

Travelling Stock Reserves

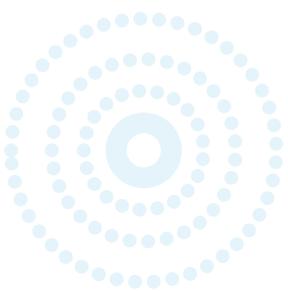
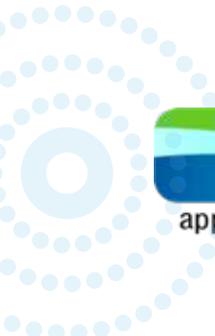
Vegetation Guide

Central West Local Land Services



Local Land
Services

This project has been funded by NSW Environmental Trust



Central West Local Land Services Travelling Stock Reserve Vegetation Guide

Prepared for NSW Local Land Services

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Contents

Vegetation in the Central West region	1
The Central West Local Land Services region	2
Vegetation classes	4
Floodplain transition woodlands	5
Western peneplain woodlands	7
Semi-arid floodplain grasslands	9
North-west floodplain woodlands	10
Riverine plain grasslands	11
Western slopes grasslands	12
Western Slopes Grassy Woodlands	13
Inland riverine forests	15
Riverine chenopod shrublands	17
Western slopes dry sclerophyll forests	19
Riverine plain woodlands	21
Pilliga outwash dry sclerophyll forests	22
Inland rocky hill woodlands	23
Inland floodplain swamps	25
Endangered and threatened ecological communities	26
Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions	26
Brigalow-Gidgee woodland/shrubland in the Mulga Lands and Darling Riverine Plains bioregions	26
Coolibah black box woodlands of the Northern Riverine Plains in the Darling Riverine Plains and Brigalow Belt South bioregions	27
Fuzzy box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South	27
Inland grey box woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South bioregions	27
Native vegetation on cracking clay soils of the Liverpool Plains	28
Mallee and mallee-broombush dominated woodland and shrubland, lacking triodia, in the NSW South Western Slopes Bioregion (critically endangered)	28
Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	28
White box yellow box Blakely's red gum woodland	29

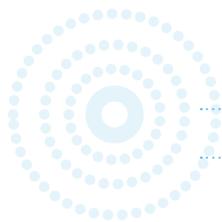
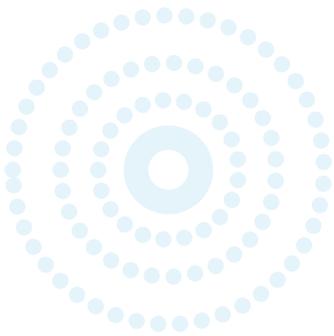
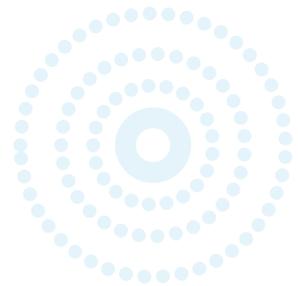
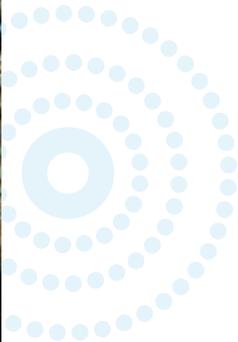




Table of figures

Figure 1: The Central West Local Land Services region	1
Figure 2: Vegetation mapping for the Central West region	2
Figure 3: Legend for vegetation mapping in Central West Local Land Services region	2
Figure 4: Floodplain Transition Woodlands - Keith Class	5
Figure 5: Western Peneplain Woodlands - Keith Class	7
Figure 6: Semi-arid Floodplain grasslands - Keith Class	9
Figure 7: North-west Floodplain Woodlands - Keith Class	10
Figure 8: Riverine Plain Grasslands - Keith Class	11
Figure 9: Western Slopes Grasslands - Keith Class	12
Figure 10: Western Slopes Grassy Woodlands - Keith Class	13
Figure 11: Inland Riverine Forests - Keith Class	15
Figure 12: Riverine Chenopod Shrublands - Keith Class	17
Figure 13: Western Slopes Dry Sclerophyll Forests - Keith Class	19
Figure 14: Riverine Plain Woodlands - Keith Class	21
Figure 15: Pilliga Outwash Dry Sclerophyll Forests - Keith Class	22
Figure 16: Inland Rocky Hill Woodlands - Keith Class	23
Figure 17: Inland Floodplain Swamps - Keith Class	25



Vegetation in the Central West region

The Central West Local Land Services region covers an area from Grenfell, Forbes and Wellington in the east to the western plains of Nyngan and Coonamble. It includes the lower Bogan, Coonamble, Dubbo, Forbes, Gilgandra, Lachlan, Narromine, Parkes, Warren, Warrumbungle, Weddin or Wellington local government areas, and is home to approximately 110,000 people.

Mixed farming production of cropping and livestock dominates the region. Wheat is the main cereal crop, with canola the most significant non-cereal crop. Sheep and cattle are the dominant livestock enterprises. The region produces a number of horticultural crops, including cherries and apples, and also supports a growing viticulture industry. It is also home to a number of natural assets, including the internationally-recognised Macquarie Marshes (<http://centralwest.ils.nsw.gov.au/our-region>).

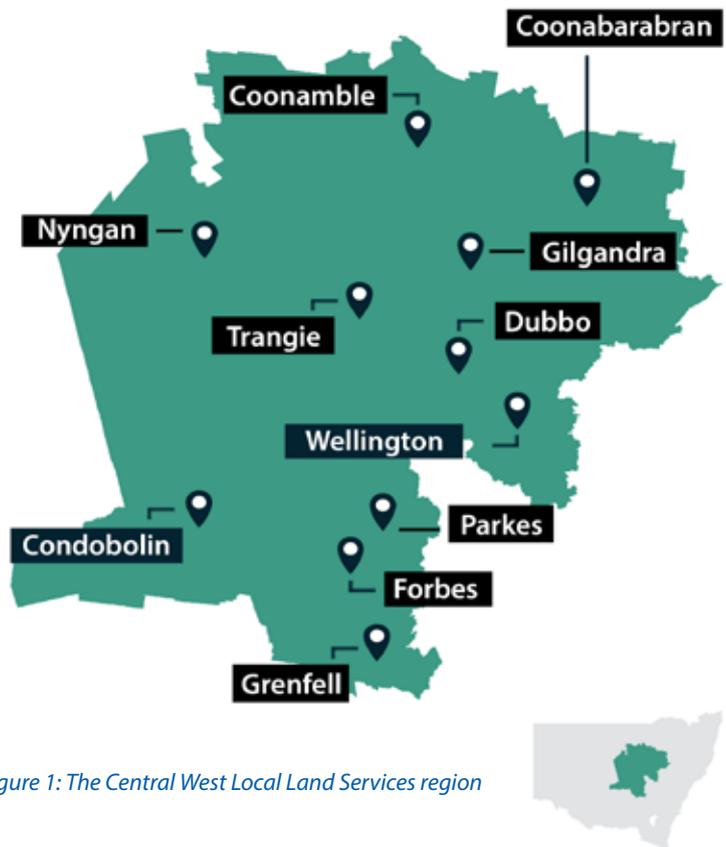


Figure 1: The Central West Local Land Services region



The Central West Local Land Services region

Vegetation mapping was undertaken using the available NSW state vegetation type mapping (SVTM) that consist of regional-scale maps of NSW plant community types. This mapping is based on new spatial models, on ground surveys and aerial imagery interpretation. This project is ongoing and not all mapping for all regions is publicly available at this time. The Central West Local Land Services region is covered by three map sets:

- State vegetation type map: Central West / Lachlan Region version 1.3. VIS_ID 4468 (covers the bulk of the Central West Local Land Services region)
- State vegetation type map: Border Rivers Gwydir / Namoi Region version 2.0. VIS_ID 4467 (covers the north)
- State vegetation type map: Central Tablelands version 1.0 in draft (small area in the east).

Detailed methodology information can be found at:

www.environment.nsw.gov.au/resources/vegetation/nsw-state-vegetation-type-map-methodology-170134.pdf and in the technical reports and metadata statements that accompany each map set at <http://data.environment.nsw.gov.au>.

Each mapped polygon within SVTM includes an attribute for plant community type (PCT), class and formation. The SVTM layers were clipped against the current TSR layer to provide a dataset of PCTs, classes and formations found within TSRs in the Central West region. Individual class maps were produced for classes with more than 1,000 ha within the TSRs.

A total of 30 vegetation classes, falling into 14 Keith vegetation formations, have been identified for the TSR network in the Central West region. Another map unit exists for non-native vegetation which includes cleared areas without native under storey vegetation. The list of vegetation classes found within the Central West is provided in Table 1.

The presence of each vegetation class within TSRs varies considerably, from more than 23,000 ha of floodplain transition woodlands to less than one ha of riverine sandhill woodlands and less than two ha of Yetman dry sclerophyll forest. Vegetation classes present in more than 1,000 ha of the TSR network were identified as relevant for the overall management of vegetation in TSRs within the region. These vegetation classes and their constituent PCTs are described in more detail in this guide.

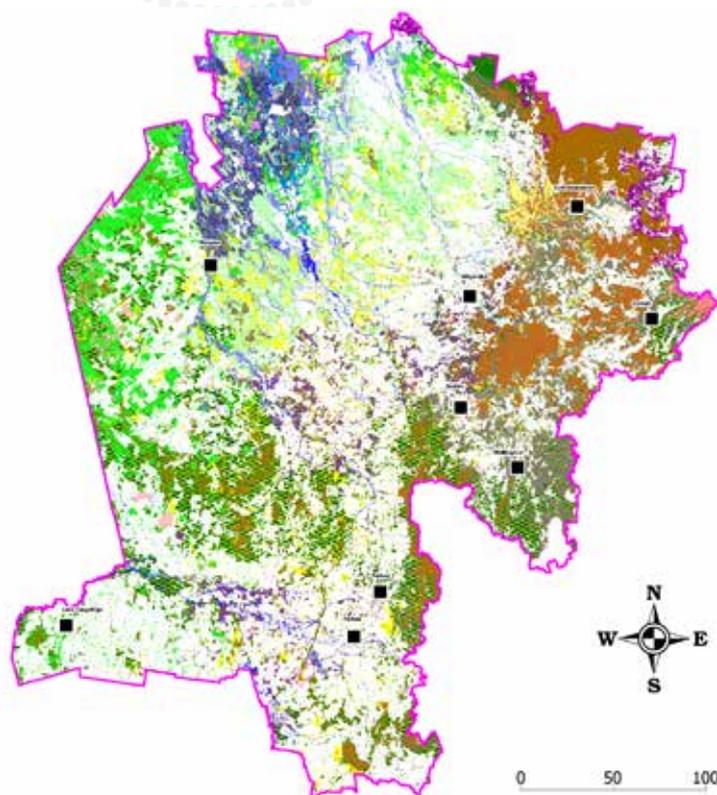


Figure 2: Vegetation mapping for the Central West region



Figure 3: Legend for vegetation mapping in Central West Local Land Services region

Table 1: Area reported for vegetation classes within TSRs in the Central West Local Land Services region, with number of PCTs in each class.

