



NSW
NATIONAL
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SERVICE

WHITE BOX-YELLOW BOX- BLAKELY'S RED GUM (BOX-GUM) WOODLAND fact-sheet



This fact-sheet contains the following information:

1. What is an ecological community?
2. What is a Box-Gum Woodland ecological community?
3. Why is Box-Gum Woodland an endangered ecological community (EEC)?
 - The legal status of Box-Gum Woodland.
4. Identifying Box-Gum Woodland.
5. Examples of social and economic benefits of Box-Gum Woodlands.
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1. What is an ecological community?

An ecological community is a grouping of species that commonly occur together in a way that is recognisably different from other groupings. A community consists of characteristic trees, shrubs, wild flowers and grasses as well as the mammals, birds, reptiles and insects that utilise the habitat.

2. What is a Box-Gum Woodland ecological community?

White Box Yellow Box Blakely's Red Gum Woodland (or Box-Gum Woodland) is found from the Queensland border in the north, to the Victorian border in the south. It occurs in the tablelands and western slopes of NSW.

In its pre-European-settlement state, Box-Gum Woodland was an extremely diverse part of the landscape. Many hundreds of plant species, including trees, shrubs, grasses, and wildflower species, such as orchids, lilies, peas, daisies and many others, traditionally make up the Box-Gum community. Many of these flora species are now threatened.

Box-Gum Woodland generally occurs on the fertile lower parts of the landscape where resources such as water and nutrients are abundant. This means that Box-Gum Woodland trees often grow very large, and hollows of all sizes develop. Hollows, including those in dead trees, are extremely important for a huge range of fauna species such as parrots, owls and bats and many of these are now also threatened species. The availability of nutrients and water also means that Box-Gum Woodland trees have relatively reliable nectar flows and foliage growth. This makes them essential resources for nectar-feeding and insectivorous birds and bats. A range of woodland birds, bats and insectivores are now also threatened.

3. Why is Box-Gum Woodland an endangered ecological community (EEC)?

Box-Gum Woodland was once widespread. However, the lower fertile footslopes and flats that support these woodlands were also the areas generally preferred for cropping, pasture and infrastructure development. As a

consequence Box-Gum Woodland is now severely reduced in area, remnants tend to be highly isolated and fragmented and remnants with a full range of flora and fauna species are very rare.

For example, in the Holbrook area, woodlands have been reduced to less than 7% of the pre-European extent. In the NSW South West Slopes less than 4% remains and in the Central Lachlan Region, less than 1% remains.

Although large areas of NSW still contain the large trees that make up the backbone of the Box-Gum Woodland community, there is very little regeneration of trees. Should this situation continue vast areas now occupied by box and gum trees will be devoid of trees in 50 or 100 years. Salinity, insect induced dieback and other factors also seriously threaten large areas of Box-Gum woodlands.

Additionally, the ongoing clearing for the establishment of irrigation projects, rural sub-divisions, pine plantations and vineyards threaten Box-Gum Woodland community in some regions.

Legal status of Box-Gum Woodland.

On 15th March 2002 an independent panel of scientists, known as the NSW Scientific Committee, made a final determination to list White Box Yellow Box Blakely's Red Gum Woodland as an Endangered Ecological Community (EEC) under the *Threatened Species Conservation Act 1995* (TSC Act). You can view the Scientific Committee's Final Determination at <http://www.npws.nsw.gov.au/news/tscdets/f020315a.htm>.

The Commonwealth also lists Grassy White Box as endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). You can view the advice for the Grassy White Box determination at <http://www.ea.gov.au/biodiversity/threatened/communities/grassy-white-box.html>.

Early contact with Environment Australia is recommended if an action is likely to impact on the Grassy White Box community. You can view the guidelines on making a referral to Environment Australia under the EPBC Act at <http://www.ea.gov.au/epbc/assessmentsaprovals/referrals/guide.html>

4. Identifying Box-Gum Woodland.

Box-Gum Woodland is characterised by the presence or prior occurrence of *Eucalyptus albens* (White Box), *E. melliodora* (Yellow Box) and/or *E. blakelyi* (Blakely's Red Gum). The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees such as *E. bridgesiana* (Apple Box), *E. microcarpa* (Grey Box), *E. mannifera* (Brittle Gum), *E. rubida* (Candlebark), *E. cinerea* (Argyle Apple) and *E. macrorrhyncha* (Red Stringybark).

