INTRODUCTION

All part of a Community
Ecological communities are groups of plants, animals and other organisms that naturally occur together. The structure and composition are determined by environmental factors such as climate, landscape position, soil, aspect and altitude.

While a particular ecological community will vary in structure and composition across its range, there are common elements that clearly identify one ecological community as distinct from another.

Ecological communities also exist in different condition 'states', each with defining characteristics. States range from high quality to degraded with several in between.

Management affects the state of a community and depending on the type of management action, can cause a community to make a 'transition' to a better or worse state.

Box Gum Grassy Woodland
Box Gum Grassy Woodland is the name given to the threatened ecological community White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grasslands. This woodland occurs on fertile soils and is characterised by a dominant eucalyptus overstorey (White Box, Yellow Box and Blakely’s Red Gum) and a grassy understorey.

Unfortunately large areas of this community have been cleared across our catchment and remaining fragments are listed as critically endangered. The woodland and its waterways provide an essential home to many of our catchments’ most threatened species.

Box Gum Grassy Woodland is listed as a threatened ecological community under both the Australian Government’s Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the NSW Threatened Species Conservation Act 1995 (TSC Act). Activities which affect the condition or extent of Box Gum Grassy Woodland may require consent or approval.

Where does the community occur?
Box Gum Woodland is found on the tablelands and western slopes of NSW. The community occurs within the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands and South Western Slopes Bioregions.

Managing and enhancing biodiversity on your land helps build a resilient landscape that balances production and conservation.
**Identification**

Box Gum Grassy Woodland has a canopy of widely spaced trees dominated by eucalypts (usually *Eucalyptus albens*, *E. melliodora* and/or *E. blakelyi*) with a ground layer dominated by tussock grasses and a high diversity of herbs. Sparse shrubs may also be present. In the Nandewar bioregion, the community may be dominated by *E. moluccana* or *E. microcarpa*.

This community can occur in one of three states:

1. With an overstorey of trees but no substantial native understorey,
2. With a native understorey, but no trees, or
3. With both trees and a substantially native understorey.

For the purposes of the EPBC Act, the presence of a substantially native understorey (with or without trees) is required for a community to be defined as Box Gum Grassy Woodland. Where the understorey does not consist of predominantly native plants, it is considered to be degraded and no longer a viable part of the ecological community.

A patch with predominantly native understorey will have mostly native perennial grasses, with at least 12 non-grass, native species such as lilies, orchids and other wildflowers. At least one understorey species must be an important indicator of condition (for example Kangaroo grass). Patches with trees must be greater than 2 hectares, but without trees a patch can be greater than 0.1 hectare.

**Derived Grasslands**

Derived grasslands would have originally had a canopy of the dominant Box Gum Grassy Woodland tree species and a species-rich understorey of native grasses, herbs and forbs. In some cases most or all of the trees have been removed, but the intact grassy understorey still remains. These areas are still valued as habitat.

As a rule of thumb, if you have an area dominated by perennial native grasses with scattered wildflowers, with or without a canopy of the listed trees, it could be Box Gum Grassy Woodland. Seek further advice from Local Land Services before making significant impacts.

**What is not Box Gum Grassy Woodland?**

- Forest or woodland that has a predominantly shrubby understorey (greater than 30%).
- Forest or woodland with the canopy dominated by different eucalypt species (such as *E. viminalis*).
- A woodland with native trees, but predominantly exotic species in the understorey.
### Dominant Canopy Species

Absent from derived (previously cleared) grasslands

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angophora floribunda</td>
<td>Rough-barked apple</td>
</tr>
<tr>
<td>Eucalyptus albens</td>
<td>White box</td>
</tr>
<tr>
<td>Eucalyptus blakelyi</td>
<td>Blakely’s red gum</td>
</tr>
<tr>
<td>Eucalyptus melliodora</td>
<td>Yellow box</td>
</tr>
<tr>
<td>Eucalyptus microcarpa</td>
<td>Inland grey box</td>
</tr>
<tr>
<td>Eucalyptus moluccana</td>
<td>Grey box</td>
</tr>
</tbody>
</table>