Class	Hectares	PCTs
Floodplain transition woodlands	23,301.67	10
Western peneplain woodlands	14,589.8	6
Semi-arid floodplain grasslands	13,730.48	4
Not native	11,242.46	N/A
North-west floodplain woodlands	10,768.38	5
Riverine plain grasslands	5,719.86	1
Western slopes grasslands	5,534.44	4
Western slopes grassy woodlands	5,078.27	22
Inland riverine forests	4,849.47	9
Riverine chenopod shrublands	3,715.44	6
Western slopes dry sclerophyll forests	2,723.61	29
Riverine plain woodlands	2,296.87	2
Pilliga outwash dry sclerophyll forests	2,043.05	4
Inland rocky hill woodlands	1,312.64	14
Inland floodplain Swamps	1,027.87	6
North-west plain shrublands	994.38	2
Inland floodplain woodlands	911.1	5
Inland floodplain Shrublands	662.35	5
Sand plain mallee woodlands	352.48	4
North-west alluvial sand woodlands	173.79	1
Grassy woodlands	151.85	1
North-west slopes dry sclerophyll woodlands	133.57	4
Candidate native grasslands	130.32	1
Eastern riverine forests	73.84	3
Brigalow clay plain woodlands	58.35	2
Semi-arid sand plain woodlands	14.12	2
Upper riverina dry sclerophyll forests	7.11	1
Subtropical semi-arid woodlands	5.5	1
Southern tableland grassy woodlands	2.23	1
Yetman dry sclerophyll forests	1.53	2
Riverine sandhill woodlands	<0.1	1
Total area (ha)	111,606.8	

Several of the vegetation classes listed above include PCTs that are protected under state and/or commonwealth legislation. These are categorised as endangered ecological communities (EECs) or critically endangered ecological communities (CEECs) and require special consideration during the management process. A total of six EECs are reported from the Central West region, several of which are present from a number of constituent PCTs, including derived grasslands. These EECs have been recorded from several vegetation classes.

A list of these EECs is provided in the following table.



Table 2: Endangered ecological communities recorded within vegetation classes in TSRs in Central West Local region.

NSW BioCon Act EEC (or CEEC)	EPBC Act TEC	Vegetation class
Inland grey box woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South bioregions	Endangered	<ul style="list-style-type: none"> Floodplain transition woodlands Western slopes dry sclerophyll forests Grassy woodlands
Mallee and mallee-broombush dominated woodland and shrubland, lacking <i>Triodia</i> , in the NSW South Western Slopes Bioregion (CEEC)	Not listed	<ul style="list-style-type: none"> Inland rocky hill woodlands Sand plain mallee woodlands
Fuzzy box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South	Not listed	<ul style="list-style-type: none"> Western slopes grassy woodlands Western slopes grassy woodlands Western slopes grasslands
White box yellow box Blakely's red Gum woodland and derived grasslands	Critically endangered	<ul style="list-style-type: none"> Southern tableland grassy woodlands Eastern riverine forests North-west slopes dry sclerophyll woodlands
Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions	Endangered	<ul style="list-style-type: none"> Riverine plain woodlands
Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions	Endangered	<ul style="list-style-type: none"> Brigalow clay plain woodlands

Vegetation classes

The following sections provide general descriptions for each of the most common vegetation classes, including:

- distribution of the vegetation class in the Central West Local Land Services region (with map)
- landscape position, soils, etc.
- general description of vegetation, including canopy species, main shrub and under storey species
- photo(s) of representative communities likely to be found in TSRs in Central West
- any threatened ecological communities (TECs)/EECs that may be present.

Floodplain transition woodlands

This vegetation class was recorded in 23,301 ha within TSRs in the Central West region. It includes 10 PCTs:

- mixed box eucalypt woodland on low sandy-loam rises on alluvial plains in central western NSW
- mixed eucalypt woodlands of floodplains in the southern-eastern Cobar Peneplain Bioregion
- poplar box - belah woodland on clay-loam soils on alluvial plains of north-central NSW
- poplar box grassy woodland on alluvial clay-loam soils mainly in the temperate (hot summer) climate zone of central NSW (wheatbelt).
- western grey box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion
- western grey box - poplar box - white cypress pine tall woodland on red loams mainly of the eastern Cobar Peneplain Bioregion
- western grey box - white cypress pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes and Riverina bioregions
- western grey box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina bioregions
- white cypress pine woodland on sandy loams in central NSW wheatbelt
- yellow box - river red Gum tall grassy riverine woodland of NSW South Western Slopes and Riverina bioregions.

Several of these vegetation types form part of an EEC in NSW and are described later in this guide.

Distribution of vegetation class

Floodplain Transition Woodlands in the Central West Local Land Services region are part of a diverse vegetation class that is broadly distributed throughout the region.

Landscape position and vegetation description

Floodplain transition woodlands are found on alluvial or stagnant alluvial plains, on periodically flooded depressions on floodplains, alluvial plains, claypans in sand dune and sandplain areas, and floodouts of watercourses, on terraces on old alluvial plains or undulating peneplain landforms overlaying a range of underlying rock types, and in the transition zone between the floodplain and the peneplain.

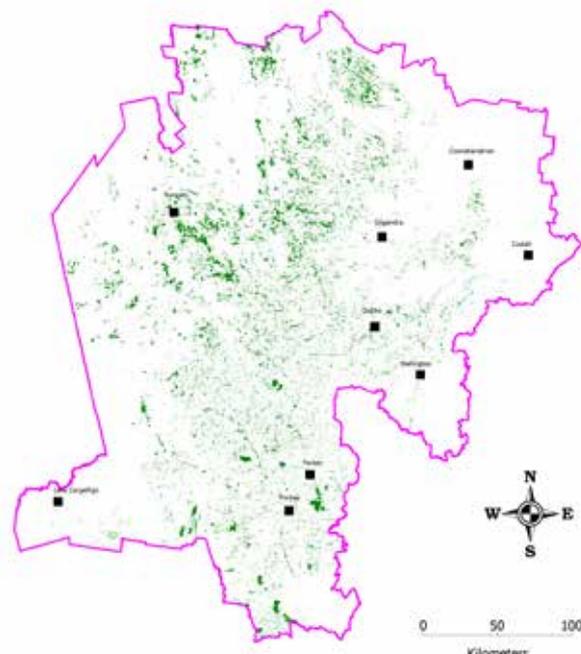


Figure 4: Floodplain Transition Woodlands - Keith Class

Main canopy species for this vegetation class are inland grey box (*Eucalyptus microcarpa*), poplar box (*Eucalyptus populnea* subsp. *bimbi*), white cypress pine (*Callitris glaucophylla*), with river red Gum (*Eucalyptus camaldulensis*), black box (*Eucalyptus largiflorens*), yellow box (*Eucalyptus melliodora*), bullock (*Allocasuarina luehmannii*) and belah (*Casuarina cristata*).

Common shrub layer species include *Dodonaea viscosa* subsp. *spatulata*, wilga (*Geijera parviflora*), *Acacia deanei* subsp. *paucijuga*, *Pimelea microcephala* subsp. *microcephala*, budda (*Eremophila mitchellii*), western boobialla (*Myoporum montanum*), warrior bush (*Apophyllum anomalum*), tarbush (*Eremophila glabra*), *Maireana microphylla*, *Acacia deanei* subsp. *deanei*, *Dodonaea viscosa* subsp. *cuneata*, *Acacia hakeoides*, *Eremophila deserti*, silver cassia (*Senna* form taxon *'artemisioides'*), needlewood (*Hakea leucoptera* subsp. *leucoptera*), *Santalum acuminatum*, wilga (*Geijera parviflora*), *Cassinia adunca*, *Cassinia laevis*, *Acacia brachybotrya*, *Acacia buxifolia* subsp. *buxifolia*, blackthorn (*Bursaria spinosa* subsp. *spinosa*), *Acacia oswaldii*, *Acacia pycnantha*, *Acacia hakeoides*, *Acacia brachybotrya*, *Santalum acuminatum*, yarran (*Acacia homalophylla*), and *Exocarpos aphyllus*.

Common groundlayer species include speargrass (*Austrostipa scabra* subsp. *scabra*), *Austroanthonia setacea*, *Calotis cuneifolia*, *Sida corrugata*, curly windmill grass (*Enteropogon acicularis*), *Austroanthonia fulva*, *Maireana enchylaenoides*, *Stuartina muelleri*, *Austroanthonia caespitosa*, windmill grass (*Chloris truncata*), *Sida corrugata*, *Wahlenbergia gracilis*, *Einadia nutans* subsp. *nutans*, *Paspalidium constrictum*, kangaroo grass (*Themeda australis*), plains grass (*Austrostipa aristiglumis*), *Aristida behriana*, *Elymus scaber*, *Austroanthonia setacea*, and *Carex inversa*.

Endangered ecological communities

EECs that may be present as part of this vegetation class include inland grey box woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South bioregions, which are listed in NSW under the *Biological Conservation Act 2015* and the Commonwealth *Environmental Protection & Biodiversity Conservation Act 2000*. Other EECs that are potentially present include Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions and Brigalow – Gidgee Woodland in the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions.



Poplar box grassy/shrubby woodland on alluvial clay-loam soils, near Tullamore.

Examples from Central West region



Inland grey box tall open woodland, near Gilgandra.



Poplar box - belah woodland on clay-loam soils, north of Condobolin.



Inland grey box poplar box woodland, north of Dubbo.



Inland grey box - poplar box - white cypress pine tall woodland on red loams, near Tottenham.

Western peneplain woodlands

This vegetation class was recorded in 14,590 ha within TSRs in the Central West region. It includes six PCTs:

- coobah - western rosewood low open tall shrubland or woodland mainly on outwash areas in the Brigalow Belt South Bioregion.
- poplar box - gum coolabah - white cypress pine shrubby woodland mainly in the Cobar Peneplain Bioregion
- poplar box - white cypress pine - wilga - ironwood shrubby woodland on red sandy-loam soils in the Darling Riverine Plains and Brigalow Belt South bioregions
- poplar box grassy woodland on flats mainly in the Cobar Peneplain Bioregion and Murray Darling Depression Bioregion
- western rosewood - wilga - wild orange - belah low woodland of the Brigalow Belt South and eastern Darling Riverine Plains bioregions
- white cypress pine - poplar box woodland on footslopes and peneplains mainly in the Cobar Peneplain Bioregion.

Distribution of vegetation class

Western peneplain woodlands is abundant throughout the northwest and western parts of the Central West region, sparsely present in the centre, and absent from the east and southeast.

Landscape position and vegetation description

Western peneplain woodlands in the Central West Local region is found on alluvial flats, footslopes and broad ridges of undulating peneplain and plain landforms mainly in the Cobar Peneplain Bioregion. It is also found on low gravelly rises and ridge crests with sandstone or quartzite outcrops.

Main canopy species for this community include poplar box (*Eucalyptus populnea* subsp. *bimbil*), white cypress pine (*Callitris glaucophylla*), and smooth-barked coolibah (*Eucalyptus intertexta*), western rosewood (*Alectryon oleifolius* subsp. *canescens*), and coobah (*Acacia salicina*).

Common shrub layer species include wilga (*Geijera parviflora*), budda (*Eremophila mitchellii*), tarbush (*Eremophila glabra*), *Acacia deanei* subsp. *paucijuga*, *Dodonaea viscosa* subsp. *angustissima*, *Dodonaea viscosa* subsp. *spatulata*, *Bertya cunninghamii*, *Dodonaea viscosa* subsp. *cuneata*, thorny saltbush (*Rhagodia spinescens*), silver cassia (*Senna* form taxon '*artemisioides*'), emubush (*Eremophila longifolia*), budda (*Eremophila mitchellii*), blackthorn (*Bursaria spinosa* subsp. *spinosa*), *Pittosporum angustifolium*, and mulga (*Acacia aneura*).