The understorey of Box-Gum Woodland is characterised by native grasses and wild flowers. Shrubs are generally sparse or absent from Box-Gum Woodland, though they may be locally common. Up to 1000 flora species have been identified in Box-Gum Woodland across NSW.

For more detailed information on identifying Box-Gum Woodland contact NPWS for a copy of 'Identification Guidelines for Endangered Ecological Communities: White Box-Yellow Box-Blakely's Red Gum Woodland (Box-Gum Woodland)'.

5. Economic and social benefits of Box-Gum Woodlands.

The management and retention of remnant vegetation on farms, including Box-Gum Woodland, provides habitat for a diverse range of plant and animal species and contributes to more productive farming systems.

Box-Gum Woodland can provide shelter for stock, pasture and crops, a seed bank for further tree and native grass regeneration on the property, habitat for birds, mammals and insects that eat insect pests, and assist in the management of rising water-tables and salinity.

Stock shelter

Lack of shelter for stock can result in heat stress. Therefore, the shelter provided by remnant or regenerating Box-Gum Woodland can;

- increase milk production,
- increase liveweight gains in cattle (assists them to chew their cud),
- increase wool growth,
- increase ram fertility, ewe ovulation rate and conception,

- improve foetal development,
- decrease mortality of stock,
- assist in preventing abortion in pregnant cows and
- assist in preventing calves to be born undersized.

Lack of shelter can result in cold stress. Therefore, the shelter provided by remnant or regenerating Box-Gum Woodland can;

- increase wool growth,
- increase liveweight gains and
- increase milk yields.

For example, sheltered off-shears wethers require two-thirds less supplementary feed to maintain their bodyweight as unsheltered off-shears wethers.

Unsheltered newborn lambs can die at 19°C if there is rain and 18 km/hr winds.

A study in Armidale showed that sheltered sheep produced 35 % more wool and 6 kg more liveweight than exposed sheep.



Insect control

Box-Gum Woodland and its flowering native grass understorey is habitat for insectivorous insects, frogs, reptiles, birds and mammals.

For example, in healthy Eucalypt woodland birds will consume 50 % of insects present (approx. 30 kg/ha/yr). Gliders, spiders and insects consume most of what's left.

Studies near Wagga Wagga observed that about 80% of birds in Grey Box trees were insectivorous.

Woodland provides habitat for honeyeaters that consume 24-36 kg of insects per hectare per year.

At least 10 wasp species parasitise scarab beetle larvae. The adult wasps feed on nectar from trees and shrubs.

Sugar Gliders have been estimated to eat 3.25 kg of insects per glider per year. One Sugar Glider consumes the equivalent of well over 4,000 Christmas beetles or 23,000 Autumn Gum Moths per year.

Standing dead trees with hollows provide nests for insectivorous bats; one of these bats can consume up to 600 small flying insects in an hour. Bats can also consume large numbers of other farm insect pests, such as army-worms.

Reseeding after drought

Areas of remnant vegetation act as reseeded areas after drought by supplying native pasture seed to adjoining areas.

Soil benefits

Some understorey species, e.g. *Acacia* spp. and *Casuarina* spp. have bacteria-filled nodules that fix atmospheric nitrogen into the soil and convert it to nitrogen that is available to other plants.

Fallen logs, branches and litter in remnant woodland provide stores of nutrients while helping to slow runoff and reduce its erosion potential.

Management funding

The listing of Box-Gum Woodland as an EEC will give land managers an important point of leverage when they are applying for funding or other assistance in relation to managing their Box-Gum Woodland.

As the community is also listed under Commonwealth legislation, programs such as the Natural Heritage Trust may also be a valuable source of funds.

The Australian farming landscape

Imagine the farming landscape if trees were totally absent. This is a possibility in many areas if younger trees do not replace the old standing trees.

Box-Gum Woodland has an important aesthetic value, it represents an archetypal Australian rural landscape, and has provided inspiration for a range of landscape artists including Tom Roberts and Frederick McCubbin. It provides the vista that rural communities and their

visitors expect when they are enjoying the Australian countryside.

Tourism potential

Box-Gum Woodland that retains high-quality understorey offer scenic sites that have considerable tourism potential. Some grassy Travelling Stock Reserves and cemeteries rival the alpine summer floral displays. Others provide opportunities to experience the type of woodlands that were familiar to our early explorers. Such sites will add to the portfolio of important tourist attractions that rural communities have to offer.



