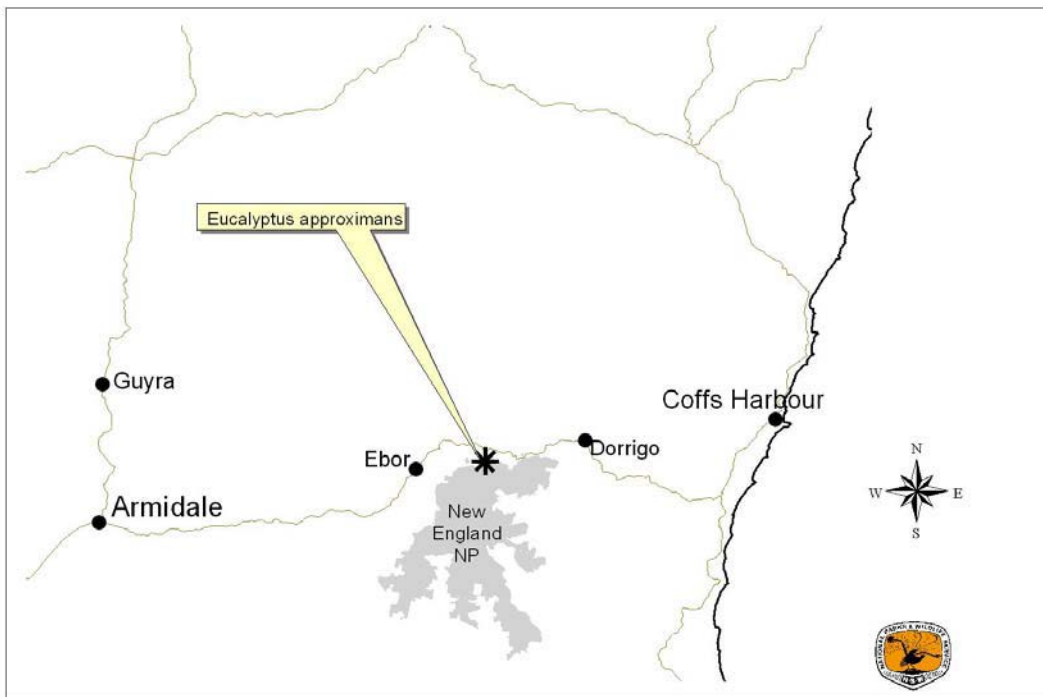


Figure 1: The distribution of *Eucalyptus approximans* in north-eastern NSW.

Ecology:

Key habitat requirements

All known stands of *E. approximans* occur in shallow soils derived from trachyte. *Eucalyptus approximans* usually forms very dense clumps with numerous shrubs, ferns and sedges beneath them (expert advice). These stands were recognised as a distinct vegetation community ('Plateau Mallee Scrub') in a vegetation survey of New England NP by Clarke *et al.* (2000). *Eucalyptus approximans* rarely coexists with other species of *Eucalyptus*, as its preferred substrate is usually too shallow for the other trees to inhabit. The altitude of the area ranges from 1250 m – 1430 m above sea level and most stands are on relatively flat or northerly facing aspects.

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Life history

Like other mallee Eucalypts, *E. approximans* has been observed to resprout from a basal lignotuber after fire (Clarke *et al.* 2000). Harris (1982) has speculated that regular fires may be important for *E. approximans* as these fires could possibly give the species a competitive advantage over the other woody species on Barren Mountain.

Number of mature individuals:

There are currently no estimates available of the population size of *E. approximans*. Across Barren Mountain it is known to be 'locally abundant' (NSW NPWS 2003) and there are numerous herbarium specimens with labels all citing the species as common or abundant. Fieldwork conducted over around 10 days found the species to range from scattered individuals to extremely common over most of Barren Mountain (expert advice). A very conservative estimate would be a minimum of 2 000 mature individuals, although it is likely that a more systematic approach would reveal far greater numbers.

