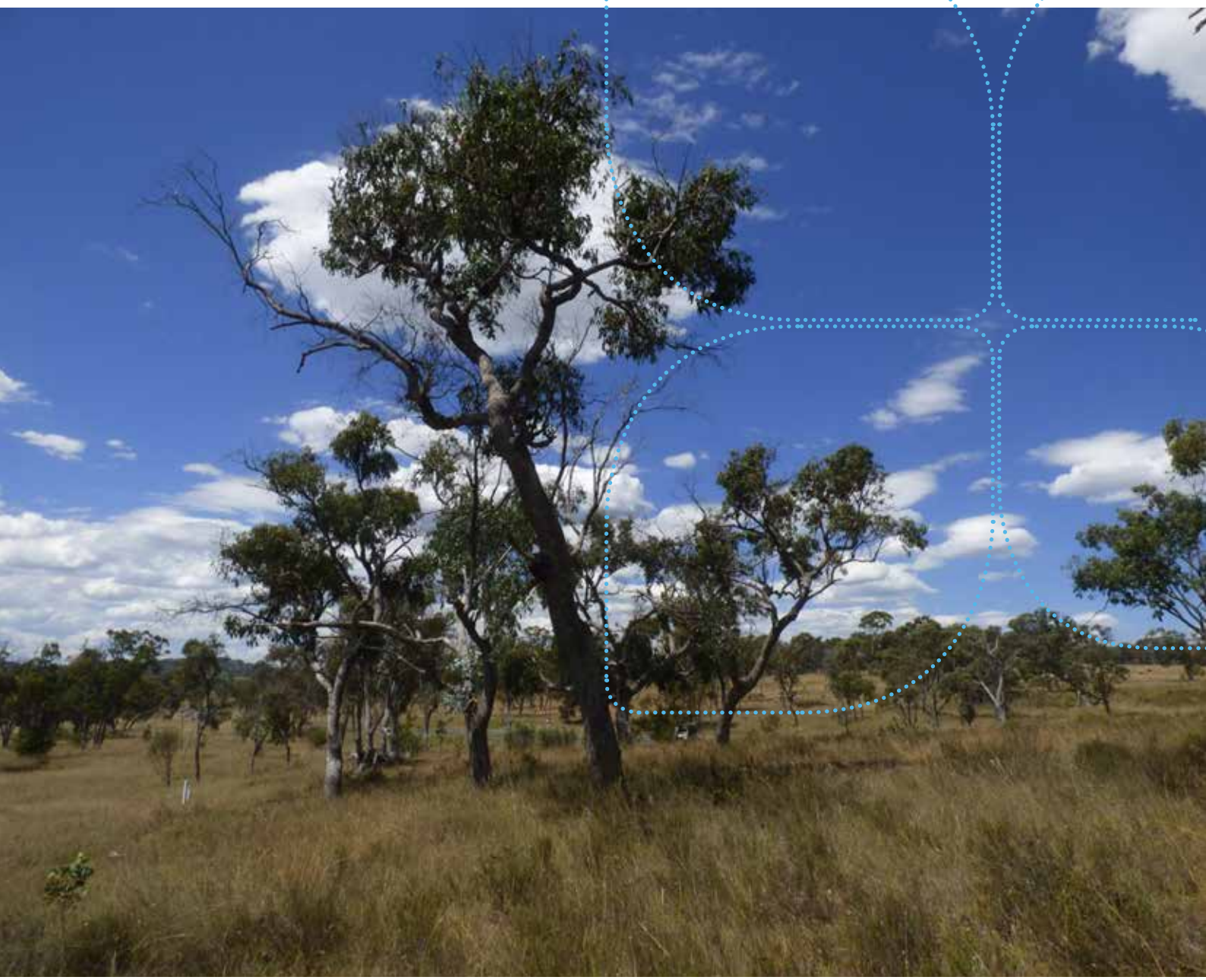
Travelling Stock Reserves

Vegetation Guide

Northern Tablelands Local Land Services



NSW GOVERNMENT | Local Land Services

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Report for: NSW Local Land Services Northern Tablelands region

Prepared by: North West Ecological Services

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Photographs in this document are contributed by Helen Morgan and Phil Spark.

This work draws heavily on material from the website of the Office of Environment and Heritage. The authors of this guide do not claim authorship, nor accept responsibility for, content drawn from this site.

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Vegetation of the Northern Tablelands Local Land Services region

The Northern Tablelands Local Land Services region is situated on the undulating plateau east and west of the watershed of the Great Dividing Range in northern NSW. It extends from Walcha in the south to the queensland border north of Tenterfield, and from the eastern escarpment to between Delungra and Warialda in the west (Northern Tablelands Local Land Services website accessed 2018). The average elevation of the region is over 1,000 m, the climate is cool temperate and the region includes the New England and Nandewar bioregions.

Natural values are rich and diverse with forest, woodland, grassland, heathland and wetland ecological communities of high conservation value. The TSR network in the region is extensive and contains a range of ecological communities that are important to manage for their conservation values. TSRs contain native vegetation and fauna habitat likely to be critical for biodiversity conservation. TSRs are subject to a range of management regimes depending on variable seasonal climatic influences and grazing pressures.

Figure 1: Map of Local Land Services Northern Tablelands region

Background

This document provides descriptions, photographs and maps of the known and predicted distribution of the vegetation classes (Keith 2004) and Threatened Ecological Communities (TEC) known to occur in the Northern Tablelands Local Land Services region. This information has been prepared to assist Local Land Services staff and other managers of Travelling Stock Reserves (TSRs) with identification of vegetation communities and assessment of their conservation status in the field.

Using this document

Section 1 describes the tableland vegetation classes (Keith 2004) and lists the Threatened Ecological Communities associated with each class.

Section 2 shows the conservation status, distribution maps and photographs of each TEC with a hyperlink to further information on the Office of Environment and Heritage (OEH) website.

Section 3 lists site managed species under the Saving Our Species program in the Northern Tablelands Local Land Services Region.

The Appendix contains a list of eucalypt trees and other dominant and co-dominant tree species that occur in TEC's in the region with links to web sites to assist identification.

Hyperlinks are provided throughout the document to assist information gathering regarding vegetation classes, threatened ecological communities and eucalypt identification.

Common names have been used to help familiarise users with the main species likely to be found in each vegetation class, and the scientific names are also provided in brackets.

Scientific names are specific to an individual plant and can provide clarity in situations where the same common name is used for more than one species (e.g. grey box applies to several eucalypt species), and sometimes there is no common name.

Section 1: Vegetation formations and classes in the Northern Tablelands region

The Northern Tablelands Local Land Services region has 10 vegetation formations and 14 vegetation classes (Keith 2004). Vegetation formations broadly classify the vegetation as grassy or shrubby forest, woodland, heathland, grassland or wetland. Vegetation classes encompass the differences in the landform or substrate, the structure of the vegetation and whether it is wet or dry. Common names have been used in the descriptions where possible.

The species included as indicators of the vegetation class may not all be present at each site. When in the field, attention should be given to identifying the dominant species present in each structural layer (i.e. trees, shrubs, ground layer) to determine which vegetation class is present.

We recommend inspecting the community by structural layers, working down from the trees to the shrubs to the ground layer. Eucalypt identification requires looking at the overall characteristics of each tree and examining more than one attribute on each tree, i.e. bark, fruit, buds, juvenile and adult leaves.

Looking at more than one tree of each type of eucalypt present is also recommended, as the diagnostic features can vary between individuals at one site. If taking samples for off site identification place samples from each tree in a single bag labelled with name or number of sample, date and location.

The Appendix contains a list of eucalypt species that are indicators of the different communities across the region, they are arranged in groups according to bark type to assist preliminary identification.

Communities without trees or shrubs (e.g. wetlands and grasslands) can be assessed using the ground layer species, substrate and landform. Note that some forest and woodland communities may have had trees removed in which case the assessment must be made on the species evident and any remaining trees nearby.

Table 1: Vegetation formations and their associated vegetation classes in the Northern Tablelands Local Land Services region.