6. Does Box-Gum Woodland have to be in a pristine state to be considered part of the EEC?

Remnant Box-Gum Woodland can occur in a range of conditions, from almost pristine to highly modified. The importance of a particular Box-Gum Woodland remnant to the maintenance and recovery of this EEC in a local region needs to be considered in the context of the extent and condition of Box-Gum Woodland in the local region.

Intact Box-Gum Woodland remnants in which native grasses and wild flowers characterise the ground layer are extremely rare and highly significant in all regions. Remnants of this quality should be managed appropriately to ensure they remain in such good condition.

Where the Box-Gum Woodland remnant is in less than pristine condition it is still considered part of the EEC as long as the site has at least part of its natural soil and seedbank intact, so that under appropriate management it would respond to assisted natural regeneration. Therefore the Box-Gum Woodland EEC can include the following conditions,

- Trees present as a canopy with a non-native ground-layer,

- Characteristic tree species absent as a result of past clearing or thinning and only other tree species and ground-layer present and
- Overstorey absent as a result of past clearing or thinning and only a ground-layer present.

Depending on the local extent and condition of Box-Gum Woodland, isolated box or gum trees scattered across a paddock may also form part of the EEC. This is because these few remaining trees may be providing important hollow and nectar resources for fauna, they may be an important seed source for regeneration or they may be acting as ‘stepping-stones’ for fauna moving between larger, more complex Box-Gum Woodland remnants across an otherwise cleared landscape. However, for isolated Box-Gum Woodland trees to be considered part of the EEC, it must be considered that the site, under appropriate management, would respond to assisted natural regeneration. For additional information see the *‘Identification Guidelines for Endangered Ecological Communities: White Box-Yellow Box-Blakely’s Red Gum Woodland (Box-Gum Woodland)’*.

Additional guidelines are also being prepared by NPWS to assist in assessing the significance of the different conditions of Box-Gum Woodland.

7. What happens now that Box-Gum Woodland is listed as an EEC?

Listing Box-Gum Woodland as an EEC does not mean that every White Box, Yellow Box and Blakely’s Red Gum tree, or every native pasture derived from clearing of these trees, is now protected and cannot be removed.

However, it does mean actions that impact on the EEC will trigger the TSC Act. This means an approval authority must consider the impact of the proposed action on the community. An approval will be issued if it is deemed the action will not have a significant impact on the local Box-Gum Woodland EEC.

Routine agricultural activities do not require approval under the TSC Act. This means that a similar agricultural activity can continue at a similar intensity on the

same site. Farmers will not have to change how they currently manage their land because of the listing. However, care must be taken when applying this rule, especially if the action is likely to harm the EEC. If there is any doubt that the action is a ‘routine agricultural activity’ contact the appropriate Threatened Species Unit.

Actions that have already been approved under the *Environmental Planning and Assessment Act 1979* are also exempt from further approval.

Who issues approvals for actions that impact on EECs?

The approval authority will vary according to the scale of the action and local environmental planning requirements. The following key will assist you in finding the appropriate approval authority. It is only a broad guide. For further information or if you are unsure, then contact your local council, Department of Land and Water Conservation (DLWC) or the National Parks and Wildlife Service (NPWS).

Key to approval authorities

1. Approval for an action that will impact on an isolated tree or a small patch of trees (less than 2 ha).
If the action is clearly part of a development that is being assessed by council, council will assess it as part of the overall development application.
If the action is not part of a broader development application and the local council has a Tree Preservation Order, the council will be the approval authority.
If the action is not part of a broader development application and there is no Tree Preservation Order, NPWS will be the approval authority.
2. Approval for an action that will impact on a small patch of Box-Gum woodland understorey (less than 2 ha).
NPWS will be the approval authority.
3. Approval for an action that will impact on Box-Gum woodland trees or understorey over an area greater than 2 ha.
DLWC will be the approval authority.

NOTE: There are possible impending changes to the Native Vegetation Conservation Act 1997 regarding the 2 ha rule. This may alter the approval authority in some situations. The above key applies in July 2002.

Examples of actions that will require approval.

The following actions have the potential to impact on the Box-Gum Woodland EEC and may require approval.

- (a) Clearing Box-Gum Woodland (including native grass and wildflower species) to,
 - Plant crops or exotic pastures,
 - Install irrigation systems,
 - Plant native or exotic tree plantations,
 - Build housing, sheds, roads, etc.,
 - Intensify agricultural activity,
 - Undertake orchard or vineyard development and
 - Undertake rural-residential development.
- (b) Commercial felling of trees in Box-Gum Woodland for firewood.
- (c) Clearing of remnant Box-Gum Woodland along roadsides during roadwork.

