

GRASSY WHITE BOX WOODLANDS

Woodlands v. forests

Woodlands can be distinguished from forests by tree spacing and tree shape. Forest trees have relatively small crowns, whereas those in woodlands often have more than half their height as crown and less than half as trunk (see Figure 1). Trees which commonly have a woodland form are yellow box, white box, blakelys red gum and grey box.

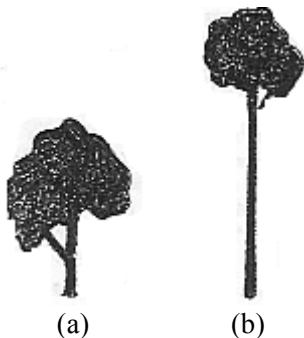


Figure 1. A tree with (a) woodland form and (b) a forest form.

In forests, crowns of the trees touch or overlap, whereas crowns in woodlands are usually separated from one another. Where trees are close together the woodland can appear quite dense but many have a park-like appearance.

Grassy v. shrubby woodlands

Where shrubs are a prominent component of the understorey, the woodland is described as *shrubby*. Where shrubs are absent or infrequent, the woodland is described as *grassy*.

Grassy understoreies can be classified as:

- . *Native*, where native plants predominate
- . *Natural*, where both native and volunteer introduced plants (such as clovers, vulpias and barley grass) are present
- . *Exotic*, where introduced plants, usually pasture species such as phalaris, cocksfoot or sub. clover, are dominant

Grassy woodlands usually occur on fertile sites, whereas shrubby ones are more common

on infertile or rocky sites. In healthy woodlands of both types, juvenile trees will also be present.

In some cases such as the bumble box woodlands, woodlands that were once grassy are now shrubby. The reasons for this change are not clear but depletion of the grassy component by continuous grazing is implicated.

The grassy woodlands were especially favoured by the early settlers as they provided good quality grazing without having to remove trees. Unfortunately, most of those high quality forage plants have long gone. Also, being on relatively fertile land and having low numbers of trees to clear, the grassy woodlands were easily converted into crop land. **Much of NSW's wheatbelt occurs on land that once supported grassy woodlands.**

Though trees provide habitat for larger animals such as birds and possums, and moderate the climate at ground level, **they are only part of the woodland - just one of the many species that occur there.**

White box woodlands

Woodlands where white box (*Eucalyptus albens*) is, or was, the most common tree type are called white box woodlands. White box is virtually the only tree species in some of these woodlands, but in others, cypress pine, kurrajong, tumbledown gum and other boxes such as yellow box may also be common.

Both grassy and shrubby forms of white box woodland occur. The grassy types are now much less common than they once were.

Identifying white box

White box, in common with a number of other box species, has grey to whitish box bark (Figure 2) on the trunk and main branches.



Figure 2. White box bark. All of the tree, apart from the small branches, has this type of bark

White box can sometimes be distinguished from its close relatives by its blue-grey, non-shiny foliage but its *large buds and fruits* with their *waxy greyish-blue bloom* are distinctive and are the most reliable distinguishing characteristics (Figure 3).

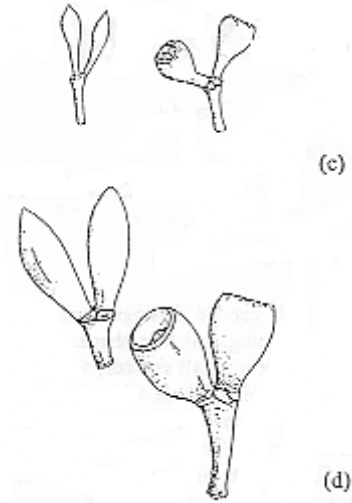
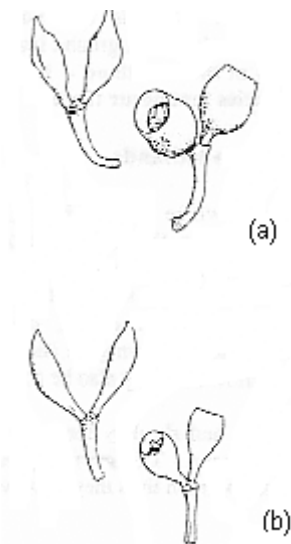


Figure 3. Mature buds and fruits (enlarged) of four closely-related species: (a) grey box (*E. mollucana*), (b) western grey box (*E. microcarpa*), (c) pilliga box (*E. pilligaensis*) and (d) white box (*E. albens*). Inland grey box has a similar distribution to white box, whereas pilliga box occurs in northern NSW and grey box occurs mainly east of the Dividing Range. (From G.J. Harden (1991) *Flora of NSW Vol. 2*. NSW University Press: Kensington)

Where do white box woodlands occur?

Figure 4 shows the distribution of white box. It mainly occurs on the lower tablelands (below about 800 m) and inland slopes from southern Queensland to northern Victoria. Outliers occur in the upper Hunter River and lower Snowy River catchments, western Victoria and south of the Flinders Ranges in South Australia.