Threats:

The vast majority of individuals of *E. approximans* are conserved within New England NP although a few scattered plants occur just outside the reserve on private property (expert advice). The landholder is aware of the significance of *E. approximans* and has no plans to disturb the few individuals on his property (expert advice). These scattered mallees are in relatively steep, rocky areas of little value for farming.

At present, there appears to be no obvious threats to *E. approximans*, although inappropriate fire regimes and long-term climate change may threaten the species in the future. It has been suggested that fire intervals of less than 10 years may be too frequent to allow regeneration of *E. approximans* (NSW NPWS 2003). There have been at least three wildfire events on Barren Mountain in the last 40 years (Clarke *et al.* 2000), however, and there is no evidence that the species has declined over recent decades. Current management of New England NP aims to maintain a fire regime around Barren Mountain that caters for the persistence of rare species including *E. approximans*.

Extreme fluctuations:

There are no records of the population size of *E. approximans* through time that provide insight into whether the species is prone to extreme fluctuations. However, given that the species is relatively long-lived, is able to survive wildfires, and is not subject to any other forms of disturbance, it is likely that the population numbers are reasonably stable.

Population reduction and continuing declines:

There is no evidence to suggest a decline in population numbers either in the past or projected into the future. Field observations over several years (expert advice) have found very few dead mallees, further suggesting that mortality rates have been very low.

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Extent of Occurrence (EOO) & Area of Occupancy (AOO):

EOO and AOO are the same for a species with a single continuous population. All occurrences of *E. approximans* are within 4 km², based on a 2 x 2 km grid, the spatial scale of assessment recommended by the IUCN (2008).

Severe fragmentation:

There are no records of *E. approximans* ever having occurred anywhere other than Barren Mountain, and there is no clearing or disturbance within the known EOO. There is therefore no evidence that the population is severely fragmented.

References:

- Bean AR (1997) Notes on *Eucalyptus* ser. *Psathyroxyla* Blakely (Myrtaceae) and other 'Ash group' eucalypts. *Austrobaileya* **5**, 134.
- Brooker MIH (2000) A new classification of the genus *Eucalyptus* L'Her. (Myrtaceae). *Australian Systematic Botany* **13**, 127.
- Brooker MIH, Kleinig DA (2006) 'Field Guide to Eucalypts, Vol. 1: South-eastern Australia. 3rd Edition.' (Blooming Books: Melbourne)
- Clarke PJ, Copeland LM, Noble NE (2000) 'The vegetation and plant species of New England National Park.' University of New England (Botany), Armidale
- Harris KW (1982) Fire Management Plan, Barren Mountain, New England National Park. B.Nat.Res. thesis, University of New England, Armidale.
- Hill KD (2002) *Eucalyptus*. In 'Flora of New South Wales. Vol. 2; Revised Edition.' (Ed. G.J. Harden) pp. 96-164. (University of New South Wales Press: Sydney)
- IUCN (2008) 'Guidelines for using the IUCN Red List Categories and Criteria. Version 7.0.' (Standards and Petitions Working Group of the IUCN Species Survival Commission Biodiversity Assessments Sub-committee: Switzerland).
(<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).
- NSW NPWS (2003) 'Threatened Species of the New England Tablelands and North West Slopes of New South Wales.' NSW National Parks & Wildlife Service, Coffs Harbour.

Explanatory note

Between 2007 and 2009 the NSW Scientific Committee undertook a systematic review of the conservation status of a selection of plant and animal species listed under the Threatened Species Conservation Act. This species summary report provides a review of the information gathered on this species at the time the Review was undertaken.

The Scientific Committee's report on the Review of Schedules project and final determinations relating to species that were either delisted or had a change in conservation status can be found on the following website: www.environment.nsw.gov.au .

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The Committee gratefully acknowledges the past and present Committee members and project officers who ably assisted the Committee in undertaking the Review of Schedules Project. Information on the people involved in the project can be found in the Acknowledgement section of the project report entitled “Review of the Schedules of the Threatened Species Conservation Act 1995. A summary report on the review of selected species” which is available on the abovementioned website.

This species summary report may be cited as:

NSW Scientific Committee (2008) *Eucalyptus approximans* Review of current information in NSW. January 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.