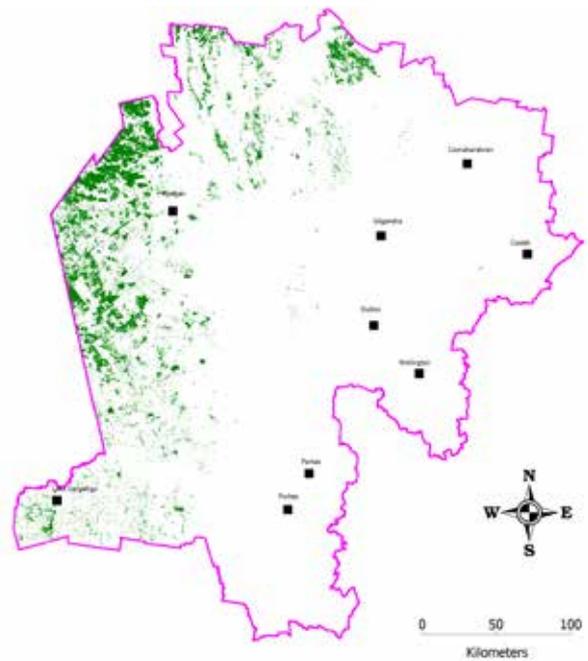


Figure 5: Western Peneplain Woodlands - Keith Class

Common under storey species include *Maireana microphylla*, curly windmill grass (*Enteropogon acicularis*), *Sclerolaena birchii*, speargrass (*Austrostipa scabra* subsp. *scabra*), *Einadia nutans* subsp. *nutans*, *Aristida jerichoensis* var. *subspinulifera*, *Thyridolepis mitchelliana*, *Monachather paradoxa*, windmill grass (*Chloris truncata*), *Eragrostis lacunaria*, *Vittadinia circularis* var. *circularis*, *Calotis lappulacea*, *Sida corrugata*, *Ptilotus polystachyus* var. *polystachyus*, *Chenopodium desertorum* subsp. *desertorum*, *Calotis cuneifolia*, *Chrysocephalum semipapposum*, *Crassula sieberiana* subsp. *sieberiana*, *Vittadinia cuneata*, *Abutilon otocarpum*, ruby saltbush (*Enchylaena tomentosa*), *Sclerolaena birchii*, and *Sclerolaena diacantha*.

Endangered ecological communities

No EECs have been reported for this vegetation class.

Examples from Central West Local region



Poplar box woodland, near Gilgandra.



Poplar box woodland near, Tottenham.



Poplar box and inland grey box, near Tullamore; Aboriginal canoe scar tree.

Semi-arid floodplain grasslands

This vegetation class was recorded in 13,730 ha within TSRs in the Central West region. It includes four PCTs:

- couch grass grassland wetland on river banks and floodplains of inland river systems
- Mitchell grass grassland - chenopod low to open shrubland on floodplains in the semi-arid (hot) and arid zones
- partly derived windmill grass - copperburr alluvial plains shrubby grassland of the Darling Riverine Plains and Brigalow Belt South bioregions
- rats tail couch sod grassland wetland of inland floodplains.

Distribution of vegetation class

Semi-arid floodplain grasslands in the Central West region are found in the central and northern parts, predominantly on the Macquarie River and tributaries, with minor scattered occurrences elsewhere.

Landscape position and vegetation description

Semi-arid floodplain grasslands in the Central West region are typically found on alluvial loams and clays in alluvial plains and floodplains, or on calcareous or aeolian sands and clays on sand plains and peneplain areas.

Semi-arid floodplain grasslands may be dominated by Mitchell grasses (*Astrebla lappacea*, *Astrebla pectinata*), windmill grass (*Chloris truncata*), curly windmill grass (*Enteropogon acicularis*), button grass (*Dactyloctenium radicans*), small burrgrass (*Tragus australianus*), fairy grass (*Sporobolus mitchellii*), corkscrew grass (*Austrostipa scabra* subsp. *scabra*), *Sporobolus elongatus* and other grass species. Forbs species include *Daucus glochidiatus*, *Boerhavia repleta*, *Lepidium fasciculatum* and *Convolvulus* spp. Scattered small shrubs include black roly poly (*Sclerolaena muricata*) and galvanized gurr (*Sclerolaena birchii*), *Atriplex leptocarpa*, *Atriplex muelleri*, *Sida trichopoda* and *Solanum esuriale*. Scattered trees include poplar box (*Eucalyptus populnea* subsp. *bimbil*) and coolabah (*Eucalyptus coolabah*) and scattered tall shrubs include river cooba (*Acacia stenophylla*) and wilga (*Geijera parviflora*). These communities have been substantially reduced in extent due to cropping and are considered to be a vulnerable due to continued clearing for crops.

Endangered ecological communities

No EECs have been reported for this vegetation class.

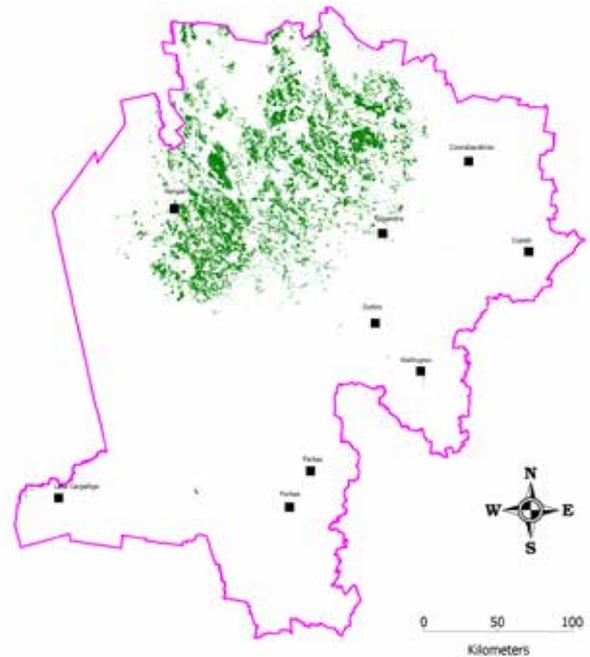


Figure 6: Semi-arid Floodplain grasslands - Keith Class

Examples from Central West region



Tussock grassland, northwest of Gilgandra.



Partly derived grasslands, west of Quandialla.

North-west floodplain woodlands

This vegetation class was recorded in 10,768 ha within TSRs in the Central West region. It includes five PCTs:

- belah woodland on alluvial plains and low rises in the central NSW wheatbelt to Pilliga and Liverpool Plains regions
- black box woodland wetland on NSW central and northern floodplains including the Darling Riverine Plains and Brigalow Belt South bioregions.
- coolabah - river coobah - lignum woodland wetland of frequently flooded floodplains mainly in the Darling Riverine Plains Bioregion
- coolabah open woodland wetland with chenopod/ grassy ground cover on grey and brown clay floodplains
- poplar box - coolabah floodplain woodland on light clay soil mainly in the Darling Riverine Plains Bioregion.

Distribution of vegetation class

North-west floodplain woodlands in the Central West region are common in the north of the region, becoming less common through the centre of the region.

Landscape position and vegetation description

North-west floodplain woodlands are found in alluvial plains and floodplains, usually in higher areas.

Main canopy species for this vegetation class are coolibah (*Eucalyptus coolabah* subsp. *coolabah*), river red Gum (*Eucalyptus camaldulensis*), black box (*Eucalyptus largiflorens*), poplar box (*Eucalyptus populnea* subsp. *bimbil*), and belah (*Casuarina cristata*).

Common shrub layer species include river coobah (*Acacia stenophylla*), coobah (*Acacia salicina*), lignum (*Muehlenbeckia florulenta*), wilga (*Geijera parviflora*), budda (*Eremophila mitchellii*), thorny saltbush (*Rhagodia spinescens*), western rosewood (*Alectryon oleifolius* subsp. *canescens*), nitre goosefoot (*Chenopodium nitrariaceum*), and weeping myall (*Acacia pendula*).

Common ground layer species include Warrego grass (*Paspalidium jubiflorum*), *Einadia nutans* subsp. *nutans*, curly windmill grass (*Enteropogon acicularis*), *Eragrostis setifolia*, speargrass (*Austrostipa scabra* subsp. *scabra*), *Paspalidium constrictum*, windmill grass (*Chloris truncata*), *Sclerolaena birchii*, black roly poly (*Sclerolaena muricata*), *Oxalis chnoodes*, *Goodenia fascicularis*, *Abutilon oxycarpum*, ruby saltbush (*Enchylaena tomentosa*), *Austrodanthonia bipartita*, *Paspalidium aversum*, and *Tetragonia tetragonioides*.

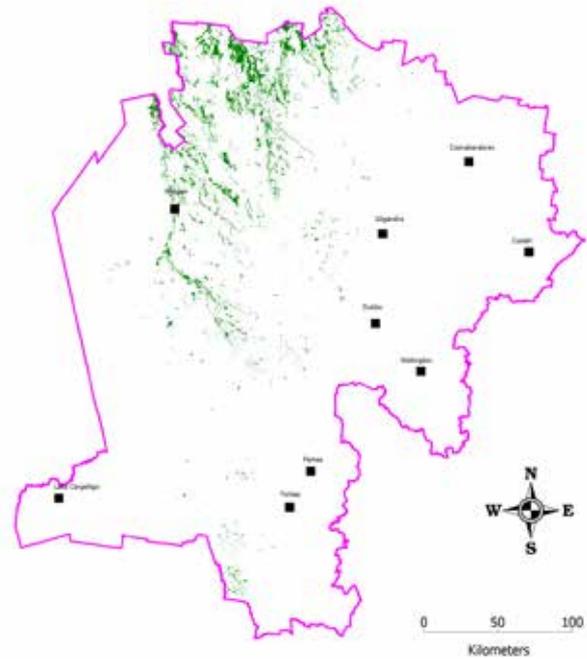


Figure 7: North-west Floodplain Woodlands - Keith Class

Endangered ecological communities

EECs that may be present as part of this vegetation class include coolabah-black box woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain and Mulga Lands bioregions, which is listed in NSW under the *Biological Conservation Act 2015* and the Federal *Environmental Protection and Biodiversity Conservation Act 2000*.

Other EECs that are potentially present include brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions and brigalow – gidgee woodland in the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions.

Examples from Central West region



Coolabah woodland, south of Walgett.

Riverine plain grasslands

This vegetation class was recorded in 5,790 ha within TSRs in the Central West region. It includes one PCT:

- plains grass grassland on alluvial mainly clay soils in the Riverina and NSW South Western Slopes bioregions.

Distribution of vegetation class

Riverine plain grasslands in the Central West region are broadly distributed throughout the central and southern parts.

Landscape position and vegetation description

This vegetation class is typically found on clay soils in alluvial depressions and floodplains.

It occurs as a tussock grassland that is dominated by the grass species plains grass (*Austrostipa aristiglumis*), *Walwhalleya prolata*, *Austrodanthonia duttoniana*, *Enteropogon ramosus*, *Sporobolus caroli* and *Chloris truncata*. Queensland bluegrass (*Dichanthium sericeum* subsp. *sericeum*) occurs in the north and *Austrodanthonia duttoniana* is more common in the south. Nardoo Nardoo (*Marsilea drummondii*) is common throughout, along with forbs such as *Wurmbea dioica* subsp. *dioica*, *Rumex dumosus*, *Arthropodium minus*, *Leptorhynchus squamatus* subsp. *A*, *Crassula decumbens* var. *decumbens*, *Goodenia fascicularis*, *Rhodanthe corymbiflora* and several species of *Swainsona*. The sedge *Eleocharis pallens* is often present. Lignum (*Muehlenbeckia florulenta*) may occur as scattered shrubs. Weed species are common and at some sites may be dominant. Riverine plain grasslands are poorly represented in reserves and threatened due to cropping and grazing.

Endangered ecological communities

No EECs have been reported for this vegetation class.

