

Brigalow–Gidgee woodland/ shrubland in the Mulga Lands and Darling Riverine Plains bioregions

Introduction

These guidelines provide background information to help landholders to identify remnants of the Endangered Ecological Community (EEC) Brigalow-Gidgee woodland/shrubland in the Mulga Lands and Darling Riverine Plains bioregions. For more detailed information refer to the NSW Scientific Committee's Final Determination on the Office of Environment and Heritage (OEH) Threatened Species website:

<http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10966>

What is an Endangered Ecological Community?

An ecological community is a unique and naturally occurring assemblage of plants and animals. The presence of an ecological community can be determined by factors such as soil type, position in the landscape, climate and water availability, all of which influence species composition. Whilst most ecological communities are recognised by their typical plant species, the community includes all the organisms that occur in that particular area. The survival of each species relies on complex interactions amongst all of the inhabitants of an ecological community, through biotic mechanisms such as food webs, mutualisms and pollination, as well as abiotic mechanisms such as water, nitrogen and carbon cycles. Consequently, the loss of any species may have detrimental flow-on effects for the ecological functioning of the whole community. An EEC is an ecological community listed under the *Threatened Species Conservation Act 1995* as being at risk of extinction unless the threats affecting it are managed and reduced.

What is a particular area?

The NSW Scientific Committee defines a particular area as the Bioregion and Local Government Area where an EEC may be found. The particular area may be further delineated by using other supplementary factors such as landscape, soil type and climatic variables.



Brigalow-Gidgee Open Woodland (Acacia harpophylla–Acacia cambagei) with low chenopod shrub understorey dominated by Rhagodia spinescens and Sclerolaena spp.; Culgoa National Park. Photo: Marianne Porteners

What is Brigalow-Gidgee woodland/shrubland?

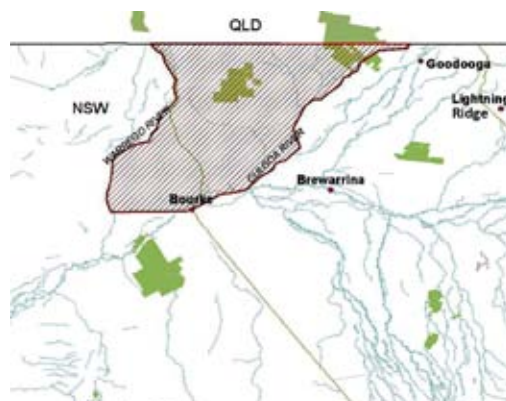
This EEC ranges from a woodland to shrubland or scrub depending on local conditions and disturbance history. It occurs on soft red earth and heavy grey clay soils on level to slightly undulating plains. The tree layer is dominated by either brigalow (*Acacia harpophylla*) or gidgee (*Acacia cambagei*). The shrub layer may contain a variety of small trees and shrubs of varying density. The groundcover of grasses, forbs and herbs varies depending on local conditions and disturbance history.

Brigalow woodlands in the Darling Riverine Plains are similar and are listed in NSW as part of another Endangered Ecological Community: www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10109

Brigalow-Gidgee woodland/shrubland also forms part of the EEC known as 'Brigalow (*Acacia harpophylla* dominant and co-dominant)', which is listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). See 'Identifying Brigalow-Gidgee woodland/shrubland' below for further information.

Where is Brigalow-Gidgee woodland/shrubland found?

Brigalow-Gidgee woodland/shrubland occurs primarily in the area north of Bourke between the Culgoa and Warrego rivers (see map). It has been recorded in parts of the Bourke and Brewarrina Local Government Areas but may occur elsewhere in the Mulga Lands and Darling Riverine Plains bioregions.



The area in NSW where Brigalow-Gidgee woodland/shrubland EEC is primarily found. It can occur elsewhere in the Mulga Lands and Darling Riverine Plains bioregions.

Why is it important?

Brigalow-Gidgee woodland/shrubland has been extensively altered by human disturbance. It is estimated that at least 79% of the original area of Brigalow-Gidgee woodland/shrubland has been cleared or thinned. The remaining Brigalow-Gidgee woodland/shrubland is threatened by clearing, thinning and burning, and by the grazing of domestic stock and feral animals such as goats.

Description of the community

The tree layer

Apart from brigalow or gidgee, other tree and small tree species that may be present include ironwood (*Acacia excelsa*), river cooba or river myall (*Acacia stenophylla*), western rosewood or boonaree (*Alectryon oleifolius*), whitewood (*Atalaya hemiglauca*), desert lime (*Citrus glauca*), budda (*Eremophila mitchellii*), coolibah (*Eucalyptus coolabah*), black box (*Eucalyptus largiflorens*), leopardwood (*Flindersia maculosa*) and sweet quandong (*Santalum acuminatum*). These associated species may be present in the tree layer or may form part of the shrub layer, depending on site disturbance.