Common vegetation classes in TSR's are highlighted

Vegetation Formation	***Vegetation Class***
Dry Sclerophyll Forests (shrub/grass sub-formation)	New England Dry Sclerophyll Forests*
	Northern gorge dry sclerophyll forests
Dry Sclerophyll Forests (shrubby sub-formation)	Northern Tableland Dry Sclerophyll Forests*
	Northern escarpment dry sclerophyll forests
Forested Wetlands	Eastern Riverine Forests*
Freshwater Wetlands	Montane lakes*
	Montane bogs and fens*
Grasslands	Temperate montane grasslands*
Grassy woodlands	New England Grassy Woodlands*
	Tableland Clay Grassy Woodlands*
Heathlands	Northern Montane Heaths*
Wet sclerophyll Forests (grassy sub-formation)	Northern Tableland Wet Sclerophyll Forest*
Wet sclerophyll Forests (shrubby sub-formation)	Northern escarpment wet sclerophyll forests
Rainforest	Dry Rainforests

Dry Sclerophyll Forests (shrub/grass sub-formation)

New England Dry Sclerophyll Forests

Occurs at high elevations (900-1,300 m) from Walcha to Boonoo Boonoo along eastern edge of the New England tableland, mostly undulating terrain in the transition zone from escarpment to flat tablelands. Soils are relatively infertile sandy loams, usually derived from granite rock.

Structure: Dry, open forest to up 25m tall, with an open sclerophyll shrub stratum and continuous grassy groundcover.

Main species: Wattle-leaved peppermint (*Eucalyptus acaciiformis*), broad-leaved stringybark (*E. caliginosa*), mountain gum (*E. dalrympleana*), narrow-leaved peppermint (*E. radiata*) with ribbon gum (*Eucalyptus nobilis*), New England peppermint (*E. nova-anglica*) and snow gum (*E. pauciflora*) in low areas. *Banksia integrifolia* can occur as subcanopy.

Shrubs include fern-leaved wattle (*Acacia filicifolia*), peas (*Bossiaea scortechinii, Hovea linearis, H. pedunculata*), daphne heaths (*Brachyloma daphnoides, Leucopogon biflorus, L. lanceolatus, Lissanthe strigose, Melichrus urceolatus, Monotoca scoparia*), crinkle bush (*Lomatia silaifolia*), geebung (*Persoonia cornifolia*), and native raspberry (*Rubus parvifolius*). The ground layer may have false sarsaparilla (*Hardenbergia violacea*), common raspwort (*Gonocarpus tetragynus*), forest goodenia (*Goodenia hederacea*), mat-rush (*Lomandra longifolia*), grass triggerplant (*Stylidium graminifolium*), bracken (*Pteridium esculentum*), plume grass (*Dichelachne micrantha*), blady grass (*Imperata cylindrica*), snow grass (*Poa sieberiana*) and kangaroo grass (*Themeda australis*).

Associated Threatened Ecological Communities:

- McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions
- New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion
- Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion

For more information: New England Dry Sclerophyll Forests

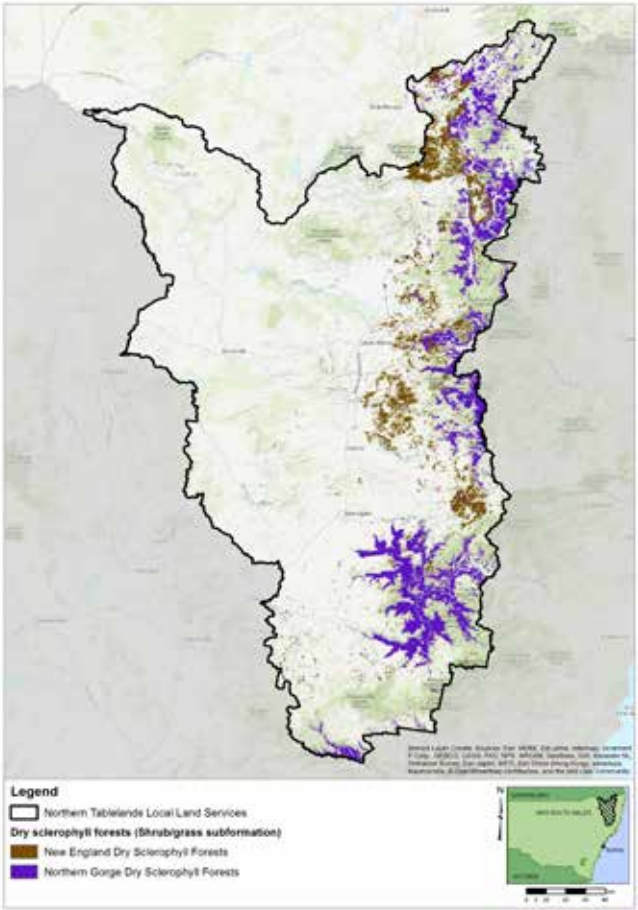


Figure 2: Keith Class - New England Dry Sclerophyll Forests

New England Dry Sclerophyll Forest in the Northern Tablelands Local Land Services Region

Northern Gorge Dry Sclerophyll Forests

Occurs in gorges and escarpment slopes from Timbarra to the upper Manning river, with major occurrences in the Oxley-Macleay and Guy Fawkes gorge systems.

Structure: Open eucalypt forest to 20 m tall, with an open subcanopy of sheoaks and wattles. The understorey includes a usually sparse mixed layer of sclerophyllous and mesophyllous shrubs stratum and continuous grassy groundcover.

Main species: Broad-leaved apple (*Angophora subvelutina*), pink bloodwood (*Corymbia intermedia*), grey gum (*Eucalyptus biturbinata*), broad-leaved stringybark (*E. caliginosa*), narrow-leaved stringybark (*E. eugenioides*), tallowwood (*E. microcorys*) and grey gum (*E.propinqua*) are common with grey box (*E. moluccana*) and forest red gum (*E. tereticornis*) on lower slopes and valley floors. Smaller trees may include hickory wattle (*Acacia implexa*), black sheoak (*Allocasuarina littoralis*) and forest oak (*A. torulosa*).

Shrubs include native cherry (*Exocarpos cupressiformis*), hoary Guinea-flower (*Hibbertia obtusifolia*), dogwood (*Jacksonia scoparia*), narrow leaved orange bush (*Maytenus silvestris*), muttonwood (*Rapanea variabilis*), native raspberry (*Rubus parvifolius*) and Indian weed (*Sigesbeckia orientalis*). The ground storey can include grass tree (*Xanthorrhoea johnsonii*), twining glycine (*Glycine clandestine*), false sarsaparilla (*Hardenbergia violacea*), common everlasting (*Chrysocephalum apiculatum*), tick-trefoils (*Desmodium brachypodum* and *D. varians*), blue flax lily (*Dianella caerulea*), mountain violet (*Viola betonicifoli*a), poison rock fern (*Cheilanthes sieberi*), bracken (*Pteridium esculentum*), barbed wire grass (*Cymbopogon refractus*), plume grass (*Dichelachne micrantha*), blady grass (*Imperata cylindrica*), mat-rushes (*Lomandra spp.*) weeping grass (*Microlaena stipoides*), snow grass (*Poa sieberiana*), wild sorghum (*Sorghum leiocladum*) and kangaroo grass (*Themeda australis*).