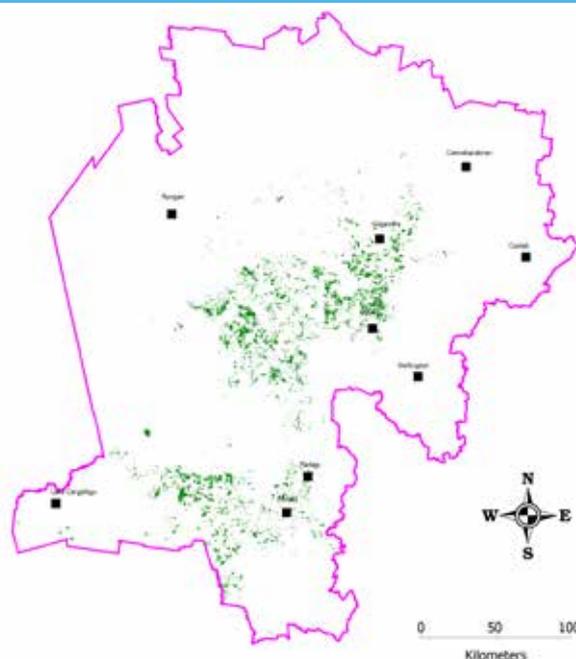


Figure 8: Riverine Plain Grasslands - Keith Class

Examples from Central West region



Riverine plain grasslands, south of Gilgandra.



Riverine plain grasslands, east of Cadagabal.

Western slopes grasslands

This vegetation class was recorded in 5,534 ha within TSRs in the Central West region. It includes four PCTs:

- derived grassland of the NSW South Western Slopes
- derived tall spear grass grassland on mainly basalt hills of the Liverpool Plains, Liverpool Range and in the upper Hunter Valley (Merriwa district), south-eastern Brigalow Belt South Bioregion
- derived tussock grassland of the central western plains and lower slopes of NSW
- Liverpool plains grassland, mainly on basaltic black earth soils, Brigalow Belt South Bioregion.

Distribution of vegetation class

Western slopes grasslands are abundant throughout all but the northern parts of the Central West region.

Landscape position and vegetation description

This vegetation class includes derived grassland communities resulting from the clearing of various grassy woodland and forest communities. It occurs on any landscape position formerly occupied by woodland and dry forest communities, from which these grassland communities are derived. Western slopes grasslands most commonly occur on footslopes, midslopes, upper slopes and crests, on all lithologies, and are widespread throughout the region.

Common shrub species include *Acacia dealbata*, *Acacia genistifolia*, *Acacia mearnsii*, and *Hibbertia obtusifolia*.

Common under storey species include *Acaena ovina*, *Bothriochloa macra*, *Chloris truncate*, *Chrysocephalum apiculatum*, *Dichondra repens*, *Elymus scaber*, *Euchiton spp.*, *Hydrocotyle laxiflora*, *Joycea pallida*, *Microlaena stipoides*, *Panicum effusum*, *Poa sieberiana*, *Rumex brownii*, *Solenogyne spp.*, *Themeda australis*, and *Wahlenbergia spp.*

Endangered ecological communities

No EECs have been reported for this vegetation class.

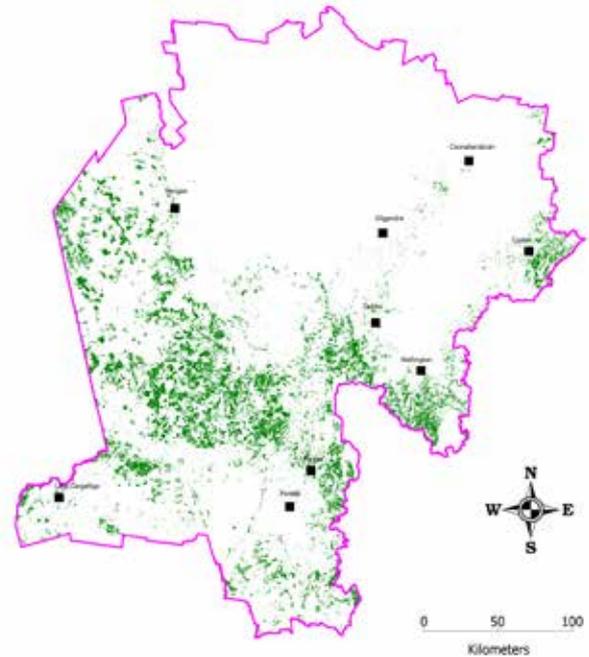


Figure 9: Western Slopes Grasslands - Keith Class

Examples from Central West region



Western slopes grasslands, near Wellington.



Western slopes grasslands, near Tottenham.

Western Slopes Grassy Woodlands

This vegetation class was recorded in 5,078 ha within TSRs in the Central West region. It includes 22 PCTs, the most common of which are:

- apple box moist gully grass-forb open forest of the NSW South Western Slopes and South Eastern Highlands bioregions
- Blakely's red Gum - long-leaved box - Cootamundra wattle shrubby woodland of the southern NSW South Western Slopes Bioregion
- Blakely's red Gum - rough-barked apple flats woodland of the NSW western slopes
- Blakely's red Gum - white cypress pine woodland on lower slopes of hills in NSW South Western Slopes Bioregion
- Blakely's red Gum - yellow box grassy woodland of the NSW South Western Slopes Bioregion
- fuzzy box - inland grey box on alluvial brown loam soils of the NSW South Western Slopes Bioregion and southern BBS Bioregion
- mugga ironbark - black cypress pine woodland on hillslopes and ridges of the Central Lachlan region of the South Western Slopes
- white box - apple box valley herbaceous woodland mainly of the NSW western slopes
- white box - black cypress pine - tumbledown gum - Mugga Ironbark shrubby woodland in hills of the NSW central western slopes
- white box - Blakely's red Gum - yellow box grassy woodland of the NSW South Western Slopes Bioregion
- white box - white cypress pine - inland grey box woodland on the western slopes of NSW
- white box grassy woodland on well drained podsolic clay soils on hills in the NSW South Western Slopes Bioregion
- yellow box tall grassy woodland on alluvial flats mainly in the NSW South Western Slopes Bioregion.

Several of these vegetation types form part of an EEC in NSW and are described later in this guide.

Distribution of vegetation class

Western slopes grassy woodlands are common in the eastern part of the Central West region and largely absent from the rest.

Landscape position and vegetation description

Western slopes grassy woodlands in the Central West form a diverse vegetation class that is typically found in landscapes ranging from footslopes, gullies or valley flats, hillslopes and hillcrests in hilly country, lower slopes and gullies, and valley floors, flats, drainage lines.

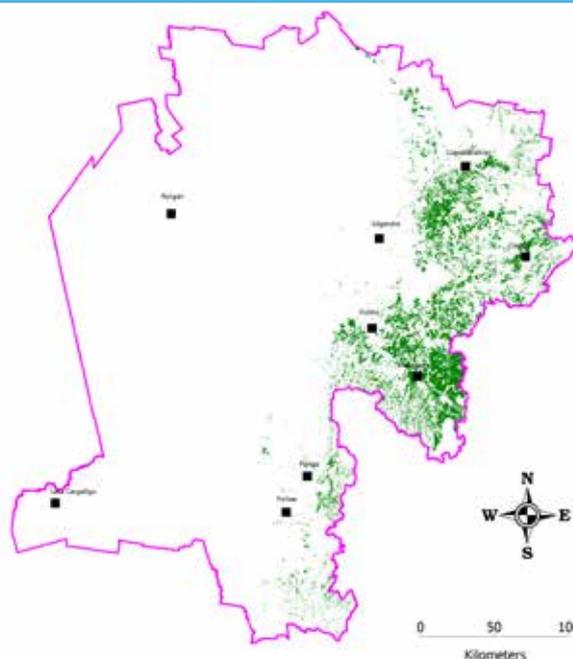


Figure 10: Western Slopes Grassy Woodlands - Keith Class

Main canopy species for this vegetation class include Blakely's red Gum (*Eucalyptus blakelyi*), yellow box (*Eucalyptus melliodora*), apple box (*Eucalyptus bridgesiana*), red stringybark (*Eucalyptus macrorhyncha*), rough-barked apple (*Angophora floribunda*), white cypress pine (*Callitris glaucophylla*), fuzzy box (*Eucalyptus conica*), mugga ironbark (*Eucalyptus sideroxylon*), black cypress pine (*Callitris endlicheri*) and white box (*Eucalyptus albens*).

Common shrub layer species include silver wattle (*Acacia dealbata*), *Acacia paradoxa*, *Leptospermum continentale*, *Cassinia aculeata*, bracken (*Pteridium esculentum*), *Acacia baileyana*, *Acacia buxifolia* subsp. *buxifolia*, *Lissanthe strigosa*, *Pultenaea foliolosa*, *Acacia penninervis* var. *longiracemosa*, blackthorn (*Bursaria spinosa* subsp. *spinosa*), *Indigofera adesmiifolia*, *Amyema miquelii*, *Acacia deanei* subsp. *deanei*, *Dodonaea viscosa* subsp. *cuneata*, wilga (*Geijera parviflora*), *Acacia implexa*, silver cassia (*Senna* form taxon 'artemisioides'), western boobialla (*Myoporum montanum*), black roly poly (*Sclerolaena muricata* var. *muricata*), *Maireana enchylaenoides* and *Acacia decora*.

Common groundlayer species include *Microlaena stipoides* var. *stipoides*, Kidney Weed (*Dichondra repens*), *Acaena ovina*, *Hydrocotyle laxiflora*, kangaroo grass (*Themeda australis*), *Elymus scaber*, *Chrysocephalum semipapposum*, *Xerochrysum viscosa*, *Dianella revoluta* var. *revoluta*, *Lomandra longifolia*, *Austrodanthonia caespitosa*, *Dichelachne micrantha*, *Austrodanthonia racemosa* var. *racemosa*, *Aristida ramosa*, *Lachnagrostis filiformis*, tussock grass (*Poa labillardierei*), snowgrass (*Poa sieberiana* var. *sieberiana*), *Urtica incisa*, *Hydrocotyle laxiflora*, and *Alternanthera denticulata*.

Endangered ecological communities:

White box yellow box Blakely's red Gum woodland, a CEEC listed in NSW under the *Biodiversity Conservation Act 2015* and the Commonwealth *Environmental Protection and Biodiversity Conservation Act 2000*, is included in this vegetation class.

Fuzzy box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South, an EEC listed under the *Biodiversity Conservation Act 2015*, is included in this vegetation class.

Native vegetation on cracking clay soils of the Liverpool Plains is another EEC listed under the *Biodiversity Conservation Act 2015* that is in this vegetation class.

Examples from Central West region



Yellow box woodland, east of Wellington.



Blakely's red Gum – yellow box woodland, south of Coolah.



Fuzzy box woodland, east of Grenfell.



White box woodland, south of Forbes.

Inland riverine forests

This vegetation class was recorded in 4,849 ha within TSRs in the Central West region. It includes nine PCTs:

- Blakelys red Gum x dirty gum - white cypress pine tall riparian woodland, NSW South Western Slopes Bioregion
- river red Gum - black box woodland wetland of the semi-arid (warm) climatic zone (mainly Riverina and Murray Darling Depression bioregions)
- river red Gum - lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina and Murray Darling Depression bioregions)
- river red Gum - wallaby grass tall woodland wetland on the outer River red Gum zone mainly in the Riverina Bioregion
- river red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion
- river red Gum riparian tall woodland / open forest wetland in the Nandewar and Brigalow Belt South bioregions
- river red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW
- river red Gum tall to very tall open forest / woodland wetland on rivers on floodplains mainly in the Darling Riverine Plains Bioregion
- river red Gum-sedge dominated very tall open forest in frequently flooded forest wetland along major rivers and floodplains in south-western NSW.

