



White Box Yellow Box Blakely's Red Gum Woodland (Box-Gum Woodland)

Introduction

These guidelines provide background information and assist land managers and approval authorities to identify remnants of White Box Yellow Box Blakely's Red Gum Woodland (hereafter referred to as Box-Gum Woodland) Endangered Ecological Community (EEC). The Scientific Committee published this Determination on 15/3/2002. Copies of the Determination are available on the NPWS website at

<http://www.npws.nsw.gov.au/news/tscdets/f020315a.htm>

Text in italics in this document is taken from the Final Determination, unless otherwise indicated.

What is Box-Gum Woodland?

Box-Gum Woodland is characterised by the presence or prior occurrence of White Box, Yellow Box or Blakely's Red Gum. The EEC occurs predominantly on the western slopes of NSW from Victoria to Queensland on soils that are moderately to highly fertile. Consequently, Box-Gum Woodland has been extensively cleared and modified by thinning, clearing, grazing, pasture improvement and cultivation. Remaining stands of Box-Gum Woodland are generally highly fragmented. Less than 5% of the pre-European extent is estimated to remain in the south and up to 10% in the north of the State. Less than 0.5% is estimated to retain pre-European levels of diversity and species composition.

The Final Determination defines Box-Gum Woodland broadly. There are five main features in the Determination that govern whether the EEC exists at a site:

1. Whether the site is within the area defined in the Determination.
2. Whether the characteristic trees of the site are (or are likely to have been) White Box, Yellow Box or Blakely's Red Gum.
3. Whether the site is mainly grassy.

4. Whether any of the listed characteristic species occur (including as part of the seedbank in the soil).
5. If the site is degraded, whether there is potential for assisted natural regeneration of the overstorey or understorey.

It is important to note that the size or ages of the remnant are not determining factors as to whether it constitutes the listed EEC or not.

The condition of remnants of this EEC varies. Examples of the various conditions the community may occur in include:

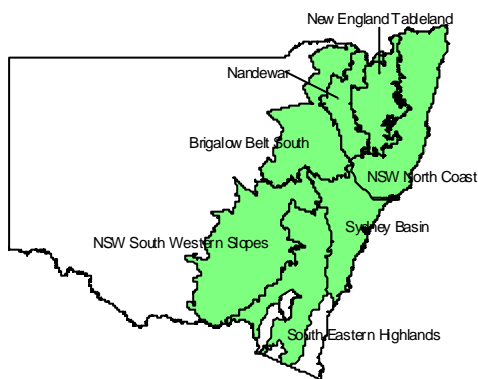
1. Multi-aged overstorey with a grassy, herb-rich understorey:
 - Remnants in this condition are very scarce and are generally confined to travelling stock reserves, roadside vegetation, cemeteries, some national parks and the occasional private property.
2. Partially cleared/thinned stands with a mixture of native and exotic understorey species:
 - This condition is far more common than the above, however its long-term future is often insecure due to inadequate regeneration of overstorey species. Often current management (e.g. set-stocking) is inconsistent with tree regeneration.
3. Stands where White Box, Yellow Box or Blakely's Red Gum have been killed and other species dominate the canopy:
 - This condition occurs in woodlands where the characteristic trees occur in conjunction with White Cypress Pine. The understorey is often in reasonable to very good condition.
4. Grasslands (secondary or derived grasslands), where the tree overstorey has been removed and only the Box-Gum Woodland understorey is present:
 - This condition is likely to be reasonably common in some areas

and is likely to be relatively easy to rehabilitate if appropriate management strategies are implemented.

5. Degraded remnants that have few, if any, native species in the understorey:
 - This condition is typical of Box-Gum Woodland where agricultural practices have been more intensive (e.g. pasture improvement over long periods).

Where is Box-Gum Woodland found?

Box-Gum Woodland is found on relatively fertile soils on the tablelands and western slopes of NSW, extending from an altitude of approximately 170 m on the lower slopes to and including the tablelands. Rainfall is between 400 and 800 mm with a slight winter dominance in the south to a slight summer dominance in the north. According to the Final Determination, the EEC is confined to the IBRA bioregions (EA 2000) as mapped below.



The overstorey

The characteristic trees are White Box, Yellow Box or Blakely's Red Gum. The density of trees is not relevant to the existence of the EEC. Where White Box, Yellow Box or Blakely's Red Gum trees have been killed, and the overstorey is now dominated by other species (e.g. White Cypress Pine), the EEC still exists (see section on Degraded Sites). The Final Determination specifically includes treeless areas in the EEC "as a result of past clearing or thinning."

The understorey

Box-Gum Woodland includes vegetation where "Grass and herbaceous species generally characterise the ground layer.... Shrubs are generally sparse or absent, though they may be locally common."

The term "locally common" is not defined, but the intent of the statement is that shrubs may be

dominant over parts of an EEC site. Shrub species are recognised as important constituents of the community as 27 of the 95 characteristic species listed in the Final Determination are shrubs.

However, shrubby woodlands, which generally occur in upper or midslope situations on shallower soils, are not part of the EEC. Such woodlands are more prevalent on hillsides of the North Western Slopes (Nandewar and Brigalow Belt South Bioregions). Where shrubby woodlands dominated by White Box, Yellow Box or Blakely's Red Gum intergrades with the Box-Gum Woodland the more shrub-free sections of the community should be regarded as Box-Gum Woodland.