Associated Threatened Ecological Communities: No TEC listed

For more information: www.environment.nsw.gov.au/threatenedSpeciesApp/VegClass.aspx?vegClassName=Northern%20Gorge%20Dry%20Sclerophyll%20Forests

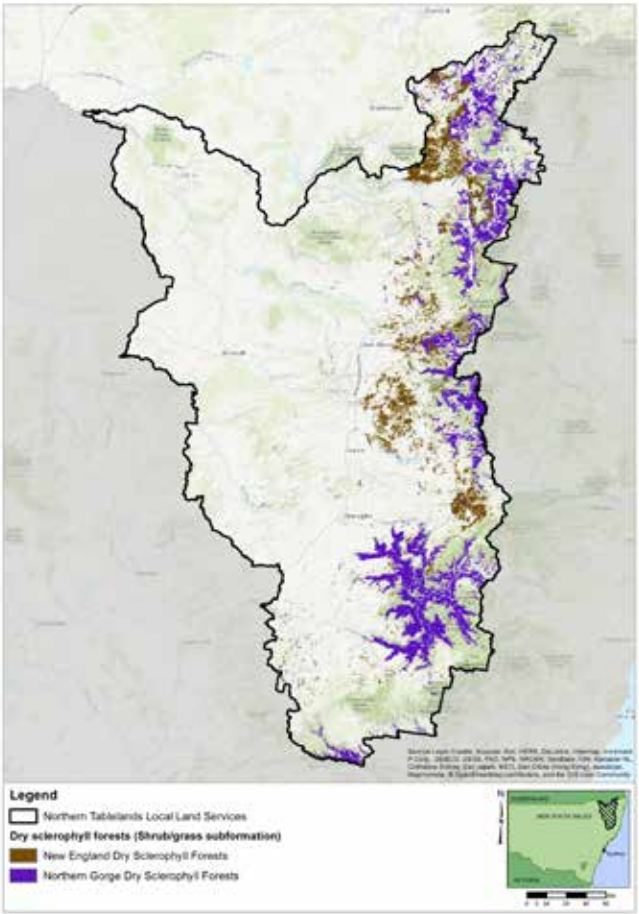
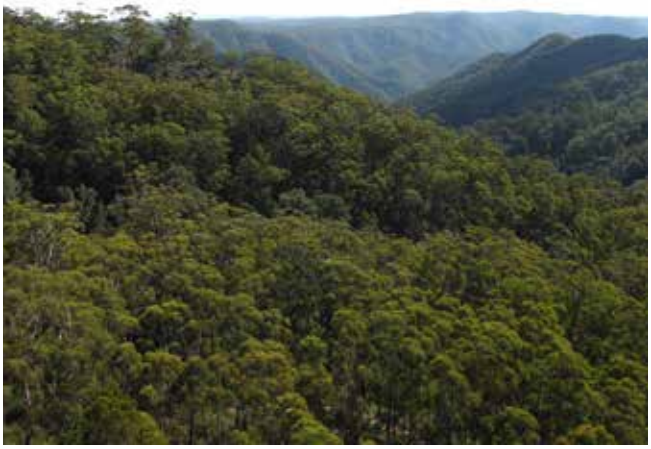


Figure 3: Keith Class - Northern Gorge Dry Sclerophyll Forests



Northern Gorge Dry Sclerophyll Forests Apsley Gorge

Northern Tableland Dry Sclerophyll Forests

Occurs in western New England tableland, from Tenterfield to Moonbi, mainly west of highway, and west to the Mt Kaputar area. May extend to Girraween area, just across the Queensland border.

Structure: Low open dry eucalypt forest and woodland up to 20 m tall, with a prominent sclerophyll shrub stratum and relatively sparse sclerophyll graminoid groundcover.

Main species: Black cypress pine (*Callitris endlicheri*), gum-topped peppermint (*Eucalyptus andrewsii*), tumbledown red gum (*E. dealbata*), orange gum (*E. prava*), stringybark (*E. subtilior*), Youmans stringybark (*E. youmanii*). Shrubs include box-leaved wattle (*Acacia buxifolia*), hickory (*A. penninervis*), Allocasuarina brachystachya, spiny bossiaea (*Bossiaea obcordata*), daphne heath (*Brachyloma daphnoides*), fringe myrtle (*Calytrix tetragona*), tea trees (*Leptospermum brachyandrum, L. novae-angliae, L. trinervium*), beard heaths (*Leucopogon melaleucoides, L. muticus, L. neo-anglicus*), urn heath (*Melichrus urceolatus*) and sticky daisy bush (*Olearia elliptica*). Grass trees (*Xanthorrhoea johnsonii*) can be present with ground layer plants blue trumpet (*Brunoniella australis*), blue flax lily (*Dianella revoluta*), raspwort (*Gonocarpus teucrioides*), nodding blue lily (*Stypandra glauca*), Trachymene incisa, poison rock fern (*Cheilanthes sieberi*), Jericho wiregrass (*Aristida jerichoensis*), wallaby grass (*Austrodanthonia monticola*), barbed wire grass (*Cymbopogon refractus*), wiry panic (*Entolasia stricta*).

Associated Threatened Ecological Communities:

- Howell Shrublands in the New England Tableland and Nandewar Bioregions
- McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions
- Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion
- White Box Yellow Box Blakely's Red Gum Woodland

For more information: Northern Tableland Dry Sclerophyll Forests

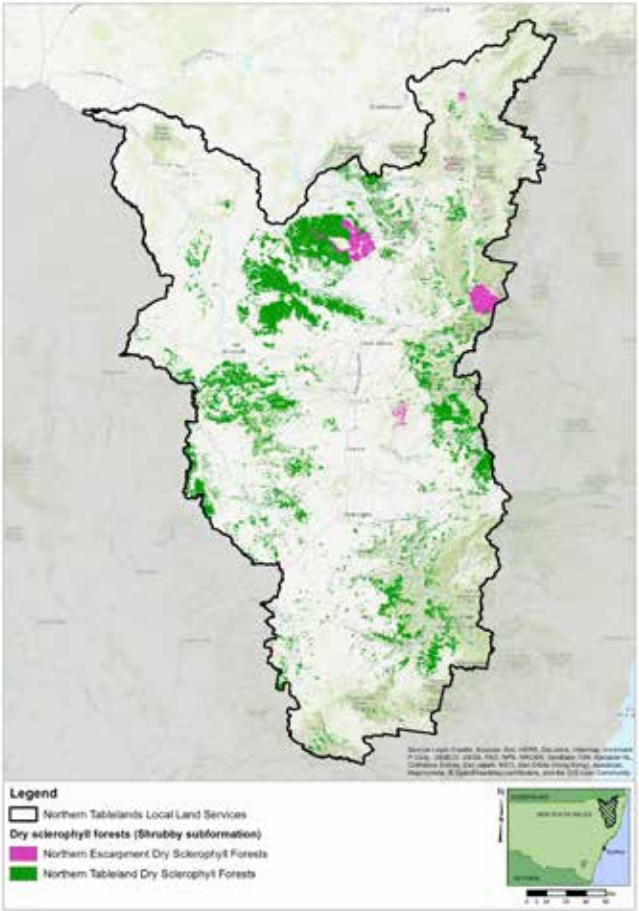


Figure 4: Keith Class - Northern Tableland Dry Sclerophyll Forests

Northern Tableland Dry Sclerophyll Forest, Tumbledown red gum, Black cypress, Orange gum and stringybark – Eucalyptus subtilior shrubby woodland on a rocky infertile ridge near Emmaville, uncommon in TSR's of the region.

Northern Escarpment Dry Sclerophyll Forests

Scattered and restricted occurrences on the northern escarpment (800 to 1,400 m elevation) on granite boulder outcrops from Werrikimbe to Bald Rock. Soils are low-nutrient sandy loams.

Structure: Dry eucalypt forest and woodland to 20 m tall with a prominent sclerophyll shrub stratum and relatively sparse sclerophyll graminoid groundcover.

Main species: Wattle-leaved peppermint (*Eucalyptus acaciiformis*), broad-leaved stringybark (*E. caliginosa)*, diehard stringybark (*E. cameronii*), mountain gum (*E. dalrympleana*), narrow-leaved peppermint (*E. radiata*), bell-fruited mallee (*E. codonocarpa*) and Blue Mountain ash (*E. oreades*). Shrubs include box-leaved wattle (*Acacia buxifolia*), black sheoak (*Allocasuarina littoralis*), Banksia integrifolia, daphne heath (*Brachyloma daphnoides*), crinkle bush (*Lomatia silaifolia*), prickly broom-heath (*Monotoca scoparia*) and geebungs (*Persoonia cornifolia, P. rufa*) and in the ground layer blue flax lily (*Dianella caerulea)* common raspwort (*Gonocarpus tetragynu*), leafy purple-flag (*Patersonia glabrata)*, bracken (*Pteridium esculentum*) and wiry panic (*Entolasia stricta*) can occur.