Distribution of vegetation class

Inland riverine forests in the Central West region typically occur on the medium to larger drainages, including the Lachlan in the south and the Macquarie River and tributaries in the north and west of the region.

Landscape position and vegetation description

Inland riverine forests in the Central West region typically occur on river banks and adjacent flats along major watercourses, on the inner floodplains and lining channels including on levees of major river systems, in drainage depressions and flood-outs of major water courses on the floodplains, in closed (e.g. cowals) and open depressions on floodplains and alluvial plains, and in and lining rocky watercourses on hills.

Main canopy species for this vegetation class is river red Gum (*Eucalyptus camaldulensis*) with black box (*Eucalyptus largiflorens*) in the west, and fuzzy box (*Eucalyptus conica*) and yellow box (*Eucalyptus melliodora*) in the east.

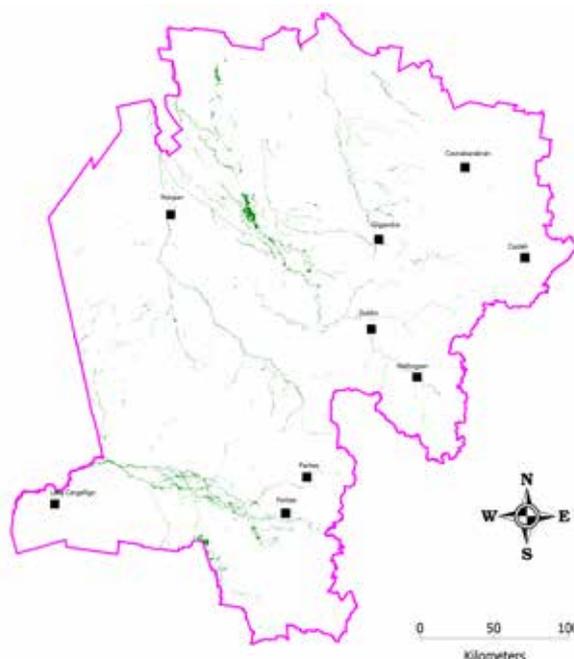


Figure 11: Inland Riverine Forests - Keith Class

Common shrub layer species include river oobah (*Acacia stenophylla*), Coobah (*Acacia salicina*), lignum (*Muehlenbeckia florulenta*), thorny saltbush (*Rhagodia spinescens*), eurah (*Eremophila bignoniiflora*), *Melaleuca trichostachya*, western boobialla (*Myoporum montanum*), blackthorn (*Bursaria spinosa* subsp. *spinosa*), bracteate honey myrtle (*Melaleuca bracteata*), *Glycyrrhiza acanthocarpa*, and ruby saltbush (*Enchylaena tomentosa*).

Common groundcover species include warrego brass (*Paspalidium jubiflorum*), *Einadia nutans* subsp. *nutans*, *Austrodanthonia caespitosa*, *Wahlenbergia fluminalis*, *Cyperus exaltatus*, curly windmill grass (*Enteropogon acicularis*), windmill grass (*Chloris truncata*), *Eclipta platyglossa*, *Lachnagrostis filiformis*, *Vittadinia dissecta*, *Brachyscome basaltica* var. *gracilis*, *Sclerolaena brachyptera*, and *Einadia hastata*.

Endangered ecological communities

No EEC have been reported for this vegetation class.

Examples from Central West region



River red Gum riparian tall woodland, near Gilgandra.



River red Gum Forest on large river channel, east of Condobolin.



River red Gum swampy woodland wetland, west of Forbes.

Riverine chenopod shrublands

This vegetation class was recorded in 3,715 ha within TSRs in the Central West region. It includes six PCTs:

- bladder saltbush chenopod shrubland on alluvial plains mainly in the Darling Riverine Plain Bioregion
- bladder saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- chenopod low open shrubland - ephemeral partly derived forbland saline wetland on occasionally flooded pale clay scalds in the NSW North Western Plains
- derived copperburr shrubland of the NSW northern inland alluvial floodplains
- old man saltbush - mixed chenopod shrubland of the semi-arid hot (persistently dry) and arid climate zones (north-western NSW)
- slender saltbush - samphire - copperburr low open shrubland wetland on irregularly inundated floodplains mainly in the Darling Riverine Plains and Brigalow Belt South bioregions.

Distribution of vegetation class

Riverine chenopod shrublands are restricted to an area in the northwest of the region, where it is locally abundant.

Landscape position and vegetation description

Riverine chenopod shrublands in the Central West region occur on non-cracking, pale clay soils, on slightly elevated rises on floodplains that are occasionally flooded where scalding is commonplace. It also occurs in patches on grey clay or texture contrast sandy clay soils on periodically inundated alluvial plains and rises; on grey and brown cracking clays and red-brown clay loam soils on alluvial plains; or on heavy, alluvial grey, brown cracking clays or red clays on alluvial plains or flood plains. Species composition changes with rainfall and this vegetation class is generally threatened by erosion and over-grazing.

Vegetation in this class ranges from a low, open chenopod shrubland dominated by slender-fruit saltbush (*Atriplex leptocarpa*) and other saltbushes such as *Atriplex pseudocampanulata* and *Atriplex holocarpa* with species of copperburr including *Sclerolaena decurrens*, *Sclerolaena tricuspis*, *Sclerolaena bicornis* var. *bicornis* and *Sclerolaena stelligera*. Other shrubs may include *Osteocarpum acropterum* var. *acropterum* and *Maireana appressa*. The groundcover includes grasses such as *Eragrostis dielsii*, *Sporobolus mitchellii*, *Sporobolus caroli*, *Eriochloa crebra*, *Enteropogon acicularis*, *Diplachne muelleri*. Forbs include *Oxalis chnoodes*, *Stemodia florulenta*, *Boerhavia dominii*, *Centipeda thespidioides* and *Senecio runcinifolius*.

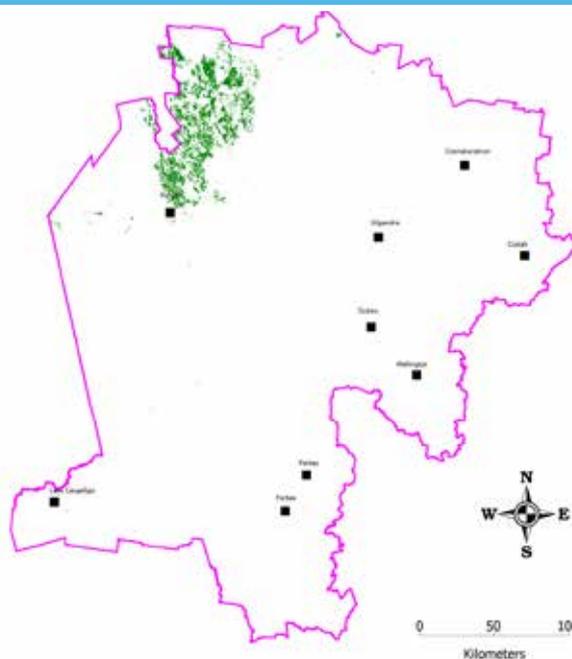


Figure 12: Riverine Chenopod Shrublands - Keith Class

Variations include a low to mid-high, open chenopod shrubland dominated by bladder saltbush (*Atriplex vesicaria*), pop saltbush (*Atriplex holocarpa*), blue bush (*Maireana appressa*), Black Blue Bush (*Maireana pyramidata*), a number of copperburr (*Sclerolaena*) species and other chenopods.

The ground cover is sparse dominated by forbs and grasses. Alternately, it may be a low to mid-high to 90 cm high, open to sparse chenopod shrubland dominated by bladder saltbush (*Atriplex vesicaria*) often with desert glasswort (*Pachycornia triandra*), Three-spined copperburr (*Sclerolaena tricuspis*), *Sclerolaena intricata* and pigface (*Disphyma crassifolium* subsp. *clavellatum*).

The taller components of the vegetation class are a tall shrubland to two metres high, dominated by old man saltbush (*Atriplex nummularia*) often with nitre goosefoot (*Chenopodium nitrariaceum*), black bluebush (*Maireana pyramidata*) with lignum (*Muehlenbeckia florulenta*) with a lower shrub layer composed of copperburrs (*Sclerolaena* spp.) and other *Atriplex* species.

Endangered ecological communities

No EECs have been reported for this vegetation class.

Examples from Central West region



Bladder saltbush shrubland on alluvial plains, north of Nyngan.



Slender saltbush - samphire - copperburr low open shrubland wetland on irregularly inundated floodplains, northwest of Nyngan.

Western slopes dry sclerophyll forests

This vegetation class was recorded in 2,723 ha within TSRs in the Central West region. It includes 29 PCTs, the more common of which are described below:

- bullock - white cypress pine woodland, mainly in the NSW South Western Slopes Bioregion (Benson 54)
- black cypress pine - narrow-leaved ironbark - red Gum +/- White Bloodwood shrubby open forest on hills of the southern Pilliga, Coonabarabran and Garawilla regions, Brigalow Belt South Bioregion
- Dwyers red gum - black cypress pine - ironbark low woodland on sandstone hillcrests in the Dubbo - Gilgandra region, south-western Brigalow Belt South Bioregion
- inland scribbly gum - red stringybark - black cypress pine - red ironbark open forest on sandstone hills in the southern Brigalow Belt South Bioregion and northern NSW South Western Slopes Bioregion
- inland scribbly gum - white bloodwood - red stringybark - black cypress pine shrubby sandstone woodland mainly of the Warrumbungle National Park - Pilliga region in the Brigalow Belt South Bioregion
- mugga ironbark - inland grey box - pine tall woodland of the NSW South Western Slopes Bioregion (Benson 217)
- mugga ironbark - White cypress pine woodland on sedimentary or metamorphic low rises in the temperate (hot summer) climate zone (Benson 243)
- mugga ironbark - buloke - Pilliga box - white cypress pine shrubby woodland on sandstone in the Dubbo region, south-western Brigalow Belt South Bioregion
- narrow-leaved ironbark - cypress pine - white box shrubby open forest in the Brigalow Belt South Bioregion and Nandewar Bioregion
- red gum - rough-barked apple - narrow-leaved Ironbark - cypress pine grassy open forest on flats and drainage lines in the Goonoo and surrounding forests, southern Brigalow Belt South Bioregion
- red stringybark - rough-barked Apple +/- Nortons box open forest on hillslopes in the Warrumbungle National Park - Coolah regions
- red Stringybark - narrow-leaved Ironbark - black cypress pine - hill red gum sandstone woodland of southern NSW Brigalow Belt South Bioregion
- white cypress pine - narrow-leaved ironbark - white bloodwood - red gum shrub grass woodland of the Pilliga - Coonabarabran region, Brigalow Belt South Bioregion
- white bloodwood - red ironbark - black cypress pine shrubby sandstone woodland of the Pilliga Scrub and surrounding regions

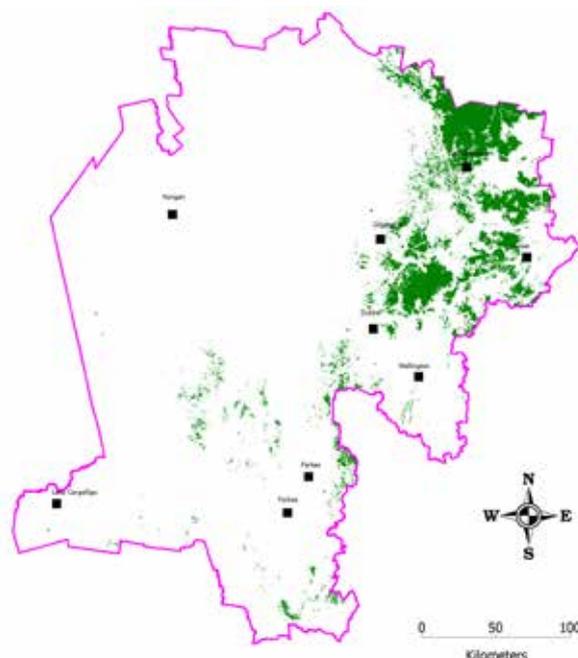


Figure 13: Western Slopes Dry Sclerophyll Forests - Keith Class

Distribution of vegetation class

Western slopes dry sclerophyll forests in the Central West Local Land Services region are found in the eastern part of the region but are absent from the central and western parts.