### Associated Canopy Species

Vary according to landscape position, rainfall and soil type

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brachychiton populneus</td>
<td>Kurrajong</td>
</tr>
<tr>
<td>Callitris glaucophylla</td>
<td>White cypress pine</td>
</tr>
<tr>
<td>Eucalyptus bridgesiana</td>
<td>Apple box</td>
</tr>
<tr>
<td>Eucalyptus caliginosa</td>
<td>Broad-leaved stringybark</td>
</tr>
<tr>
<td>Eucalyptus chiroclada</td>
<td>Dirty gum</td>
</tr>
<tr>
<td>Eucalyptus conica</td>
<td>Fuzzy box</td>
</tr>
<tr>
<td>Eucalyptus macrosorrhyncha</td>
<td>Red stringybark</td>
</tr>
<tr>
<td>Eucalyptus melanoaphloia</td>
<td>Silver-leaved ironbark</td>
</tr>
<tr>
<td>Eucalyptus pilligaenesis</td>
<td>Pilliga box</td>
</tr>
<tr>
<td>Eucalyptus viminalis</td>
<td>Manna gum</td>
</tr>
</tbody>
</table>

### Mid-Storey Species

Usually patchy

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia buxifolia</td>
<td>Box-leaf wattle</td>
</tr>
<tr>
<td>Acacia decora</td>
<td>Western silver wattle</td>
</tr>
<tr>
<td>Acacia implexa</td>
<td>Hickory wattle</td>
</tr>
<tr>
<td>Acacia leucocladsubsp.</td>
<td></td>
</tr>
<tr>
<td>leucoclad</td>
<td></td>
</tr>
<tr>
<td>Alstonia constricta</td>
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</tr>
<tr>
<td>Bursaria spinosa</td>
<td></td>
</tr>
<tr>
<td>Cassinia spp.</td>
<td></td>
</tr>
<tr>
<td>Clematis microphylla</td>
<td></td>
</tr>
<tr>
<td>Exacarpos cupressiformis</td>
<td></td>
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<tr>
<td>Geijera parviflora</td>
<td></td>
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<tr>
<td>Lissanthe strigosa</td>
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<tr>
<td>Lomandra spp.</td>
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<tr>
<td>Myoporum montanum</td>
<td></td>
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<tr>
<td>Notelae microcarpa</td>
<td></td>
</tr>
<tr>
<td>Olearia elliptica</td>
<td></td>
</tr>
<tr>
<td>Rubus parvifolius</td>
<td></td>
</tr>
<tr>
<td>Northern silver wattle</td>
<td></td>
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<tr>
<td>Quinine bush</td>
<td></td>
</tr>
<tr>
<td>Blackthorn</td>
<td></td>
</tr>
<tr>
<td>Small-leaved clematis</td>
<td></td>
</tr>
<tr>
<td>Native cherry</td>
<td></td>
</tr>
<tr>
<td>Wilga</td>
<td></td>
</tr>
<tr>
<td>Peach heath</td>
<td></td>
</tr>
<tr>
<td>Mat-rush</td>
<td></td>
</tr>
<tr>
<td>Western boobialla</td>
<td></td>
</tr>
<tr>
<td>Native olive</td>
<td></td>
</tr>
<tr>
<td>Sticky daisybush</td>
<td></td>
</tr>
<tr>
<td>Native raspberry</td>
<td></td>
</tr>
</tbody>
</table>

### Groundcover Species

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aristida spp.</td>
<td>Wiregrass</td>
</tr>
<tr>
<td>Arthropodium spp.</td>
<td>Vanilla lily</td>
</tr>
<tr>
<td>Asperula conferta</td>
<td>Common woodruff</td>
</tr>
<tr>
<td>Austrodanthonia spp.</td>
<td>Wallaby grass</td>
</tr>
<tr>
<td>Austrostipa spp.</td>
<td>Spear grasses</td>
</tr>
<tr>
<td>Bothriochloa spp.</td>
<td>Red grasses</td>
</tr>
<tr>
<td>Bulbine spp.</td>
<td>Bulbine lily</td>
</tr>
<tr>
<td>Carex inversa</td>
<td>Knob sedge</td>
</tr>
<tr>
<td>Convolvulus erubescens</td>
<td>Blushing bindweed</td>
</tr>
<tr>
<td>Gymbopogon refractus</td>
<td>Barbed wire grass</td>
</tr>
<tr>
<td>Desmodium spp.</td>
<td>Trefoil</td>
</tr>
<tr>
<td>Dianella revoluta</td>
<td>Blue flax lily</td>
</tr>
<tr>
<td>Dichanthisium sericeum</td>
<td>Queensland blue grass</td>
</tr>
<tr>
<td>Dichordra repens</td>
<td>Kidney weed</td>
</tr>
<tr>
<td>Digitaria brownii</td>
<td>Cotton panic grass</td>
</tr>
<tr>
<td>Echinopogon ovatus</td>
<td>Forest hedgehog grass</td>
</tr>
<tr>
<td>Eremophila debilis</td>
<td>Amulla</td>
</tr>
<tr>
<td>Evolulus alsinoides</td>
<td>Dwarf morning-glory</td>
</tr>
<tr>
<td>Glycine spp.</td>
<td>Glycine, native clover</td>
</tr>
<tr>
<td>Goodenia spp.</td>
<td>Goodenia</td>
</tr>
<tr>
<td>Lespedeza juncea</td>
<td>Chinese lespedeza</td>
</tr>
<tr>
<td>Melicrhus urceolatus</td>
<td>Urn heath</td>
</tr>
<tr>
<td>Microlaena stipoides</td>
<td>Microlaena, weeping grass</td>
</tr>
<tr>
<td>Microseris lanceolata</td>
<td>Yam daisy</td>
</tr>
<tr>
<td>Paspalidium constrictum</td>
<td>Knottybutt grass</td>
</tr>
<tr>
<td>Poo sieberiana</td>
<td>Snow grass</td>
</tr>
<tr>
<td>Themeda australis</td>
<td>Kangaroo grass</td>
</tr>
<tr>
<td>Thelesia austreis</td>
<td>Austral toadflax</td>
</tr>
<tr>
<td>Themeda australis</td>
<td></td>
</tr>
</tbody>
</table>