Associated Threatened Ecological Communities: No TEC listed

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Northern%20Escarpment%20Dry%20Sclerophyll%20Forests

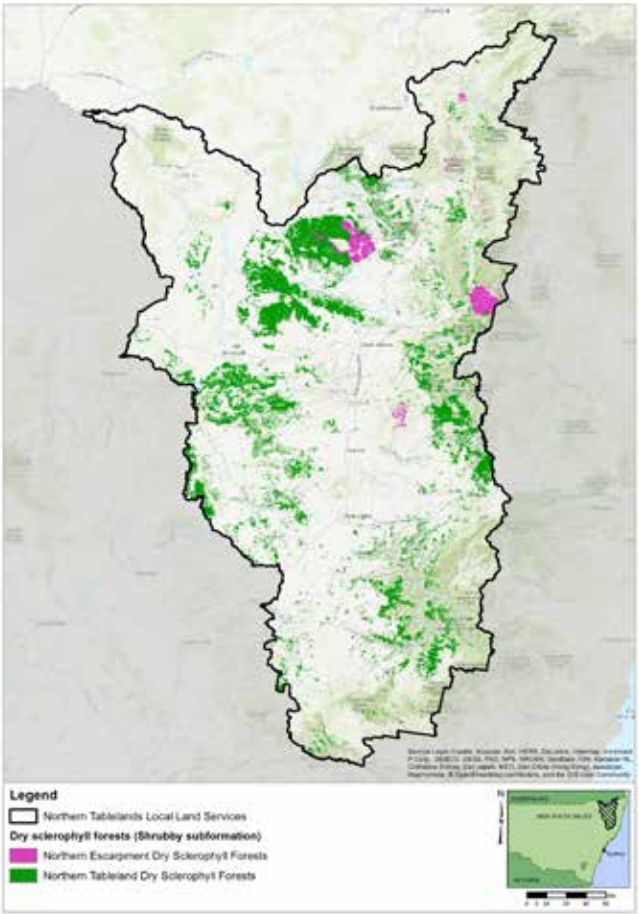


Figure 5: Keith Class - Northern Escarpment Dry Sclerophyll Forests

Northern Escarpment Dry Sclerophyll Forests at Cathedral Rock National Park

Forested Wetlands

Eastern Riverine Forests

Restricted to narrow riparian corridors along rivers of the tablelands up to 800 m elevation.

Structure: Open Casuarina forest, 10-40 m tall, with a variable non-sclerophyll shrub stratum and patchy groundcover of sedges and herbs, interspersed with leaf litter, cobbles and open sand.

Main species: River oak (*Casuarina cunninghamiana*) with shrubs including sally wattle (*Acacia floribunda*), black wattle (*Acacia mearnsii*), cheese tree (*Glochidion ferdinandi*), tree violet (*Melichtus dentata*) and water gum (*Tristaniopsis laurina*). Herbs include pennywort (*Hydrocotyle tripartita*), water pepper (*Persicaria hydropiper*), tussock sedge (*Carex appressa*), with spiny-headed mat-rush (*Lomandra longifolia*), and grasses present may be bordered panic (*Entolasia marginata*) and weeping grass (*Microlaena stipoides*).

Associated Threatened Ecological Communities:

- Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions
- Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions
- Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Eastern+Riverine+Forests

Figure 6: Keith Class -Eastern Riverine Forests

Eastern riverine forests on private land near Invergowrie in the Northern Tablelands Local Land Services Region

Freshwater Wetlands

Montane lakes

Structure: Aquatic herbfield in standing freshwater without trees, shrubs or vines.

Main species: Floating pond weed (*Potamogeton tricarinatus*), water milfoil (*Myriophyllum variifolium*), common spikerush (*Eleocharis acuta*), tall spike rush (*Eleocharis sphacelata*), slender joint-leaf rush (*Juncus fockei*), pennywort (*Hydrocotyle tripartita*), smooth willow-herb (*Epilobium billardierianum*), fen sedge (*Carex gaudichaudiana*), blue star creeper (*Isotoma fluviatilis*) yellow bladderwort (*Utricularia australis*) and Australian sweetgrass (*Glyceria australis*).

Associated Threatened Ecological Communities:

- Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions
- Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions
- Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Montane+Lakes

Figure 7: Keith Class - Freshwater Wetlands

Montane Lakes in the Northern Tablelands Local Land Services region, Mother of Ducks Lagoon, Guyra

Montane Bogs and Fens

Structure: Bogs are generally acidic wetlands dominated by sclerophyllous shrubs with diverse sedges and rushes while fens occur on fertile soils and are dense grass-sedge-herb wetlands mostly lacking in shrubs and trees may be adjacent.

Main species: Typically without trees, but bogs may include Warra broad-leaved Sally (*Eucalyptus camphora subsp. relicta*) in waterlogged areas and scattered individuals on margins of black sally (*Eucalyptus stellulata*), mountain gum (*E. dalrympleana*) New England peppermint (*E. nova-anglica*), snow gum (*E. pauciflora*) and wattle-leaved peppermint (*Eucalyptus acaciiformis*). These trees can occur adjacent to fens as can red gum (*E. blakelyi*), white gum (*E. nobilis, E. viminalis*), rough-barked apple (*Angophora floribunda*) and broad-leaved apple (*A. subvelutina*). In bogs, characteristic shrubs include tea trees (*Leptospermum gregarium and L. arachnoides*), Baeckea omissa, coral heath, (*Epacris microphylla*), alpine bottlebrush (*Callistemon pityoides*) and Hakea macrocarpa, while herb layer species include cordrush (*Baloskion stenocoleum*), daisy-leaved goodenia (*Goodenia bellidifolia*), swordsedge (*Lepidosperma limicola*), creeping raspwort (*Gonocarpus micranthus*), Lepyrodia scariosa and sphagnum moss (*Sphagnum cristatum*). Fens are commonly dominated by tall sedge (*Carex appressa*) and fen sedge (*C. gaudichaudiana*), and other characteristic species can include swamp starwort (*Stellaria angustifolia*), swamp millet (*Isachne globose*), willow-herb (*Epilobium billardierianum*), large-headed club-rush (*Scirpus polystachyus*), native geranium (*Geranium solanderi*), rough raspwort (*Haloragis heterophylla*), purple loosestrife (*Lythrum salicaria*) and water pepper (*Persicaria hydropiper*).

Associated Threatened Ecological Communities:

- Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions
- Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions
- Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Montane%20Bogs%20and%20Fens

Figure 8: Keith Class - Montane Bogs and Fens

Montane Bog (Sclerophyll shrub dominated wetland) at Werrikimbe NP in the Northern Tablelands Local Land Services Region

Grasslands

Montane lakes

Natural grassland on the tablelands occurs in a very small area between Guyra and Glen Innes, other grasslands are derived from clearing.

Structure: Closed tussock grassland with a variety of perennial herbs including erect, scrambling and rosette forms, as well as geophytic orchids and lilies in the spaces between the tussocks, typically without trees or shrubs.

Main species are forbs including grasses, ringed wallaby grass (*Austrodanthonia caespitosa*), speargrass (*Austrostipa scabra*), red grass (*Bothriochloa macra*), common wheatgrass (*Elymus scaber*), common blown-grass (*Lachnagrostis filiformis*), mat grass (*Hemarthria uncinata*), fox tail (*PennisetumAlopecuroides*), snowgrass (*Poa sieberiana*), kangaroo grass (*Themeda australis*) and sedges (*Carex appressa, C. gaudichaudiana, C. inversa*). Poorly drained depositional flats are dominated by tussock grass (*Poa labillardieri*). Herbs include sheeps burr (*Acaena ovina*), common woodruff (*Asperula conferta*), common everlasting (*Chrysocephalum apiculatum*), Australian bindweed (*Convolvulus erubescens*), emu-foot (*Cullen tenax)*, hoary willow-herb (*Epilobium hirtigerum*), native geranium (*Geranium solanderi*), scrambled eggs (*Goodenia pinnatifida*), scaly buttons (*Leptorhynchos squamatus*) and swamp dock (*Rumex brownii*).

Associated Threatened Ecological Communities:

- Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions
- Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Temperate+Montane+Grasslands

Figure 9: Keith Class -Keith Class - Montane lakes

Temperate montane grassland in the Northern Tablelands Local Land Services Region.

Grassy woodlands

New England Grassy Woodlands

Restricted to undulating New England tablelands north from Bendemeer and Walcha to Stanthorpe, on relatively fertile soils above 600 m elevation. Example is the lower slopes of Mount Duval.