Figure 4. Distribution of white box in Australia. (Adapted from D.J. Boland *et al.* (1984) *Forest Trees of Australia* (Thomas Nelson/CSIRO: Melbourne))

Are they important?

These days, *all remaining trees are important*. Their canopies provide protection from sunlight and frost; and compared to cleared paddocks, those with at least 17 scattered trees per hectare can reduce wind speed by 50 to 60 %.

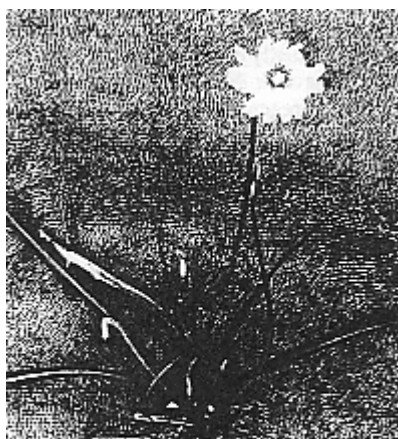
It could be argued that on the slopes and tablelands, the most important function of the remaining trees is their role in reducing the amount of water that gets into the groundwater. If rural landscapes had more perennial plants, particularly those that are active over summer, we wouldn't have a salinity problem (or an acidity problem either).

White box trees are still common but the original woodlands are not. CSIRO scientists estimate that less than 1 % of the original area occupied by grassy white box woodlands is still in a relatively unmodified condition. These areas are mainly in cemeteries and along road/rail corridors.

From a conservation perspective, grassy white box woodlands with a native understorey are extremely rare.

Stands of white box, even with a non-native understorey, aren't that common either. Stands are often small and scattered, which enhances the likelihood of inbred tree seed and invasion by non-native groundstorey species. The non-native understorey largely prevents tree regeneration and any seedlings that do occur are removed by livestock.

The original understorey species such as kangaroo grass, tussock grass, common wheat grass, wallaby grass, chocolate-lily and native yam (Figure 5) have largely disappeared. Regeneration of white box trees is very unlikely. **The grassy white box woodlands are in a state of severe decline.**



What can we do about it?

Unlike old growth forests, stands of wollom pine and mitchell grasslands, the grassy white box woodlands don't have a high profile; we take them for granted.

The first step is to identify them and imagine what the landscape would be like without them as that's their future if regeneration doesn't

Figure 5. Native yam, which has bright yellow daisy-type flowers, is one of the original components of the grassy white box woodlands

occur. Then decide *why* you want to retain particular stands: for the value of the trees only, or for the understorey as well? Or do you want to be particularly ambitious and *restore* the woodland to something like its former condition?

The rarest woodlands are those with a native understorey and most occur on public lands: stock routes, roadsides, cemeteries, etc. Adverse consequences may result if there is a *change* in the way these lands are currently managed. If such a change occurs, start hassling members of Councils, Rural Lands Protection Boards, Trusts and others responsible. Landcare groups can be effective lobbyists. They can also take on the management of these areas.

If a change in management is required, and this will usually be the case where trees are infrequent and/or understorey is not native, think carefully about what you're trying to achieve. For example:

- . Why would you want to introduce lots of native shrubs to a grassy white box woodland?
- . Fencing off is unlikely to result in regeneration of native species if the understorey is mainly non-native (Exotic species usually out compete native ones). You'll have to do more than just fencing if you want regeneration.
- . If tree planting or direct seeding is necessary, and it usually will be, why introduce species of trees that weren't

- Why introduce native plants, or seed, from another area and risk losing the local genetic composition? Also, if you're collecting seed locally, avoid isolated trees as they're likely to have inbred seed.

Experts on regenerating grassy woodlands are rare but try to *discuss your ideas* with someone who seems knowledgeable. There's still a lot to learn about grassy white box woodlands and your efforts could add to that knowledge. *Keep a record* (written and/or photographic) of what you've done.

The fate of the grassy white box woodland is in your hands. For its sake, *do something now.*

Blakelys red gum	<i>Eucalyptus blakelyi</i>
Cypress pine	species of <i>Callitris</i>

Grassy understorey

Kangaroo grass	<i>Themeda australis</i>
Tussock grass	<i>Poa sieberana</i>
Common wheatgrass	<i>Elymus scaber</i>
Chocolate-lily	species of <i>Dichopogon</i>
Wallaby grass	species of <i>Danthonia</i>
Native yam	<i>Microseris lanceolata</i>

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Bimble box	<i>Eucalyptus populnea</i>
White box	<i>Eucalyptus albens</i>
Yellow box	<i>Eucalyptus melliodora</i>
Grey box	<i>Eucalyptus mollucana</i>
Western grey box	<i>Eucalyptus microcarpa</i>
Pilliga box	<i>Eucalyptus pilligaensis</i>
Kurrajong	<i>Brochychiton populneus</i>
Tumbledown gum	<i>Eucalyptus dealbata</i>