Landscape position and vegetation description

Western slopes dry sclerophyll forests are found on flats or on rises and low hills in undulating country, on the mid-slopes of rises or footslopes on undulating plains, on footslopes of low hills or hills on sloping terrain sometimes with rock outcropping, and occasionally on slopes and ridges.

Main canopy species for this vegetation class include black cypress pine (*Callitris endlicheri*), white cypress pine (*Callitris glaucophylla*), Dwyer's red gum (*Eucalyptus dwyeri*), inland scribbly gum (*Eucalyptus rossii*), bullock (*Allocasuarina luehmannii*), mugga ironbark (*Eucalyptus sideroxylon*), narrow-leaved ironbark (*Eucalyptus crebra*), Blakely's red gum (*Eucalyptus blakelyi*), rough-barked apple (*Angophora floribunda*), red box (*Eucalyptus polyanthemos* subsp. *polyanthemos*), red stringybark (*Eucalyptus macrorhyncha*), white bloodwood (*Eucalyptus trachyphloia*), and tumbledown red gum (*Eucalyptus dealbata*).

Common shrub layer species include currawang (*Acacia doratoxylon*), *Allocasuarina verticillata*, *Cassinia aculeata*, *Acacia vestita*, western boobialla (*Myoporum montanum*), *Dodonaea viscosa*, *Styphelia triflora*, *Acacia deanei*, *Acacia hakeoides*, *Acacia buxifolia*, *Ozothamnus diosmifolius* and *Grevillea floribunda*.

Common groundlayer species include *Melichrus urceolatus*, *Austrodanthonia setacea*, *Speargrass* (*Austrostipa scabra* subsp. *scabra*), *Calotis cuneifolia*, *Austrostipa densiflora*, *Dianella revoluta*, *Xerochrysum viscosa*, *Einadia hastata*, *Goodenia hederacea* subsp. *hederacea*, *Eragrostis lacunaria*, *Austrodanthonia fulva*, *Austrodanthonia monticola*, Kangaroo Grass (*Themeda australis*), *Dichelachne micrantha*, *Stypandra glauca*, *Microlaena stipoides* var. *stipoides*, and *Lepidosperma laterale*.

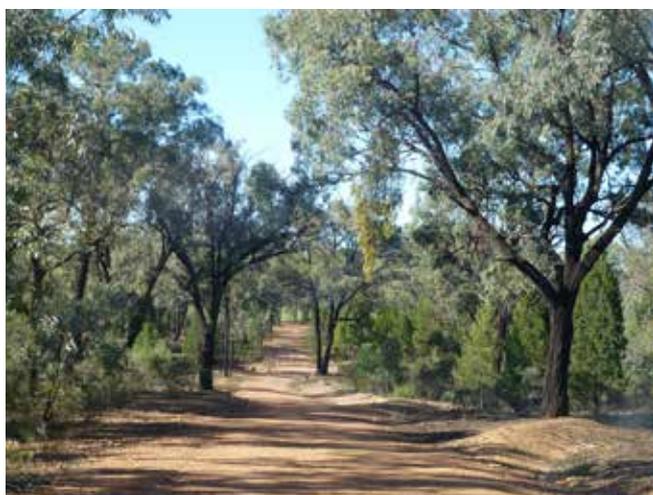
Endangered ecological communities

No EECs have been reported for this vegetation class.

Examples from Central West region



White box with tumbledown red gum and white pine, west of Wellington.



Mugga ironbark – cypress pine woodland, near Grenfell.



Red stringybark - rough-barked apple open forest on hillslopes in the Warrumbungle National Park.



Mugga – inland grey box – white pine forest, south of Gilgandra.



Black cypress pine - narrow-leaved ironbark - red gum - white bloodwood shrubby open forest on hills, west of Coonabarabran.

Riverine plain woodlands

This vegetation class was recorded in 2,297 ha within TSRs in the Central West region. It includes two PCTs:

- weeping myall open woodland of the Darling Riverine Plains and Brigalow Belt South bioregions
- weeping myall open woodland of the Riverina and NSW South Western Slopes bioregions.

Several of these vegetation types form part of an EEC in NSW and are described later in this guide.

Distribution of vegetation class

Eastern parts of the Murray-Darling riverine plains with a major occurrence in the mid-western Riverina district and less extensive occurrences in the mid Lachlan, Macquarie and Moree plains districts. Principally found in NSW, but extends into Qld and Vic.

Landscape position and vegetation description

Riverine plain woodlands in the Central West region are found on level alluvial plains and gentle rises throughout central NSW.

Main canopy species for this vegetation class include weeping myall (*Acacia pendula*) and yarran (*Acacia homalophylla*), with occasional belah (*Casuarina cristata*), poplar box (*Eucalyptus populnea* subsp. *bimbi*), and white cypress pine (*Callitris glaucophylla*).

Common shrub layer species include thorny saltbush (*Rhagodia spinescens*), *Maireana decalvans*, nitre goosefoot (*Chenopodium nitrariaceum*), cotton bush (*Maireana aphylla*), *Maireana pentagona*, lignum (*Muehlenbeckia florulenta*), river coobah (*Acacia stenophylla*), *Acacia oswaldii*, coobah (*Acacia salicina*), hooked needlewood (*Hakea tephrosperma*), sandalwood (*Santalum lanceolatum*), silver cassia (*Senna* form taxon 'artemisioides'), *Eremophila deserti*, warrior bush (*Apophyllum anomalum*), *Acacia deanei* subsp. *deanei*, emubush (*Eremophila longifolia*), *Dodonaea viscosa* subsp. *angustissima*, western rosewood (*Alectryon oleifolius* subsp. *canescens*), budda (*Eremophila mitchellii*), and wilga (*Geijera parviflora*).

Common groundlayer species include *Austrodanthonia caespitosa*, *Atriplex semibaccata*, *Alternanthera denticulata*, plains grass (*Austrostipa aristiglumis*), *Atriplex spinibractea*, *Atriplex leptocarpa*, ruby saltbush (*Enchylaena tomentosa*), *Austrostipa nodosa*, *Austrodanthonia setacea*, *Sporobolus caroli*, *Einadia nutans* subsp. *nutans*, curly windmill grass (*Enteropogon acicularis*), *Atriplex spinibractea*, *Ptilotus semilanatus*, *Austrodanthonia setacea*, *Austrodanthonia duttonii*, and *Walwhalleya prolata*.

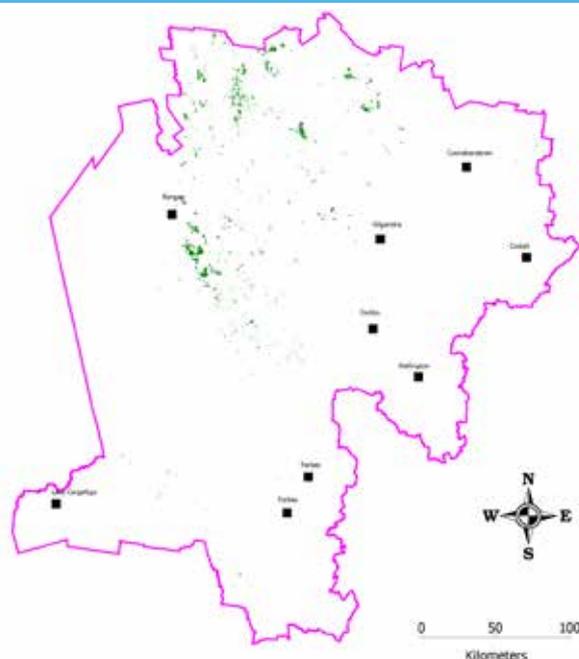


Figure 14: Riverine Plain Woodlands - Keith Class

Endangered ecological communities:

Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South western Slopes bioregions, an EEC listed under the *Biodiversity Conservation Act 2015* and the *Environmental Protection & Biodiversity Conservation Act 2000*, is included in this vegetation class.

Examples from Central West region



Weeping myall woodland, near Tottenham.



Weeping myall woodland with mistletoe, near Albert.

Pilliga outwash dry sclerophyll forests

This vegetation class was recorded in 2,043 ha within TSRs in the Central West region. It includes four PCTs:

- broombush - wattle very tall shrubland of the Pilliga to Goonoo regions, Brigalow Belt South Bioregion
- dirty gum - buloke - white cypress pine - ironbark shrubby woodland on deep sandy soils in the Liverpool Plains region of the Brigalow Belt South Bioregion
- Pilliga box - white cypress pine - buloke shrubby woodland in the Brigalow Belt South Bioregion
- Poplar box - white cypress pine shrub grass tall woodland of the Pilliga - Warialda region, Brigalow Belt South Bioregion.

Distribution of vegetation class

This vegetation class occurs mainly in the Pilliga area in the north of the region, with more scattered occurrences through the centre of the region.

Landscape position and vegetation description

Pilliga outwash dry sclerophyll forests in the Central West region typically occurs on flats and plains of penepains or plains landforms, on low sloping ground or on the sides of gentle ridges in the Pilliga Scrub region, and on Pilliga sandstone and associated alluvial deposits.

Main canopy species for this vegetation class include Pilliga box (*Eucalyptus pilligaensis*), poplar box (*Eucalyptus populnea* subsp. *bimbil*), white cypress pine (*Callitris glaucophylla*), broad-leaved ironbark (*Eucalyptus fibrosa*), brown bloodwood (*Corymbia trachyphloia* subsp. *amphistomatica*), bullock (*Allocasuarina luehmannii*), and narrow-leaved ironbark (*Eucalyptus crebra*).

Common shrub layer species include wilga (*Geijera parviflora*), western boobialla (*Myoporum montanum*), *Acacia deanei* subsp. *paucijuga*, budda (*Eremophila mitchellii*), *Dodonaea viscosa* subsp. *viscosa*, western rosewood (*Alectryon oleifolius* subsp. *canescens*), *Acacia spectabilis*, *Acacia tindaleae* and *Cassinia arcuata*.

Common groundlayer species include ruby saltbush (*Enchylaena tomentosa*), *Einadia nutans* subsp. *linifolia*, Speargrass (*Austrostipa scabra* subsp. *scabra*), slender bamboo brass (*Austrostipa verticillata*), *Eragrostis lacunaria*, *Calotis cuneifolia*, *Vittadinia cervicalis*, *Oxalis perennans*, *Cryptandra amara*, *Gonocarpus elatus*, kidney weed (*Dichondra repens*), *Cheilanthes sieberi* subsp. *sieberi*, *Aristida ramosa*, *Eragrostis brownii*, *Panicum effusum*, *Digitaria diffusa*, *Lomandra filiformis*, *Carex inversa*, *Austrodanthonia monticola*, *Calotis cuneifolia*, and *Aristida jerichoensis*.