Structure: Open eucalypt woodland up to 25 m tall on the deepest, most fertile soils, or less than 20 m on drier hills and slopes. The grassy ground cover may be less continuous than in Tableland Clay Grassy Woodlands. Easily visible shrubs are generally sparse, but there may be a variety of semi-prostrate small shrubs partially hidden amongst the ground cover.

Main species: Rough-barked apple (*Angophora floribunda*), Blakelys red gum (*Eucalyptus blakelyi*), apple box (*E. bridgesiana*), broad-leaved stringybark (*E. caliginosa*), silver-top stringybark (*E. laevopinea*), yellow box (*E. melliodora*), and Youmans stringybark (*E. youmanii*) are common, with localised occurrences of mountain gum (*Eucalyptus dalrympleana*) and grey box (*E. moluccana*). On flats and in open valleys New England peppermint (*E. nova-anglica*) is often the dominant tree. Shrubs include blackthorn (Bursaria spinosa), wild rosemary (*Cassinia quinquefari*), hoary guinea flower (*Hibbertia obtusifolia*), dogwood (*Jacksonia scoparia*), heaths (*Lissanthe strigosa Melichrus urceolatus*), rice flower (*Pimelea curviflora*) and native raspberry (*Rubus parvifolius*).The ground layer can include false sarsaparilla (*Hardenbergia violacea*), common woodruff (*Asperula conferta*), common everlasting (*Chrysocephalum apiculatum*), slender tick-trefoil (*Desmodium varians*), kidney weed (*Dichondra repens*), native geranium (*Geranium solanderi*), cushion bush Scleranthus biflorus, native bluebells Wahlenbergia spp. with wiregrasses (*Aristida jerichoensis, A. ramosa*), red grass (*Bothriochloa macra*), Queensland bluegrass (*Dichanthium sericeum*), hedgehog grasses (*Echinopogon spp.*), snow grass (*Poa sieberiana*), wild sorghum (*Sorghum leiocladum*), and kangaroo grass (*Themeda australis*).

Associated Threatened Ecological Communities:

- New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion
- White Box Yellow Box Blakely's Red Gum Woodland

For more information: New England Grassy Woodlands

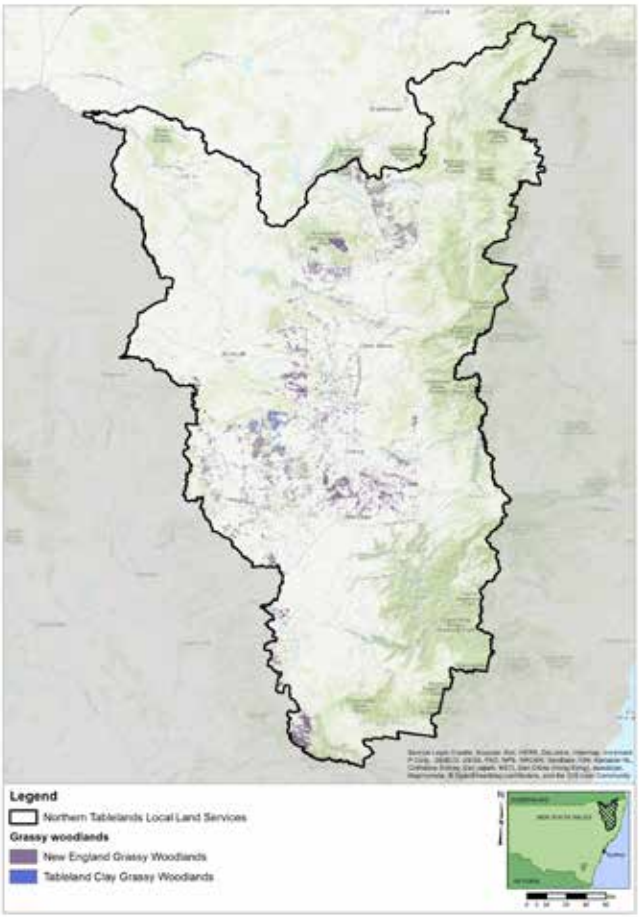


Figure 10: Keith Class - New England Grassy Woodlands

New England Grassy woodland, TSR on New England Highway, north of Glen Innes.

Tableland Clay Grassy Woodlands

Occurs on flats and rolling terrain 700 – 1,300 m elevation on fertile clay soils derived from basalt, or frost prone rich alluvial creek flats. Most common in Guyra – Glenn Innes area.

Structure: Open eucalypt forest and woodland, 15-30 m tall, with a sparse shrub stratum and a dense, compositionally variable and relatively diverse groundcover dominated by tussock grasses and herbs.

Main species: snow gum (*Eucalyptus pauciflora*), black sally (*E. stellulata*), ribbon gum (*E. viminalis*) and (occasionally) yellow box (*E. melliodora*) while rough-barked apple (*Angophora floribunda*), mountain gum (*Eucalyptus dalrympleana*) and New England peppermint (*E. nova-anglica*) also occur. Shrubs include silver wattle (*Acacia dealbata*), blackwood (*A. melanoxylon*), slender rice flower (*Pimelea linifolia*), small leaf pea (*Pultenaea microphylla*), native raspberry (*Rubus parvifolius*) and Banksia integrifolia is also present. The ground layer can be diverse with herbs including bidgee-widgee and sheeps burr (*Acaena novae-zelandiae, Acaena ovina*), winged everlasting (*Ammobium alatum*), common woodruff (*Asperula conferta*), golden everlasting (*Bracteantha bracteata*), common everlasting (*Chrysocephalum apiculatum*), slender tick-trefoil (*Desmodium varians*), mountain violet (*Viola betonicifolia*) and tall bluebell (*Wahlenbergia stricta*), and grasses wallaby grass (*Austrodanthonia racemose*), rough speargrass (*Austrostipa scabra*), red grass (B*othriochloa macra*), wheatgrass (*Elymus scaber*), Lespedeza juncea, tussock grass (*Poa labillardieri*), snow grass (*Poa sieberiana*), wild sorghum (*Sorghum leiocladum*), western rats tail grass (*Sporobolus creber*) and kangaroo grass (*Themeda australis*).

Associated Threatened Ecological Communities:

- Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions
- New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion
- Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Tableland%20Clay%20Grassy%20Woodlands

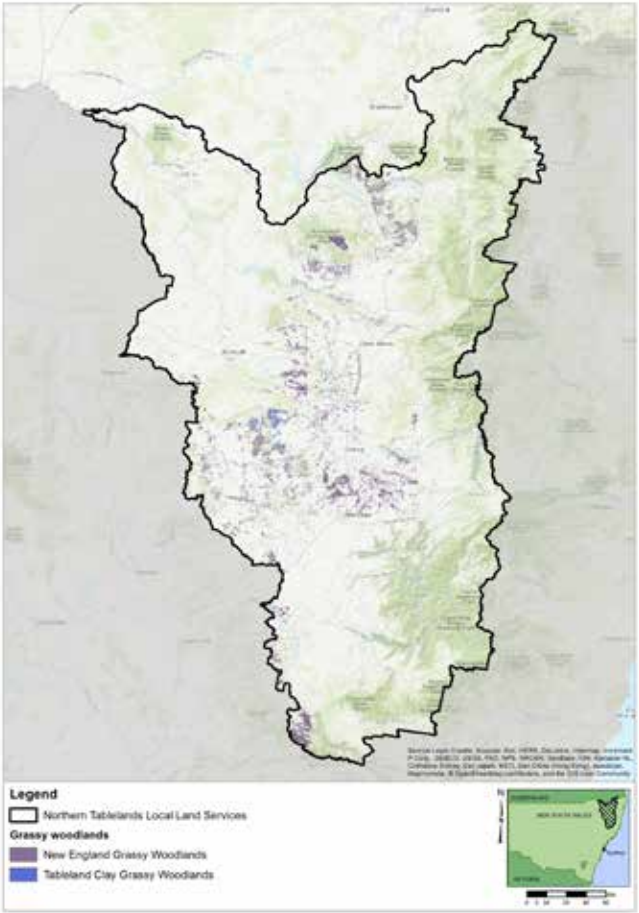


Figure 11: Keith Class - Tableland Clay Grassy Woodlands

Tableland Clay Grassy Woodlands of Snow gum and Black sally on a TSR south of Glen Innes in the Northern Tablelands Local Land Services region

Heathlands

Northern Montane Heaths

Highly restricted and localised small areas of heath found in skeletal sandy soils on elevated rocky granite outcrops on ridges 400-1,500 m above sea level.