*Listed as threatened under State and/or Commonwealth legislation*
## BIRDS

### Aerial feeding birds
- Dusky woodswallow
- White-breasted woodswallow
- White-browed woodswallow
- Masked woodswallow
- Black-faced woodswallow
- Little woodswallow
- White-backed swallow
- Welcome swallow
- Fairy martin
- Tree martin
- Fork-tailed swift
- White-throated needletail
- Satin flycatcher
- Restless flycatcher
- Leaden flycatcher
- Grey fantail
- Willie wagtail
- Dollarbird
- Rainbow bee-eater

### Medium to large bush birds
- Black-faced cuckoo-shrike
- White-bellied cuckoo-shrike
- Laughing kookaburra
- Sacred kingfisher
- Azure kingfisher
- Red-backed kingfisher
- Pied butcherbird
- Grey butcherbird
- Australian raven
- Torresian crow
- Australian magpie
- Pied currawong
- Magpie-lark
- Olive-backed oriole
- Grey shrike-thrush
- Fan-tailed cuckoo
- Brush cuckoo
- Horsfield's bronze-cuckoo
- Shining bronze-cuckoo
- Pallid cuckoo
- Black-eared cuckoo
- Common koel
- Channel-billed cuckoo
- Red-browed treecreeper
- Brown treecreeper (eastern subspecies)
- White-throated treecreeper
- Eastern spinebill
- Spiny-cheeked honeyeater
- Red wattlebird
- Noisy miner
- Little friarbird
- Noisy friarbird
- Blue-faced honeyeater
- Painted honeyeater
- Brown honeyeater
- Yellow-faced honeyeater
- Fuscous honeyeater
- White-eared honeyeater
- Yellow-tufted honeyeater
- White-plumed honeyeater
- Singing honeyeater
- Lewin's honeyeater

### Birds of Prey
- Varied sittella
- Mistletoebird
- Weebill
- Black-faced woodswallow
- Masked woodswallow
- White-browed woodswallow
- Superb fairy-wren
- Variegated fairy-wren
- Black-chinned honeyeater
- White-naped honeyeater
- Scarlet honeyeater
- Striped honeyeater
- Regent honeyeater
- Hooded robin
- Eastern yellow robin
- Jacky winter
- Scarlet robin
- Red-capped robin
- Flame robin
- Rose robin
- Golden whistler
- Rufous whistler
- Eastern shrike-tit
- Cicadabird
- White-winged triller

### Medium to large bush birds
- Inland thornbill
- Yellow-rumped thornbill
- Striated thornbill
- Yellow thornbill
- Buff-rumped thornbill
- Spotted pardalote
- Striated pardalote
- Silvereye
- Southern whiteface
- Western gerygone
- White-throated gerygone
- Speckled warbler
- White-browed scrubwren
- Weebill
- Mistletoebird
- Varied sittella

### Small bush birds
- White-throated nightjar
- Australian owlet-nightjar
- Tawny frogmouth
- Barking owl
- Southern boobook
- Barn owl
- Black falcon
- Peregrine falcon
- Australian hobby
- Nankeen kestrel
- Australian magpie
- Brown goshawk
- Collared sparrowhawk