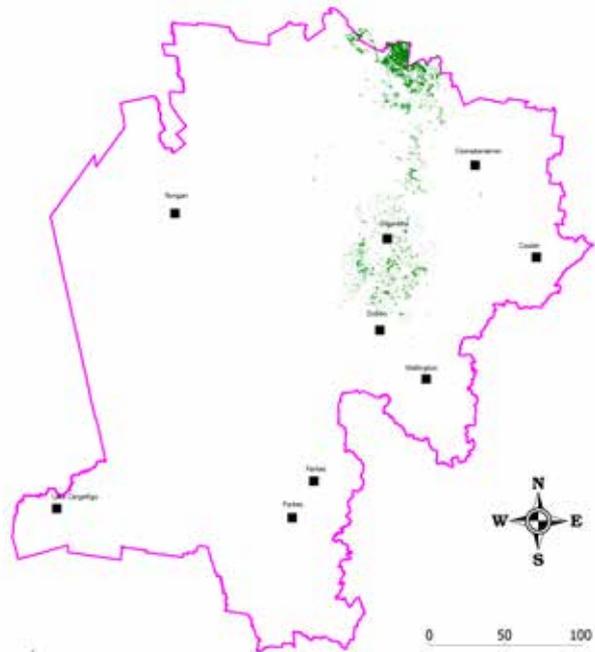


Figure 15: Pilliga Outwash Dry Sclerophyll Forests - Keith Class

Endangered ecological communities

No EECs have been reported for this vegetation class.

Examples from Central West region



Poplar box - white cypress pine shrub grass tall woodland, east of Gulargambone.



Pilliga box - poplar box - white cypress pine grassy open woodland, north of Gilgandra.

Inland rocky hill woodlands

This vegetation class was recorded in 1,312 ha within TSRs in the Central West region. It includes 14 PCTs:

- beyeria - mintbush - tumbledown red gum shrubland - low woodland on conglomerate outcrops in the Wellington region, NSW central western slopes
- Dwyers red gum - black cypress pine - currawang shrubby low woodland on rocky hills mainly in the NSW South Western Slopes Bioregion
- Dwyers red gum - currawang grassy low woodland of the central western plains of NSW
- Dwyers red gum - quinine tree open woodland on igneous intrusive hills of the Macquarie River floodplain (NSW)
- Dwyers red gum - white cypress pine - currawang low shrub-grass woodland of the Cobar Peneplain Bioregion
- Dwyers Red gum - white cypress pine - currawang shrubby woodland mainly in the NSW South Western Slopes Bioregion
- green mallee - white cypress pine very tall mallee woodland on gravel rises mainly in the Cobar Peneplain Bioregion
- green mallee tall mallee woodland on rises in the Pilliga - Goonoo regions, southern Brigalow Belt South Bioregion
- grey mallee - white cypress pine woodland on rocky hills of the eastern Cobar Peneplain Bioregion
- gum coolabah woodland on sedimentary substrates mainly in the Cobar Peneplain Bioregion
- mock olive - tumbledown red gum - red ash - wilga siliceous rocky hill low woodland / shrubland in the Gunnedah - Tambar Springs region, Brigalow Belt South Bioregion
- ridge mallee woodland on hills of meta-sediments and volcanics, eastern Cobar Peneplain Bioregion
- tumbledown red gum - black cypress pine - red stringybark woodland on rocky hills in the NSW central western slopes
- white cypress pine - mulga low woodland on siliceous rocky ranges mainly of the Cobar Peneplain Bioregion.

Several of these vegetation types form part of an EEC in NSW and are described later in this guide.

Distribution of vegetation class

Scattered on the western slopes and edge of the plains north from Griffith district to Brewarrina and Bourke, east to Forbes. Probably restricted to NSW.

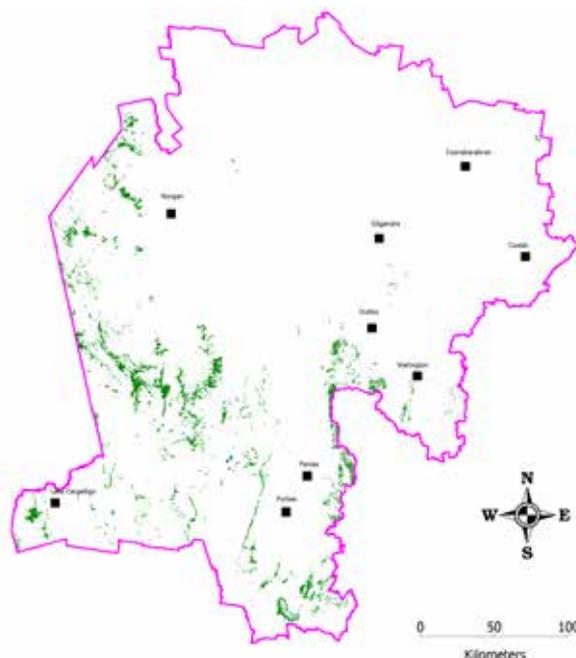


Figure 16: Inland Rocky Hill Woodlands - Keith Class

Landscape position and vegetation description

Inland rocky hill woodlands in the Central West region are found on stony rises, steep upper slopes, ridgelines or steep gullies on rocky hills mainly in the NSW South Western Slopes Bioregion but extending into the south-eastern edge of the Cobar Peneplain Bioregion.

Main canopy species for this vegetation class include green mallee (*Eucalyptus viridis*), blue mallee (*Eucalyptus polybractea*), bull mallee (*Eucalyptus behriana*), Dwyer's red gum (*Eucalyptus dwyeri*), black cypress pine (*Callitris endlicheri*), currawang (*Acacia doratoxylon*) and white cypress pine (*Callitris glaucophylla*).

Common shrub layer species include broombush (*Melaleuca uncinata*), *Calytrix tetragona*, *Melichrus urceolatus*, *Philotheca ciliata*, *Acacia rhigiophylla*, *Kunzea parvifolia*, *Cassinia laevis*, *Grevillea floribunda*, *Platysace lanceolata*, *Acacia paradoxa*, *Acacia deanei* subsp. *deanei*, *Acacia lineata*, *Kunzea ambigua*, spurwing wattle (*Acacia triptera*), *Dodonaea boroniifolia*, *Cassinia laevis*, *Leptospermum divaricatum*, *Prostanthera nivea* var. *nivea*, mulga (*Acacia aneura*), *Melichrus urceolatus*, *Pandorea pandorana*, *Acacia decora*, emubush (*Eremophila longifolia*), *Eremophila serrulata*, and *Pimelea microcephala* subsp. *microcephala*.

Common groundlayer species include *Austrostipa densiflora*, *Thyridolepis mitchelliana*, *Gonocarpus elatus*, *Cheilanthes sieberi* subsp. *sieberi*, *Amphipogon carcinus*, Speargrass (*Austrostipa scabra* subsp. *scabra*), *Austrostipa blackii*, *Austrostipa gibbosa*, *Aristida jerichoensis* var. *subspinulifera*, *Eragrostis lacunaria*, *Austrodanthonia setacea*, *Platysace lanceolata*, *Lomandra patens*, *Stypandra glauca*, *Chrysocephalum semipapposum*, *Cheilanthes sieberi* subsp. *sieberi*, *Cheilanthes austrotenuifolia*, *Austrostipa mollis*, *Goodenia ovata*, and *Calotis cuneifolia*.

Endangered ecological communities

This vegetation class includes mallee and mallee-broombush dominated woodland and shrubland, lacking *Triodia*, in the NSW South Western Slopes Bioregion, which is critically endangered in NSW but not listed federally.

Examples from Central West region



Yorrell and mallee woodland, west of Condobolin.



White cypress pine - mulga low woodland.



Ridge mallee woodland on hills of meta-sediments and volcanics, near Bobadah.



River red gum low woodland of rocky gorges and creeks, near Gilgandra .

Inland floodplain swamps

This vegetation class was recorded in 1,028 ha within TSRs in the Central West region. It includes five PCTs:

- common feed - bushy groundsel aquatic tall reedland grassland wetland of inland river systems
- cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses
- sedgeland fen wetland of spring-fed or runoff-fed creeks in the southern Pilliga - Warrumbungle Range region, Brigalow Belt South Bioregion
- shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains
- water Couch marsh grassland wetland of frequently flooded inland watercourses.

Distribution of vegetation class

Inland floodplain woodlands in Central West region are limited to larger lowland floodplain areas of the Macquarie and Lachlan Rivers and their major tributaries.

Landscape position and vegetation description

Many of these floodplain communities are found on grey and brown clays including gilgais on low lying flats or depressions on floodplains or on sandplains that regularly flood or fill from local runoff after rain.

Wetlands vegetation includes low to mid-high sedgeland/grassland dominated by spike rushes including *Eleocharis pallens*, *Eleocharis acuta*, *Eleocharis plana* and *Cyperus* spp., along with ferns nardoo (*Marsilea drummondii*) and *Marsilea costulifera*, the rushes *Juncus subsecundus*, *Juncus aridicola*, the grasses native millet (*Panicum decompositum*), Warrego Grass (*Paspalidium jubiflorum*), umbrella canegrass (*Leptochloa digitata*) and rats tail grass (*Sporobolus mitchellii*). Other variants include a very tall, dense aquatic grassland that is dominated by common reed (*Phragmites australis*) growing in shallow water to about 0.5 m deep, very tall, dense rushland dominated by narrow-leaved cumbungi (*Typha domingensis*) often with shrubby groundsel (*Senecio cunninghamii* var. *cunninghamii*) and Lignum (*Muehlenbeckia florulenta*), mid-high, dense grassland marsh dominated by water couch (*Paspalum distichum*) with ribbed spike-rush (*Eleocharis plana*), tussock rush (*Juncus aridicola*) and blown brass (*Lachnagrostis filiformis*), and a mid-high sedgeland dominated by the sedges *Carex appressa* and *Carex incomitata* and in wetter areas also including *Carex guadichaudiana*, *Baumea rubiginosa* and *Eleocharis gracilis*.

In each case the floodplain swamps intergrade to grasslands or herbaceous grasslands, and then to shrublands and/or woodlands or forest.

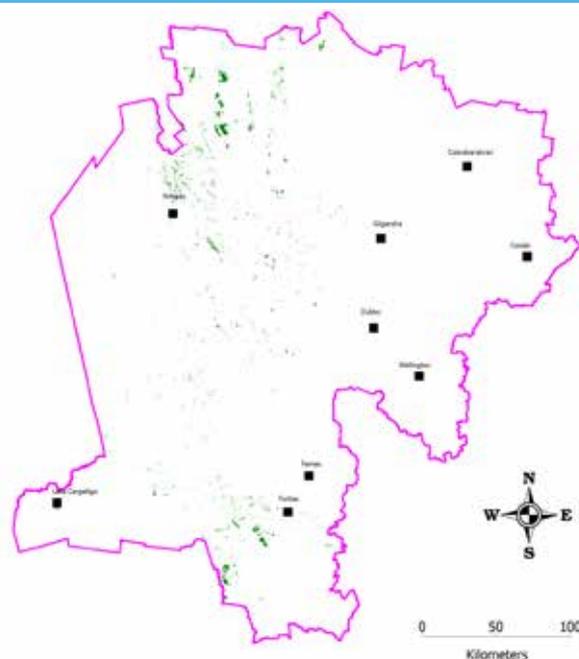


Figure 17: Inland Floodplain Swamps - Keith Class

Endangered ecological communities

No EECs have been reported for this vegetation class.

Examples from Central West Local region



Common reed wetlands in the northern section of the Macquarie Marshes NR (Photo: T. Ralph, 2010; OEH, 2012).



Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains, southeast of Gulargambone.