Structure: Open heath with emergent mallee eucalypts and an open groundcover of sclerophyllous sedges and herbs.

Main species: In wetter eastern areas Barren Mountain mallee (*Eucalyptus approximans* found near Ebor), broad-leaved stringybark (*E. caliginosa*) or bell-fruited mallee (*E. approximans subsp. codonocarpa* found NE of Guyra, Glen Innes and north to QLD) are found as emergent mallees, while in the drier west stunted trees of gum-topped peppermint (*E. andrewsii*), orange gum (*E. prava*) and black cypress pine (*Callitris endlicheri*) occur. Shrubs include heaths (*Brachyloma saxicola, Leucopogon neo-anglicus*) peas (*Dillwynia phylicoides Mirbelia confertiflora*), showy guinea flower (*Hibbertia linearis*), tea tree (*Leptospermum novae-angliae*). In drier areas granite wattle Acacia granitica, fringe myrtle (*Calytrix tetragona*) and bitter cryptandra (*Cryptandra amara*) are found. The ground storey includes daisy (*Brachyscome stuartii*), blue dampiera (*Dampiera stricta*), daisy leaved Goodenia (*Goodenia bellidifolia*), showy isotome (*Isotoma axillaris*), leafy purple-flag (*Patersonia glabrata*), silky purple-flag (*P. sericea*), rock ferns (*Cheilanthes distans and C. sieberi)*. In the east wiry panic (*Entolasia stricta*), little sword sedge (*Lepidosperma gunnii*), spiny-headed mat-rush (*Lomandra longifolia*) and common bog-rush (*Schoenus apogon*) are common. Jericho wiregrass (*Aristida jerichoensis*), three awn speargrass (*Austrostipa vagans*) occur more to the west.

Associated Threatened Ecological Communities:

- Howell Shrublands in the New England Tableland and Nandewar Bioregions

For more information: Northern Montane Heaths

Figure 12: Keith Class - Northern Montane Heaths

Howell Shrubland Threatened Ecological Community of Granite Homoranthus Homoranthus prolixus

Wet sclerophyll Forests (grassy sub-formation)

Northern Tableland Wet Sclerophyll Forests

Occurs on upper escarpment slopes and plateau above 800 m that receive 950-1100 mm rainfall annually. Soils are relatively fertile loams derived mainly from metasediments. Found north from Barrington district to south-east Queensland, outliers extend west along the Liverpool Range.

Grades into Northern Escarpment Wet Sclerophyll Forests with increasing moisture and Northern Tableland Grassy Woodlands with decreasing moisture.

Structure: Tall eucalypt forest 30- ¬40m, with an open subcanopy of non-rainforest trees up to 15 m tall, scattered understorey shrubs and a dense groundcover of grasses and herbs.

Main species: The canopy is dominated by a combination of brown gum Eucalyptus brunnea, diehard stringybark (*E. cameronii*), New England blackbutt (*E. campanulata*), messmate (*E. obliqua*), Sydney blue gum (*E. saligna*), with Dorrigo white gum (*E. dorrigoensis*) and ribbon gum (*E. nobilis*) localised in open gullies. An open sub-canopy can include green wattle (*Acacia irrorata*), black sheoak (*Allocasuarina littoralis*), forest oak (*A. torulosa*) and Banksia integrifolia. Shrubs include golden-tip (*Goodia lotifolia*), rough guinea flower (*Hibbertia aspera*), hill indigo (*Indigofera australis*), beard heath (*Leucopogon lanceolatus*) and narrow-leaved geebung (*Persoonia lineari*). The ground layer has climbing guinea flower (*Hibbertia scandens*), blue flax lily (*Dianella caerulea*), kidney weed (*Dichondra repens*), orange berry (*Drymophila moorei*), white root (*Pratia purpurascens*), mountain violet (*Viola betonicifolia*), ivy-leaved violet (*V. hederacea*), bracken (*Pteridium esculentum*), wiry panic (*Entolasia stricta*), spiny-headed mat-rush (*Lomandra longifolia*), weeping grass (*Microlaena stipoides*), tussock grass (*Poa labillardierei*) and snowgrass (*Poa sieberiana*).

Associated Threatened Ecological Communities:

- Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Northern%20Tableland%20Wet%20Sclerophyll%20Forests

Figure 13: Keith Class -Northern Tableland Wet Sclerophyll Forests

Wet sclerophyll Forests, Oxley Wild Rivers National Park in the Northern Tablelands Bioregion.

Northern Hinterland Wet Sclerophyll Forests

Occurs throughout the upper slopes and ridges in coastal foothills and plateaux below 600 m on moderately fertile soils derived from siltstones and metasediments. An extensive and diverse floristic assemblage having affinities with North Coast Wet Sclerophyll Forests, which co-occur in more sheltered and mesic parts of the landscape.

Structure: Tall, open, dry eucalypt forests to 40m with a diverse array of species, an open understorey of both mesophyllous and sclerophyllous shrubs and a continuous grassy groundcover. Generally found in areas with >1000mm rainfall.

Main species: The canopy is dominated by tallowwood (*Eucalyptus microcorys*), blackbutt (*E. pilularis*), grey gum (*E. propinqua*), grey ironbark (*E. siderophloia*), turpentine (*Syncarpia glomulifera*). Other species with minor occurrences or localised dominance include broad-leaved apple (*Angophora subvelutina*), pink bloodwood (*Corymbia intermedia*) and thick-leaved mahogany (*Eucalyptus carnea*). Forest oak (*Allocasuarina torulosa*) may be present as small trees.

Smaller shrubs include coffee bush (*Breynia oblongifolia*), dogwood (*Jacksonia scoparia*), narrow-leaved orange bark (*Maytenus sylvestris*), large mock-olive (*Notelaea longifolia*), white dogwood (*Ozothamnus diosmifolius*), geebungs (*Persoonia linearis, P. media*), yellow pittosporum (*Pittosporum revolutum*), prickly shaggy pea (*Podolobium ilicifolium*) and elderberry panax (*Polyscias sambucifolia*). Vines and climbers include giant water vine (*Cissus hypoglauca*), guinea flowers (*Hibbertia dentata, H. scandens*), wonga wonga vine (*Pandorea pandorana*), and sarsaparilla (*Smilax australis*). Dense swards of blady grass (*Imperata cylindrica var. major)* and spiny-headed mat-rush (*Lomandra longifolia*) may be present. Also often present are wiry panic (*Entolasia stricta*), sword sedges (*Lepidosperma confertifolia subsp. pallida, L. laterale*), Australian basket grass (*Oplismenus aemulus, O. imbecillus*), kangaroo grass (*Themeda australis*).

Associated Threatened Ecological Communities: No TEC listed

For more information: Northern Hinterland Wet Sclerophyll Forests

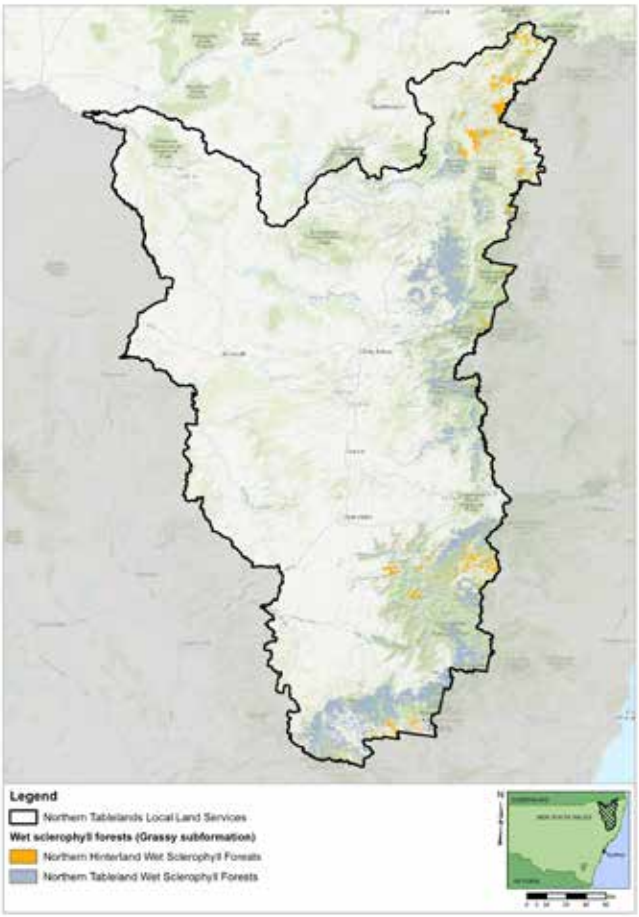


Figure 14: Keith Class - Northern Hinterland Wet Sclerophyll Forests

Northern Hinterland Wet Sclerophyll Forest at Mann River Nature Reserve

Northern Escarpment Wet Sclerophyll Forests

Occurs above 600 m elevation on moist plateaux and associated slopes of the eastern escarpment on loams derived from fine-grained sedimentary rocks and granites, rainfall varies between 1000 and 2000 mm.