### Nocturnal birds
- Barn owl
- Southern boobook
- Barking owl
- Tawny frogmouth
- Australian owlet-nightjar
- White-throated nightjar
**MAMMALS**

**Terrestrial (land dwelling)**
- Yellow-footed antechinus ▲
- Common dunnart ▲
- Water-rat (streams)
- Eastern grey kangaroo
- Common wallaroo
- Red-necked wallaby ▲
- Swamp wallaby
- Spotted-tailed quoll ●
- Platypus ▲
- Short beaked echidna
- Common wombat ▲

**Arboreal (tree dwelling)**
- Koala ●
- Feathertail glider ▲
- Sugar glider ▲
- Squirrel glider ●
- Common brushtail possum ▲
- Common ringtail possum ▲

**Bats**

**Microbats**
- Large-eared pied bat ●
- Gould’s wattled bat
- Chocolate wattled bat
- Little pied bat ●
- Eastern false pipistrelle ●
- Eastern bent wing bat ●
- Eastern horseshoe-bat
- Lesser long-eared bat
- Gould’s long-eared bat
- Greater long-eared bat ●
- Greater broad-nosed bat ●
- Inland broad-nosed bat
- Little broad-nosed bat
- Large forest bat
- Southern forest bat
- Eastern cave bat ●
- Little forest bat
- Hairy-nosed freetail bat ●
- Southern freetail bat
- Inland freetail bat
- White-striped freetail-bat
- Yellow-bellied sheath-tail-bat ●

**Megabats**
- Grey-headed flying fox ●
- Little red flying fox

**Introduced**
- European cattle
- Goat
- Dingo
- Domestic dog
- Fox
- Deer
- Horse
- Cat
- Brown hare
- Rabbit
- House mouse
- Black rat
- Pig

**PHOTO KEY:**
1. Diamond firetail – Iestyn Taylor
2. Regent Honeyeater – N. Lazarus
4. Hooded robin – Iestyn Taylor
5. Koala – Myrna Spencer
6. Squirrel glider – Phil Spark
7. Greater broadnosed bat – Phil Spark
**REPTILES**

**Dragons**
- Jacky lashtail
- Nobbi lashtail
- Eastern two-line dragon ▲
- Burn’s dragon
- Eastern water dragon
- Eastern bearded dragon
- Long-tailed earless dragon ▲

**Turtles**
- Eastern snake-necked turtle
- Bell’s turtle ●
- Murray short-necked turtle (major streams)

**Snakes**
- Eastern small-blotched python ▲
- Murray-Darling carpet python ▲
- Green tree snake ▲
- Southern death adder ▲
- Yellow-faced whip snake
- Red-naped snake
- Pal-headed snake ●
- Mainland tiger snake
- Spotted black snake
- Red-bellied black snake
- Eastern brown snake
- Eastern shovel nosed snake ▲
- Variable black-naped snake
- Eastern bandy-bandy ▲

**Blind Snakes**
- Prong-snouted blind snake ▲
- Blackish blind snake ▲
- Proximus blind snake ▲
- Brown-snouted blind snake ▲

**Geckos**
- Eastern stone gecko
- Eastern spiny-tailed gecko ▲
- Dubious dtella
- Varied dtella
- Prickly gecko
- Lesueur’s velvet gecko
- Zigzag velvet gecko ●
- Robust velvet gecko
- Southern spotted velvet gecko ▲
- Thick-tailed gecko ▲
- Border thick-tailed gecko ●

**Legless lizards**
- Patternless delma ▲
- Leaden delma ▲
- Excitable delma ▲
- Burton’s snake-lizard ▲

**Skinks**
- Two-clawed worm-skink
- Five-clawed worm-skink ●
- Red-throated cool-skink
- Southern rainbow-skink
- Tussock rainbow-skink
- Cream-striped shining-skink
- Robust ctenotus
- Copper-tailed ctenotus
- Cunningham’s spiny tailed skink ▲
- Eastern ranges rock-skink ▲
- Tree-crevice skink
- Eastern water-skink
-ds forest-skink ▲
- Dark-flecked garden sun skink
- Pale-flecked garden sun skink
- South-eastern slider
- Eastern robust slider
- Tree-base litter-skink
- Common dwarf skink
- South-eastern morethia skink
- Yellow-bellied three-toed skink
- Common bluetongue