Acacia cambagei/*Sclerolaena muricata* woodland west of Bourke. Photo: Jamie Plaza. Image from NSWVCA database, courtesy of The Royal Botanic Gardens and Domain Trust.

The shrub layer

The shrub layer is variable in density. Apart from the small tree species listed above, the shrub layer may also contain such species as turpentine bush (*Eremophila sturtii*), wilga (*Geijera parviflora*), turkeybush (*Eremophila deserti*), thorny saltbush (*Rhagodia spinescens*), warrior bush (*Apophyllum anomalum*), ruby saltbush (*Enchylaena tomentosa*) and several copperburrs (*Sclerolaena* species).

Characteristic species list

A list of canopy trees and understorey plants that characterise a patch of Brigalow-Gidgee woodland/shrubland EEC is provided in Table 1. Not all the species listed need to occur at any one site for it to be considered the EEC, and there may be additional species that are not included in the table. The species present at any site will be influenced by the size of the site, recent rainfall or drought conditions, and by its disturbance history.

Table 1. Characteristic species recorded in the Brigalow-Gidgee woodland/shrubland EEC

Common name	Scientific name
Trees	
Black box	<i>Eucalyptus largiflorens</i>
Brigalow	<i>Acacia harpophylla</i>
Budda, false sandalwood	<i>Eremophila mitchellii</i>
Coolibah	<i>Eucalyptus coolabah</i>
Desert lime	<i>Citrus glauca</i> (= <i>Eremocitrus glauca</i>)
Gidgee	<i>Acacia cambagei</i>
Ironwood	<i>Acacia excelsa</i>
Leopardwood	<i>Flindersia maculosa</i>
River cooba, river myall	<i>Acacia stenophylla</i>
Sweet quandong	<i>Santalum acuminatum</i>
Western rosewood, boonaree	<i>Alectryon oleifolius</i>
Whitewood	<i>Atalaya hemiglauca</i>
Shrubs, vines, epiphytes	
–	<i>Atriplex crassipes</i>
–	<i>Atriplex lindleyi</i>
–	<i>Atriplex muelleri</i>
–	<i>Atriplex pseudocampanulata</i>
–	<i>Maireana schistocarpa</i>
–	<i>Olearia pimeleoides</i>
Bladder saltbush	<i>Atriplex vesicaria</i>
Cannonball burr	<i>Dissocarpus paradoxa</i> var. <i>paradoxa</i>
Climbing saltbush	<i>Einadia nutans</i>
Creeping saltbush, berry saltbush	<i>Atriplex semibaccata</i>
Desert rice-flower	<i>Pimelea simplex</i>
Doubah, native pear	<i>Marsdenia australis</i> (= <i>Leichhardtia australis</i>)
Leafless bluebush, cotton bush	<i>Maireana aphylla</i>
Lignum	<i>Muehlenbeckia florulenta</i>
Mistletoe	<i>Amyema maidenii</i> subsp. <i>angustifolium</i>
Mistletoe	<i>Amyema miquelii</i>
Mistletoe	<i>Amyema miraculosum</i>
Mistletoe	<i>Amyema quandang</i> var. <i>quandang</i>
Narrow-leaf emu-bush, turpentine bush	<i>Eremophila sturtii</i>
Ruby saltbush	<i>Enchylaena tomentosa</i>
Slender-fruit saltbush	<i>Atriplex leptocarpa</i>
Smoke bush, cotton bush	<i>Ptilotus obovatus</i>
Spiny saltbush, berry saltbush	<i>Rhagodia spinescens</i>
Spotted fuchsia-bush	<i>Eremophila maculata</i>
Tarbush	<i>Eremophila glabra</i>
Three-wing bluebush	<i>Maireana triptera</i>
Turkeybush	<i>Eremophila deserti</i>
Twiggy emu-bush, flowering lignum	<i>Eremophila polyclada</i>