Structure: Tall dense eucalypt forest 30-¬60 m tall, with an open subcanopy of tall mesophyllous shrubs. The understorey comprises abundant smaller shrubs and a thick but patchy groundcover of ferns and herbs.

Main species: The upper canopy comprises New England blackbutt (*Eucalyptus campanulata*), silver-top stringybark (*E. laevopinea*), tallowwood (*E. microcorys*) and Sydney blue gum (*E. saligna*) while the lower canopy often includes Banksia integrifolia, soft corkwood (*Caldcluvia paniculosa*), blueberry ash (*Elaeocarpus reticulatus*) and scentless rosewood (*Synoum glandulosum*). In some areas Eucalyptus brunnea, messmate (*E. obliqua*) and brush box (*Lophostemon confertus*) are abundant in the upper canopy. Shrubs include elderberry panax (*Polyscias sambucifolia*) and brush pepperbush (*Tasmannia insipida*), with scramblers wombat berry (*Eustrephus latifolius*), scrambling lily (*Geitonoplesium cymosum*), twining guinea flower (*Hibbertia dentate*), climbing guinea flower (*H. scandens*) and sweet sarsaparilla (*Smilax glyciphylla*).

Forbs and ferns in the ground layer may be blue flax lily (*Dianella caerulea*), giant maidenhair (*Adiantum formosum*), gristle fern (*Blechnum cartilagineum*), hard water fern (*Blechnum wattsii*), common ground fern (*Calochlaena dubia*), rough treefern (*Cyathea australis*), prickly rasp-fern (*Doodia aspera*) and spreading shield fern (*Sticherus lobatus*).

Associated Threatened Ecological Communities: No TEC listed

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Northern%20Escarpment%20Wet%20Sclerophyll%20Forests

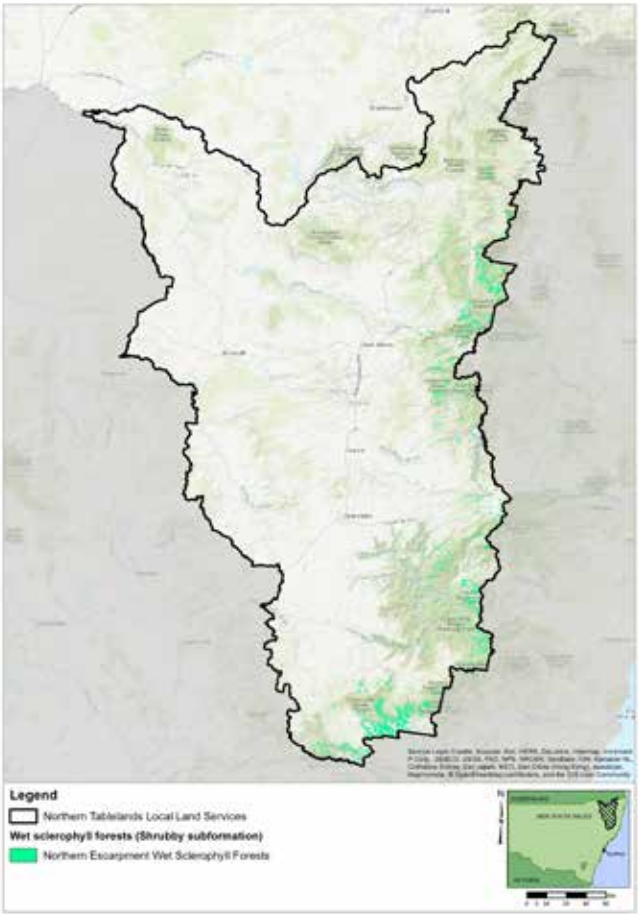


Figure 15: Keith Class - Northern Escarpment Wet Sclerophyll Forests

Northern Escarpment Wet Sclerophyll Forest

Rainforests

Dry Rainforests

Occurs in rough rocky terrain, on coastal and inland slopes with average annual rainfall 600 -1100 mm.

Structure: Low closed forests with an irregular canopy 5 - 20 m tall comprised of numerous tree species and occasional emergent eucalypts. The trees support occasional epiphytes and a diversity of vines. The understorey is sparse, comprising scattered shrubs and a few species of ferns and herbs.

Main species: The canopy is commonly made up of shatterwood (*Backhousia sciadophora*), dominant in steep dry gorges of the Macleay and upper Clarence catchments, wild quince (*Alectryon subcinereus*), brush bloodwood (*Baloghia inophylla*), lacebark tree (*Brachychiton discolor*), stinging tree (*Dendrocnide excelsa*), python tree (*Gossia bidwillii*), and whalebone tree (*Streblus brunonianus*).

Emergent trees may include Port Jackson fig (*Ficus rubiginosa*) and deciduous fig (*Ficus superba var. henneana*). In the gallery form of dry rainforests silky oak (*Grevillea robusta*), water gum (*Tristaniopsis laurina*) and weeping lilly pilly (*Waterhousea floribunda*) are present.

Shrubs may include Acalypha capillipes, in the far north of the region, Cassine australe, orange thorn (*Pittosporum multiflorum*), brittlewood (*Claoxylon australe*) and silver croton (*Croton insularis*), red kamala (*Mallotus philippensis*) with vines and scramblers gum vine (*Aphanopetalum resinosum*), blood vine (*Austrosteenisia blackii var. blackii*), staff climber (*Celastrus australis*), kangaroo vine (*Cissus antarctica*), scrambling jasmine (*Jasminum volubile*), sweet morinda (*Gynochthodes jasminoides*).

Epiphytic herbs include cucumber orchid (*Dendrobium cucumerinum*) and tongue orchid (*D. linguiforme*) and epiphytic ferns include strap fern (*Dictymia brownii*), *Platycerium superbum* (staghorn), *Pyrrosia confluens var. confluens* (horseshoe felt vine) and rock felt fern (*P. rupestris*). Forbs on the ground pastel flower (*Pseuderanthemum variabile*) and black lily (*Typhonium brownii*) may be common.

Ground ferns include common maidenhair (*Adiantum aethiopicum*), giant maidenhair (*A. formosum*), simple spleenwort (*Asplenium attenuatum var. attenuatum*), prickly rasp fern (*Doodia aspera*), sickle fern (*Pellaea falcata*) while common grasses include stout bamboo grass (*Austrostipa ramosissima*).