Endangered and threatened ecological communities

Nine TECs occur on TSRs in the Central West Local Land Services region. Some of these have a quite localised distribution, and occur rarely and/or over limited areas within the TSR network. A brief description of the nine TECs, with links to additional information, is provided in the following sections.

Brigalow within the Brigalow Belt South, Nandewar and Darling Riverine Plains bioregions

The Brigalow community is a low woodland or forest community dominated by Brigalow (*Acacia harpophylla*), with pockets of belah (*Casuarina cristata*) and poplar box (*Eucalyptus populnea* subsp. *bimbil*). The canopy tends to be quite dense and the under storey and ground cover are only sparse.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10109

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

The scientific determination for this community includes it in the Brigalow community, described above.

For more information see also www.environment.nsw.gov.au/resources/threatenedspecies/BrigalowGidgeeEECweb.pdf

Coolibah black box woodlands of the Northern Riverine Plains in the Darling Riverine Plains and Brigalow Belt South bioregions

This woodland community is found on the grey, self-mulching clays of the periodically waterlogged floodplains, swamp margins, ephemeral wetlands, and stream levees of the Darling Riverine Plains and Brigalow Belt South bioregions. The structure of the community may vary from tall riparian woodlands to very open 'savanna like' grassy woodlands with a sparse midstorey of shrubs and saplings. Typically these woodlands form mosaics with grasslands and wetlands.

These variations are mainly determined by the frequency and duration of inundation by overbank floods. As a result, there are clear differences in species makeup between the channelised parts of the floodplain and the less frequently inundated outer parts of the floodplain.

The over storey typically includes *Eucalyptus coolibah* subsp. *coolibah* (Coolibah), with:

- *eucalyptus largiflorens* (black box)
- *casuarina cristata* (belah)
- *acacia stenophylla* (river cooba)
- *acacia salicina* (cooba)
- *eremophila bignoniiflora* (eurah).

Eucalyptus populnea subsp. *bimbil* (bimbil box) may occur on the outer floodplain. *Eucalyptus largiflorens* (black box) may be the dominant tree species on parts of the central-northern riverine plains and on slightly more elevated parts of the floodplain. This is accompanied by a typically sparse midstorey layer and a predominantly grassy understorey.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspecies/CoolibahBlackBoxWoodland.htm

Fuzzy box on alluvials of South West Slopes, Darling Riverine Plains and the Brigalow Belt South

This EEC is described as a tall woodland or open forest dominated by fuzzy box (*Eucalyptus conica*), often with grey box (*Eucalyptus microcarpa*), yellow box (*Eucalyptus melliodora*), or Kurrajong (*Brachychiton populneus*). Buloke (*Allocasuarina luehmannii*) is common in places. Shrubs are generally sparse, and the groundcover moderately dense, although this will vary with season.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10335

Inland grey box woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South bioregions

This EEC is described as woodlands in which the most characteristic tree species, *Eucalyptus microcarpa* (inland grey box), is often found in association with *E. populnea* subsp. *bimbil* (bimble or poplar box), *Callitris glaucophylla* (white cypress pine), *Brachychiton populneus* (kurrajong), *Allocasuarina luehmannii* (bulloak) or *E. melliodora* (yellow box), and sometimes with *E. albens* (white box). Shrubs are typically sparse or absent, although this component can be diverse and may be locally common, especially in drier western portions of the community. A variable ground layer of grass and herbaceous species is present at most sites. At severely disturbed sites the ground layer may be absent. The community generally occurs as an open woodland 15 to 25 m tall but in some locations the overstorey may be absent as a result of past clearing or thinning, leaving only an under storey.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20072

Native vegetation on cracking clay soils of the Liverpool Plains

Native Vegetation on cracking clay soils of the Liverpool Plains is mainly a native grassland community which includes a range of small forb and herb species. The main grass species include plains grass (*Austrostipa aristiglumis*), Queensland bluegrass (*Dichanthium sericeum*) and coolibah grass (*Panicum queenslandicum*). It also contains scattered and patchy shrubs and trees, including boree (*Acacia pendula*), rough-barked apple (*Angophora floribunda*), fuzzy box (*Eucalyptus conica*), bumble Box (*E. populnea*) and yellow box (*E. melliodora*). In wetter locations rushes and sedges are common.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10550

Mallee and mallee-broombush dominated woodland and shrubland, lacking triodia, in the NSW South Western Slopes Bioregion (critically endangered)

Mallee and mallee-broombush dominated woodland and shrubland, lacking *Triodia*, in the NSW South Western Slopes Bioregion varies in structure from tall mallee woodland with an open to mid-dense shrub layer and groundcover (sparseness perhaps an artefact of grazing history), to open or very dense mallee shrubland, with or without broombush (*Melaleuca uncinata*). Three variants have been described (Benson 2008) as distinct communities, based largely on canopy composition and their tendency to occur on somewhat different landforms. These are 'ID 355: bull mallee-white mallee tall mallee woodland on red sandy loam soils in the central western slopes of NSW'; 'ID 177: blue mallee-bull mallee-green mallee very tall mallee shrubland of the West Wyalong region, NSW South Western Slopes Bioregion'; and 'ID 178: broombush-green mallee-blue mallee very tall shrubland on stony rises in the NSW South Western Slopes Bioregion'. Benson noted however that these units do intergrade. The floristic composition of shrub layer and ground cover varies widely within, and overlaps between, the variants and the variability in the density and floristic composition of the shrub and ground layers may be partly a consequence of grazing history.

This community typically has a canopy layer co-dominated by the mallee eucalypts *Eucalyptus behriana* (bull mallee) and *E. dumosa* (white mallee), with either (on flat land) *E. socialis* (red mallee), or (on low rises) *E. polybractea* (blue mallee) and *E. viridis* (green mallee). More rarely, on higher rocky rises, the dominant species may be *E. polybractea* and either *E. viridis* or *E. dwyeri* (Dwyer's red gum), with a tall shrub layer of *Melaleuca uncinata*.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20149

Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions

This ecological community is scattered across the eastern parts of the alluvial plains of the Murray-Darling river system. The community is also known as boree, particularly in the southern part of its distribution. Typically, it occurs on red-brown earths and heavy textured grey and brown alluvial soils within a climatic belt receiving between 375 mm and 500 mm mean annual rainfall. The structure of the community varies from low woodland and low open woodland to low sparse woodland or open shrubland, depending on site quality and disturbance history.

The tree layer grows up to a height of about 10 m and invariably includes *Acacia pendula* (weeping myall or boree) as one of the dominant species or the only tree species present. The under storey includes an open layer of chenopod shrubs and other woody plant species and an open to continuous groundcover of grasses and herbs. The structure and composition of the community varies, particularly with latitude, as chenopod shrubs are more prominent south of the Lachlan River district, while other woody species and summer grasses are more common further north.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10973



White box yellow box Blakely's red gum woodland

This EEC is described as an open woodland community (sometimes occurring as a forest formation), in which the most obvious species are one or more of the following: white box (*Eucalyptus albens*), yellow box (*E. melliodora*) and Blakely's red gum (*E. blakelyi*). Intact sites contain a high diversity of plant species, including the main tree species, additional tree species, some shrub species, several climbing plant species, many grasses and a very high diversity of herbs. The community also includes a range of mammal, bird, reptile, frog and invertebrate fauna species. Intact stands that contain diverse upper and mid-storeys and groundlayers are rare. Modified sites include the following:

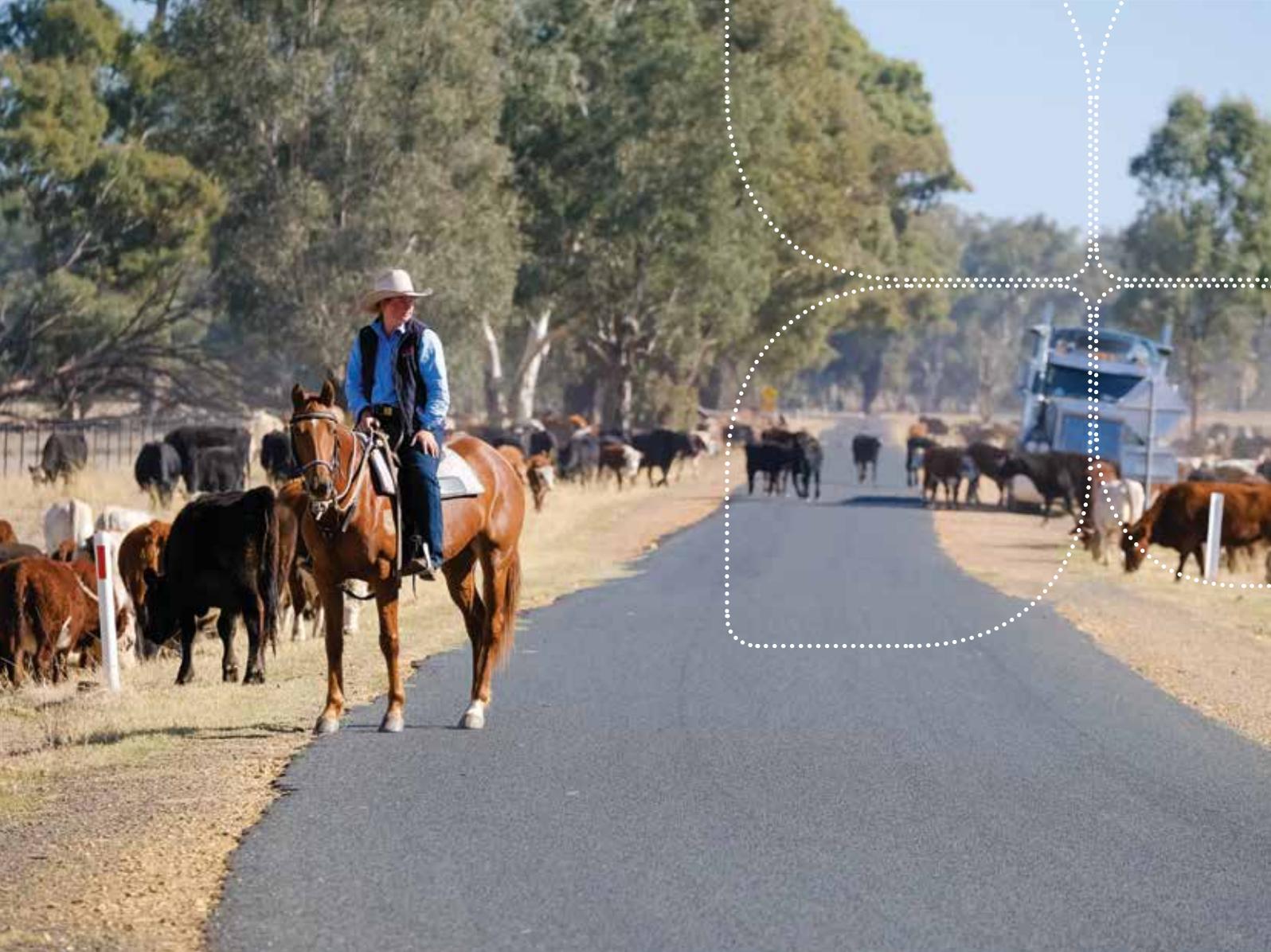
- areas where the main tree species are present ranging from an open woodland formation to a forest structure, and the ground layer is predominantly composed of exotic species
- sites where the trees have been removed and only the grassy ground layer and some herbs remain.

The Australian Government listing of white box-yellow box-Blakely's red gum grassy woodland and derived native grassland is slightly different to the NSW listing. Areas that are part of the Australian Government listed ecological community must have either:

- an intact tree layer and predominately native ground layer
- an intact native ground layer with a high diversity of native plant species, but no remaining tree layer.

For more information on this EEC refer to www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10837





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