Common name	Scientific name
Warrior bush, currant bush	<i>Apophyllum anomalum</i>
Wilga	<i>Geijera parviflora</i>
Shrubs, vines, epiphytes	
–	<i>Salsola kali</i> var. <i>kali</i>
–	<i>Sclerolaena articulata</i>
Black rolypoly	<i>Sclerolaena muricata</i> var. <i>semiglabra</i>
Black rolypoly	<i>Sclerolaena muricata</i> var. <i>villosa</i>
Galvanized burr	<i>Sclerolaena birchii</i>
Giant redburr	<i>Sclerolaena tricuspsis</i>
Goathead burr	<i>Sclerolaena bicornis</i> var. <i>horrida</i>
Grey copperburr	<i>Sclerolaena diacantha</i>
Redburr	<i>Sclerolaena calcarata</i>
Tall copperburr	<i>Sclerolaena convexula</i>
Woolly copperburr, spinach burr	<i>Sclerolaena lanicuspis</i>
–	<i>Sclerolaena brachyptera</i>
Grasses, forbs and herbs	
–	<i>Crassula colorata</i>
–	<i>Gnephosis arachnoidea</i> (= <i>Gnephosis foliata</i>)
–	<i>Lachnagrostis filiformis</i>
–	<i>Nicotiana velutina</i>
–	<i>Plantago cunninghamii</i>
–	<i>Plantago turrifera</i>
–	<i>Pycnosorus chrysanthes</i> (= <i>Craspedia chrysantha</i>)
Black crumbweed	<i>Chenopodium melanocarpum</i>
Bristly love-grass	<i>Eragrostis setifolia</i>
Caustic weed	<i>Chamaesyce drummondii</i>
Common nardoo	<i>Marsilea drummondii</i>
Common sneezeweed	<i>Centipeda cunninghamii</i>
Common sunray	<i>Triptilodiscus pygmaeus</i>
Common white sunray	<i>Rhodanthe floribunda</i>
Desert sneezeweed	<i>Centipeda thespidioides</i>
Flannel cudweed	<i>Actinobole uliginosum</i>
Ground-heads	<i>Chthonocephalus pseudevax</i>
Lesser joyweed	<i>Alternanthera denticulata</i>
Native carrot	<i>Daucus glochidiatus</i>
Poison rock fern, mulga fern	<i>Cheilanthes sieberi</i>
Purple burr-daisy	<i>Calotis cuneifolia</i>
Showy burr-daisy	<i>Calotis cymbacantha</i>
Slender sunray	<i>Rhodanthe stricta</i>
Tarvine	<i>Boerhavia dominii</i>
Warrego grass	<i>Paspalidium jubiflorum</i>
Windmill grass	<i>Chloris truncata</i>
Woolly-heads	<i>Myriocephalus rhizocephalus</i>
Wooly buttons	<i>Leiocarpa panaetioides</i>

The ground layer

The ground layer is usually sparse or very sparse and includes grass species such as windmill grass (*Chloris truncata*), bristly love-grass (*Eragrostis setifolia*), *Lachnagrostis filiformis* and Warrego grass (*Paspalidium jubiflorum*). Forb species include desert sneezeweed (*Centipeda thespidioides*), burr-daisies (*Calotis* species), sunrays (*Rhodanthe* species, *Triptilodiscus pygmaeus*) and *Plantago cunninghamii*. Small chenopod shrubs such as ruby saltbush (*Enchylaena tomentosa*), climbing saltbush (*Einadia nutans*) and copperburrs (*Sclerolaena* species) also form part of the ground layer.

Variation in the community

Remnants of Brigalow-Gidgee woodland/shrubland can vary in structure and species composition as a result of past and current management practices. At heavily disturbed sites only some of the species that characterise the community may be present. In addition, above-ground, individuals of some species may not be present, but the species may be represented below ground in the soil seed banks or as bulbs, corms, rhizomes or rootstocks. Small trees or saplings may dominate the community in relatively high densities after partial or total clearing or thinning. Large areas of Brigalow-Gidgee woodland/shrubland have been disturbed by previous clearing and thinning activities and may now have a greater proportion of Gidgee present than in its undisturbed state. Areas of Brigalow-Gidgee woodland/shrubland that are mapped as 'Rung Plain' or as 'Fallen Treated Timber' are also considered to be part of the EEC.

Identifying Brigalow-Gidgee woodland/shrubland EEC

The following are key characteristics to help identify an area of this EEC.

1. Is the site in the Mulga Lands and Darling Riverine Plains bioregions of NSW?
2. Is the site on soft red earth or heavy grey clay soils north of Bourke between the Culgoa and Warrego rivers?
3. Is the vegetation a woodland, shrubland or scrub?
4. Does the tree layer contain brigalow and/or gidgee?
5. Are there any plant species present at the site from those listed as characteristic in Table 1? (See photos in guideline, check with a local botanist, or consult reference books or NSW Flora Online: <http://plantnet.rbgsyd.nsw.gov.au/>).

If you answer yes to the above questions, your site is likely to consist of Brigalow-Gidgee woodland/shrubland EEC. Where difficulties arise when faced with decisions on whether particular sites are Brigalow-Gidgee woodland/shrubland, expert advice may be needed.