In some other instances, the shrub layer is primarily *Acacia* spp. or *Cassinia* spp., which are characteristically pioneer colonising species that invade sites after disturbances such as clearing, overgrazing or fires. These species generally only live 10-15 years and are replaced with a predominantly grassy understorey. These areas are regarded as Box-Gum Woodland.

In most locations the understorey will vary considerably depending on the season, management history and rainfall in preceding months. Care in assessing a site is required when a flush of annual exotic species obscures native perennial species. Reassessment of the site after the annuals have died is desirable. Ideally sites should be assessed in both spring and in autumn so that seasonal native species such as orchids, lilies and native annuals can be identified.

Characteristic species

The Final Determination of Box-Gum Woodland has a list of 95 species that are characteristic of the community.

The Final Determination for Box-Gum Woodland, in common with other Endangered Ecological Community Determinations, states, "In any particular site not all the assemblage listed above may be present. At any one time, seeds of some species may only be present in the soil seed bank with no above-ground individuals present". Hence the potential of the seedbank must be considered when assessing degraded sites.

The NSW *Threatened Species Conservation Act*, 1995 defines an ecological community as "an assemblage of species occupying a particular area." Thus any EEC includes species occurring in association with the species listed as characteristic for the community.

For example, Box-Gum Woodland includes fauna and fungi, although these groups are not included in the lists of characteristic species.

Fauna

Many sites may be degraded and yet remain important for fauna. Fauna habitat value of individual trees is dependent on a number of features. Generally large old trees have greater value to fauna. Such trees support a diverse and abundant array of insects and the animals that feed upon them, and have numerous hollows, cracks or fissures that provide shelter and nesting sites.

Mature box and gum trees readily form hollows and thus provide important habitat for hollow-dependent fauna such as Squirrel Gliders, Barking Owls and Superb Parrots. Critically, in some areas, White Box and Yellow Box provide significant nectar flows during winter when such resources are crucial for threatened species such as the Regent Honeyeater and Swift Parrot. Large old trees on more fertile sites have been observed to produce more significant nectar flows for fauna than nearby trees on poorer sites such as hillsides.

Degraded sites

The definition of the Box-Gum Woodland explicitly recognises that some remnants are degraded. Highly disturbed sites that have few if any native species in the understorey are specifically included in the community provided *“vegetation, either understorey or overstorey or both, would, under appropriate management, respond to assisted natural regeneration, such as where the natural soil and associated seed bank are still at least partially intact.”*

In some parts of NSW Box-Gum Woodlands are only represented by isolated paddocks trees with a highly modified understorey. Such remnants or vestiges of the community may still constitute valuable fauna habitat in agricultural areas and may provide a valuable source of seed for potential future regeneration.

Determining whether the vegetation will respond to assisted natural regeneration will often be highly problematic. Sites where there is unlikely to be sufficient seed remaining in the soil for the understorey or overstorey to regenerate are not part of the EEC. For example, trees under which intensive cropping of annual crop species has occurred and is ongoing, and trees within urban backyards are unlikely to be part of the community. Conversely, trees with exotic pastures underneath and those in larger urban

open spaces will generally be part of the community.

Inevitably difficulties will arise when faced with decisions on whether particular sites are able to respond to assisted natural regeneration. Expert advice may need to be sought in these circumstances. One of the recovery actions for this community is the further investigation of the regeneration potential of various conditions of this EEC in a range of environmental situations. Only then will definitive advice be able to be given.

Identifying Box-Gum Woodland

Following is a key for use in determining whether Box-Gum Woodland exists on a site. Where doubt exists over an appropriate category (e.g. whether the site is mainly grassy or is shrubby), use a precautionary approach that assumes that the community is present.

At each stage there are two alternatives. Choose which is most like the site under consideration, and proceed to the alternative numbered in the right margin.

- 1 The site is in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands or NSW South Western Slopes Bioregions: **2**
- 1* The site is outside the above bioregions: **2**
the site is not Box-Gum Woodland
- 2 There are no native species in the understorey, and the site is unlikely to respond to assisted natural regeneration (see section on Degraded Sites, page 3): **2**
the site is not Box-Gum Woodland
- 2* The understorey is otherwise: **3**
- 3 The site has trees: **4**
- 3* The site is treeless, but is likely to have supported White Box, Yellow Box or Blakely's Red Gum prior to clearing: **5**
- 4 White Box, Yellow Box or Blakely's Red Gum, or a combination of these species, are or were present: **5**
- 4* White Box, Yellow Box or Blakely's Red Gum have never been present: **5**
the site is not Box-Gum Woodland
- 5 The site is predominantly grassy: **5**
the site is Box-Gum Woodland
- 5* The understorey of the site is dominated by shrubs excluding pioneer species (see section on The Understorey: page 2): **5**
the site is not Box-Gum Woodland

Determining the conservation value of remnants

The condition of remnants of Box-Gum Woodland varies. The conservation value of a remnant, whatever its condition, will vary according to the locality. For example, whilst Box-Gum Woodland persisting as isolated paddock trees may be of limited conservation value in some areas, in highly modified agricultural landscapes they may be all that remain and thus their loss would be significant.

Additional guidelines are being prepared to assist in determining the local and regional conservation significance of Box-Gum Woodland remnants.

Useful References

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Website: Community Solutions
http://www.communitysolutions.com.au/gwbw_project/index.html

Website: Conservation Management Network
<http://www.conservation-management-networks.net/>

Website: NPWS <http://www.npws.nsw.gov.au>

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