**Goannas**
- Sand monitor
- Black-tailed monitor ▲
- Lace monitor

**AMPHIBIANS**

**Ephemeral dams, ponds and wetlands**

**Frogs & froglets**
- Short-footed frog ▲
- Rough frog
- Striped burrowing frog
- Booroolong frog ●
- Green tree frog
- Keferstein’s tree frog ▲
- Eastern dwarf tree frog
- Broad-palmed frog
- Lesueur’s frog
- Peron’s tree frog
- Desert tree frog
- Verreaux’s tree frog
- Tusked frog ●
- Eastern sign-bearing froglet
- Common eastern froglet
- Bullfrog
- Long thumbed frog
- Ornate burrowing frog
- Spotted marsh frog
- Northern banjo frog ▲
- Painted burrowing frog ▲

**Toads & toadlets**
- Bibron’s toadlet ▲
- Smooth toadlet
- Wrinkled toadlet

**KEY:**
- ● Species, population or community listed as vulnerable or endangered under the EPBC and/or TSC Act
- ■ Species listed as migratory under the EPBC Act
- ▲ Species identified as present or returning to vegetation communities in good condition

**PHOTO KEY:**
- 8 Border thick tailed gecko – Phil Spark
- 9 Zigzag velvet gecko – Alex Dudley
- 10 Common bluetounge – Alex Dudley
- 11 Booroolong frog – Phil Spark
- 12 Spotted Marsh Frog – Phil Spark
Threats

Clearing – of both the overstorey and understorey is a major threat to both the extent and the condition of this community. When the woodland understorey is removed, through cultivation for crops or pasture development, the community suffers greatly to the point that it cannot be regenerated.

Grazing – domestic and feral animals can remove many ground cover species.

Weeds – Coolatai grass (*Hyparrhenia hirta*), African love grass (*Eragrostis curvula*) and Johnson grass (*Sorghum halapense*) can enter undisturbed patches and completely replace the ground layer plants. Disturbance through grazing, burning or soil disturbance also favours the introduction of weeds.

Nutrient enrichment – the application of fertiliser can favour the growth of exotic weeds.

Altered fire regimes – species may change composition and eliminate fire-sensitive or fire-dependent species.

Other threats – salinity, mining, housing development, the effects of fragmentation and climate change can threaten the survival of Box Gum Grassy Woodlands. Hotter and drier climatic conditions as a result of global warming are likely to directly affect the flora and fauna of Box Gum Grassy Woodlands as well as altering fire regimes, changing the distribution of weeds and pests and increasing pressure from grazing animals.

Threats and Management

Maintain or improve the **extent and condition** of Box Gum Grassy Woodland communities on your property.

- It is recommended that you do not clear Box Gum Grassy Woodland patches, even under permissible exemptions from the *Native Vegetation Conservation Act*.
- Provide long-term protection for patches through landholder management agreements with Local Land Services or conservation agreements with the Office of Environment and Heritage or the *Nature Conservation Trust*.
- Increase the area of this community through revegetation and assisted natural regeneration.
- Adopt selective and rotational grazing practices and avoid grazing when ground layer plants are flowering and setting seed (usually spring to midsummer).
- Do not cultivate in or near patches of this community and avoid opening new tracks, table drains or trenches through stands in good condition.
- Do not apply fertiliser high in nitrogen and phosphorous to this community, particularly on sites in good condition.
- Manage weeds in and around existing patches of woodland. Avoid creating soil disturbances that favour weeds. Do not burn sites if Coolatai grass is present.
- If native tussocks are very large or dense, use mowing or grazing to reduce biomass and create inter-tussock spaces for seed regeneration of other species.
- Increase species diversity by introducing seedlings of other species from adjacent or similar patches.
ECOSYSTEM FUNCTION:
HOW HEALTHY WOODLANDS WORK FOR YOU

Healthy Box Gum Grassy Woodlands provide a wide range of benefits that are often called ‘ecosystem services’. These include traditional services like grazing for livestock, but also other services such as:

• financial benefits
• soil formation and cycling
• nutrient cycling
• water capture, filtration and delivery to water bodies
• pollination
• pest management (such as reducing pest pressure on crops)
• regional climate buffering
• shade and shelter (such as for livestock)
• breakdown and absorption of wastes
• a sense of place
• scenery

FURTHER INFORMATION


Grassy Box Woodlands Conservation Management Network
www.gbwcmn.net.au/home

NSW Threatened Species

Australian Government Threatened Species and Ecological Communities

Commonwealth Conservation Advice on White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grasslands.

www.lls.nsw.gov.au
1300 795 299
8:30 am to 5:30pm Monday to Friday