What does this mean for my property?

As a listed EEC under the *Threatened Species Conservation Act 1995*, Brigalow-Gidgee woodland/shrubland has significant conservation value and some activities may require consent or approval. Please contact the OEH or your local catchment management authority for further information.

Determining the conservation value of remnants

The conservation significance of each remnant should be assessed at each site, noting that even where a remnant is considered to be heavily degraded and in poor condition, it may still have conservation value for a number of reasons, including:

1. as part of a wildlife corridor that has connective importance at local and/or regional scales
2. as an important habitat and food source for birds, small and large mammals, terrestrial invertebrates and insectivorous bats



Brigalow (*Acacia harpophylla*), west of Culgoa River. Photo: John Benson. Image from NSWVCA database, courtesy of The Royal Botanic Gardens and Domain Trust.

3. because it contains threatened species of flora in their own right, or rarely seen and elusive plants such as terrestrial orchids, rare herbs and bryophytes, thus contributing to the local biodiversity
4. maintaining a healthy native seed bank, which is crucial for the perpetuation of vegetation communities and individual species in highly cleared and fragmented landscapes.

Any native vegetation remnant has habitat value and contributes to regional biodiversity. It is important to take these factors into account when determining the conservation significance of remnants.

The degree of disturbance (i.e. condition) of many remnants can vary, from good condition to highly modified. It is important to note that even small patches or areas that have had past disturbance such as previous clearing, thinning or grazing are still considered to be important remnants of Brigalow-Gidgee woodland/shrubland and meet the criteria of being an EEC.

Retaining mature native vegetation or EECs for conservation purposes may attract incentive funding. Funding is allocated to landholders by local Catchment Management Authorities (CMAs) according to the priorities set out in their Catchment Action Plans and strategies. For more information contact your local CMA or email: info@nativevegetation.nsw.gov.au

For further help

This and other EEC guidelines are available on the OEH website at threatenedspecies.environment.nsw.gov.au/tsprofile/home_tec.aspx or www.environment.nsw.gov.au/pnf/eeccfieldguidelines.htm

Information on EEC listings under the Commonwealth EPBC Act can be found at www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=28&status=Endangered

The references listed below also provide information on NSW plants, native vegetation and EECs.

- Botanic Gardens Trust plant identification help: www.rbgsyd.nsw.gov.au/plant_info/identifying_plants/
- Office of Environment and Heritage threatened species profiles: www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_species.aspx
- Information on bioregions of New South Wales (determinations use IBRA version 4 boundaries): www.environment.nsw.gov.au/bioregions/Bioregions.htm
- NSW Scientific Committee Determinations: www.environment.nsw.gov.au/committee/ListofScientificCommitteeDeterminations.htm
- Benson, J.S., Allen, C.B., Togher, C., & Lemmon, J. (2006) New South Wales vegetation classification and assessment. Part 1 Plant communities of the NSW western plains. *Cunninghamia* 9, 383–450. This paper refers to the NSW Vegetation Classification and Assessment database (NSWVCA). Communities 29, 31 and 118 of the NSWVCA refer, in part, to the Brigalow-Gidgee woodland/shrubland EEC.
- Thackway R. & Creswell I. (1995) (eds) *An Interim Biogeographic Regionalisation Of Australia: A Framework for Establishing The National System of Reserves*. (Australian Nature Conservation Agency: Canberra).
- Harden, G. (ed) (1990–2002) *Flora of NSW Volumes 1–4*. (NSW University Press: Kensington).
- Keith, D.A. (2004) *Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT*. (NSW Department of Environment and Conservation: Sydney)
- Northern Floodplains Regional Planning Committee (2004) *Vegetation Communities of the Northern Floodplains*



Eucalyptus coolabah Photo: Lachlan Copeland

Western New South Wales Book 2: Brewarrina Shire. (Northern Floodplains Regional Planning Committee: Walgett, NSW).

- Northern Floodplains Regional Planning Committee (2004) *Vegetation Communities of the Northern Floodplains Western New South Wales Book 3: North Eastern Section of Bourke Shire.* (Northern Floodplains Regional Planning Committee: Walgett NSW).
- Pickard, J. & Norris, E.H. (1994) The natural vegetation of north-western New South Wales: notes to accompany the 1:1 000 000 vegetation map sheet. *Cunninghamia* 3, 423–464.
- Wade, T. (1992) *The Brigalow Outlier: A Resource Inventory of the Brigalow Vegetation Communities West of the Culgoa River.* (Department of Conservation and Land Management: Dubbo, NSW)



Acacia pendula Photo: Lachlan Copeland



Flindersia maculosa Photo: Lachlan Copeland

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