8. How will the impact of proposed actions on Box-Gum Woodland be assessed? (The '8-part test').

To determine whether the proposed action is likely to have a significant effect on the EEC, approval authorities will use the '8-part test'.

NPWS will produce Environmental Impact Assessment Guidelines for Box-Gum Woodland and these will assist the proponent in addressing the '8-part test'. At a basic level the '8-part test' has 6 parts that need to be addressed when assessing the significance of the action on the EEC. These are;

(a) and (b)

These parts refer specifically to individual species and populations and are not applicable to Endangered Ecological Communities.

(c) In relation to the regional distribution of the habitat of a threatened ... ecological community, whether a significant area ... is to be modified or removed.

Consider the amount and quality of the Box-Gum Woodland left in the region surrounding the proposed site.

(d) Whether an area of known habitat is likely to become isolated from currently

interconnecting or proximate areas of habitat for a threatened ... ecological community.

Consider whether existing links (or corridors) between the proposed site and neighbouring Box-Gum Woodland will be impacted upon. Remember that seemingly isolated trees may actually be providing an important link across the landscape, acting like stepping stones for fauna to use.

(e) Whether critical habitat will be affected.

This part is not applicable to Box-Gum Woodland at the time of writing, as critical habitat has not been declared for this community.

(f) Whether the (...) ecological community is adequately represented in conservation reserves (or other similar protected areas) in the region.

The community is poorly represented in conservation reserves. There are only a few small occurrences of Box-Gum Woodland in national parks and nature reserves.

(g) Whether the action proposed is of a class of action that is recognised as a threatening process.

Threatening processes currently listed on Schedule 3 of the TSC Act 1995 that may impact on or occur in Box-Gum Woodland include,

- High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition,
- Clearing of native vegetation,
- Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus*,
- Predation by the European Red Fox *Vulpes vulpes* and
- Predation by the Feral Cat, *Felis catus*.

(h) Whether [the] (...) ecological community is at the limit of its known distribution.

Consider whether the Box-Gum Woodland is further east, west or at a greater or lower altitude than other examples of the community in NSW.

The 8-part test is not a pass/fail technique based on a score out of eight. Significance of effect is determined for a proposed action by the consideration on balance of

all 8-part test questions. One factor alone could be sufficient to be considered a significant effect on EEC.

If, after applying the '8-part test' to the site, the approval authority considers that there will be a significant impact on the EEC and the proponent wishes to continue with the action, the proponent will need to prepare a Species Impact Statement (SIS). For further information on preparing a SIS contact NPWS.

If the approval authority considers that there will not be a significant impact on the Box-Gum Woodland they will issue an approval to carry out the work.

9. Planning for the recovery of Box-Gum Woodland.

When an ecological community is listed as endangered under the TSC Act, it also means that a recovery plan will be prepared to set guidelines for the long-term conservation of the EEC. A recovery team, made up of experts and community representatives prepares this plan. A draft plan is put on public exhibition for comment before it is finalised.

Actions likely to be in a recovery plan for the Box-Gum Woodland EEC include;

- identifying remnant sites that are available to be included in the NSW Reserve System as national parks or nature reserves,
- mapping and vegetation surveys in remnant sites,
- establishing long-term monitoring sites,
- preliminary studies of the impacts of burning and other management regimes,
- provision of advice to landholders managing Box-Gum Woodland on both private and public property,
- extension activities including field days, workshops, seminars and site visits and
- identifying priority areas for State and Commonwealth funding.

The recovery plan is also likely to recommend ongoing support and expansion of the Grassy Box Conservation Management Network (CMN). This network provides a focus point for the remnant grassy woodlands and their managers. The remnants in the network remain under a variety of tenures and are managed for different purposes (although always with the protection of the natural values as an important focus). For more information on CMNs visit the Conservation Management Network website listed in the 'Useful Websites' section.



NPWS Threatened Species Unit contacts

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Northern Directorate

Locked Bag 914
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Southern Directorate

PO Box 733
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Phone: 02 6297 6144
Fax: 02 6299 4281

Western Directorate

PO Box 2111
DUBBO 2830
Phone: 02 6883 5330
Fax: 02 6884 9382

10. Useful References

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NSW NPWS, (2001) *Paddock Tree Brochure*. NSW NPWS.

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11. Useful Websites

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

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

Environment Australia
<http://www.ea.gov.au/index.html>

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

12. References for Economic and Social Benefits section

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