Associated Threatened Ecological Communities:

- Semi-evergreen Vine Thicket in the Brigalow Belt South and Nandewar Bioregions

For more information: www.environment.nsw.gov.au/threatenedspeciesapp/VegClass.aspx?vegClassName=Dry%20Rainforests

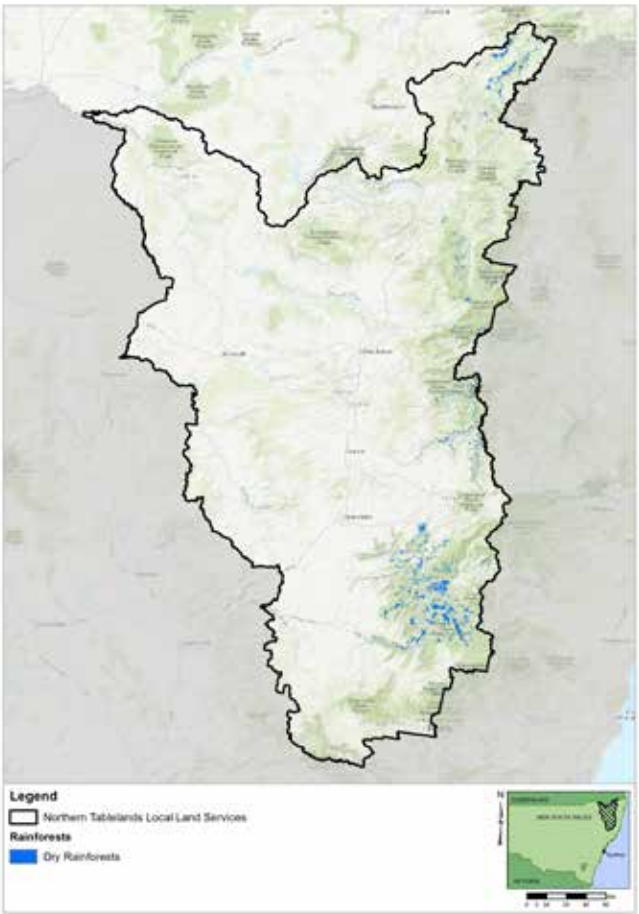


Figure 16: Keith Class - Dry Rainforests

Dry rainforest on basalt scree slope

Section 2: Threatened Ecological Communities In the Northern Tablelands region

In the Northern Tablelands Local Land Services region there are twelve Threatened Ecological Communities (TECs) listed under the *NSW Biodiversity Conservation Act 2016*. Five of those communities are also listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

The table 2 below shows four uncommon TEC communities are restricted to swampy depressions or rocky ridges, and the bottom four are restricted to the north west corner of the region.

Only the four highlighted are widespread TEC's common in TSR's.

Table 2: Conservation status of the Threatened Ecological Communities known to occur in the Northern Tablelands Local Land Services Region

Threatened Ecological Community	***Biodiversity Conservation Act (NSW)***	***Environment Protection and Biodiversity Conservation Act (Commonwealth)***
New England Peppermint (*Eucalyptus nova-anglica*) Woodland	Critically endangered	Critically endangered
White Box-Yellow Box-Blakely's Red Gum Woodland	Endangered	Critically endangered
McKies Stringybark/Blackbutt Open Forest	Endangered	Not listed
Ribbon Gum-Mountain Gum-Snow Gum	Endangered	Not listed
Threatened Ecological Communities restricted to swampy depressions or rocky ridges		
Carex Sedgeland	Endangered	Not listed
Montane Peatlands and Swamps	Endangered	Endangered
Upland Wetlands	Endangered	Endangered
Howell Shrublands	Endangered	Not listed
Threatened Ecological Communities restricted to north west corner of the North West Local Land Services region		
Brigalow within the Nandewar	Endangered	Endangered
Cadellia pentastylis (Ooline) community in the Nandewar Bioregion	Endangered	
Carbeen Open Forest Community in BBS	Endangered	
Fuzzy Box Woodland on alluvial Soils in BBS	Endangered	

In the following pages, each community is given a distribution map, a reference photograph and a link to the community profile on the OEH website, which contains a specific description of each community, the dominant species, distribution, habitat and ecology.

The OEH website also contains a link to the New England Tablelands region which has known or predicted localities of TEC occurrences, threats to the community, recovery strategies and recommended activities to assist the community. The dominant trees likely to be found in these TECs are listed in the Appendix with links to websites displaying photographs and descriptions for identification.

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

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Endangered

For further information: www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10109

www.environment.nsw.gov.au/resources/pnf/10917BrigalowGuidelines.pdf

Brigalow occurs as a community on the rich soil slopes and plains from Narrabri to North Star. It has a very restricted occurrence in the north west corner of the Northern Tablelands Local Land Services region, with two records of Brigalow in the Yetman area. It is not known if it occurs in routes and reserves in the Yetman region.

Cadellia pentastylis (Ooline) community in the Nandewar and Brigalow Belt South Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information: Profile: www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10119

Ooline is both and vulnerable species and a threatened ecological community, it is resricted to a few small locations in the north west corner of the Northern Tablelands Local Land Services region. It is unknown if it occurs in stock routes or reserves.

Carbeen Open Forest Community in the Darling Riverine Plains and Brigalow Belt South Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information:
Profile: www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10145

Guidleines: www.epa.nsw.gov.au/your-environment/native-forestry/about-private-native-forestry/conducting-private-native-forestry/ecological-endangered-communities-guidelines

Carbeen community occurs as a community on sandy or duplex soils on the flood plain. It has a very restricted occurrence in the north west corner of the Northern Tablelands Local Land Services region. It is not known if it occurs in routes and reserves in the Yetman - Bonshaw region.

Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information: Carex Sedgeland of the New England Tableland, Nandewar, Brigalow Belt South and NSW North Coast Bioregions

Carex sedgeland is very restricted to drainage depressions at high elevations, often in granite landscapes like the one below at Bendemeer. Small areas can occur in TSR's where routes cross drainage lines.

Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information:
Profile: www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10335

Fuzzy box woodland has a restricted occurrence in the north west corner of the Northern Tablelands Local Land Services region, it is known to occur on alluvial flats in the Ashford area at the Severn River campground.

Howell Shrublands in the New England Tableland and Nandewar Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information: Howell Shrublands in the New England Tableland and Nandewar Bioregions

Howell Shrublands occurs on rocky outcrops in the area from Inverell – Gilgai, Copeton Dam to Ironbark Nature Reserve, very restricted, unlikely to occur in Travelling Stock Routes and reserves.

McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information: McKies Stringybark/Blackbutt Open Forest in the Nandewar and New England Tableland Bioregions

McKies Stringybark/Blackbutt Open Forest is common along roadsides and Travelling Stock Routes in the Tingha to Wandsworth region between 800 m and 1,100 m, usually on shallow poorer soil types. Has a restricted distribution on the North West Slopes and New England Tablelands, from Bendemeer to Bundarra – Wandsworth – Tingha – Kings Plains – and Emmaville to Torrington.

Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Endangered

For further information: Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions

Montane peatlands and swamps are very restricted to drainage depressions at high elevations, often in granite landscapes like the one below at Bendemeer. Small areas can occur in TSR's where routes cross drainage lines.

New England Peppermint (*Eucalyptus nova-anglica*) Woodland on Basalts and Sediments in the New England Tableland Bioregion

Conservation status in NSW: Critically Endangered Ecological Community

Commonwealth status: Critically Endangered

For further information: New England Peppermint (Eucalyptus nova-anglica) Woodland on Basalts and Sediments in the New England Tableland Bioregion

Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Not listed

For further information: Ribbon Gum-Mountain Gum-Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion

Ribbon gum- Mountain gum-Snow gum grassy Forest is widespread across the region at high altitudes in TSR's from Niangala, Walcha, Armidale, Guyra, and Glen Innes Tenterfield, prefers the better soil types like basalt. The Snow gum tree species is limited to the highest elevations, but the the Ribbon gum extends down to 800m. The TEC community only needs to have one of those tree species to be present. Often occurs in close proximity to White box – Yellow box – Blakely's Redgum and New England Peppermint threatened ecological communities.

Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Endangered

For further information: Upland Wetlands of the Drainage Divide of the New England Tableland Bioregion

Upland wetlands are restricted to drainage depressions at high elevations from Walcha to Glen Innes, major wetlands are Mother of Ducks and Little Llangothlin Nature Reserve. Small wetlands are known to occur in TSR's like the one below Barley Fields Lagoon near Uralla.

White Box - Yellow Box - Blakely's Red Gum Woodlandon

Conservation status in NSW: Endangered Ecological Community

Commonwealth status: Critically Endangered

For further information: White Box Yellow Box Blakely's Red Gum Woodland

The presence of White box, Yellow box, or Blakely's Red gum trees indicates the TEC community may be present, providing the ground cover is naturally grassy with sparse shrubs. For the NSW BC Act the community must be capable of regeneration, meaning that the diversity of plants could regenerate if assisted. The Commonwealth criteria is a lot more limiting to only include the remnants that have had little disturbance and retain a diversity of native plants.

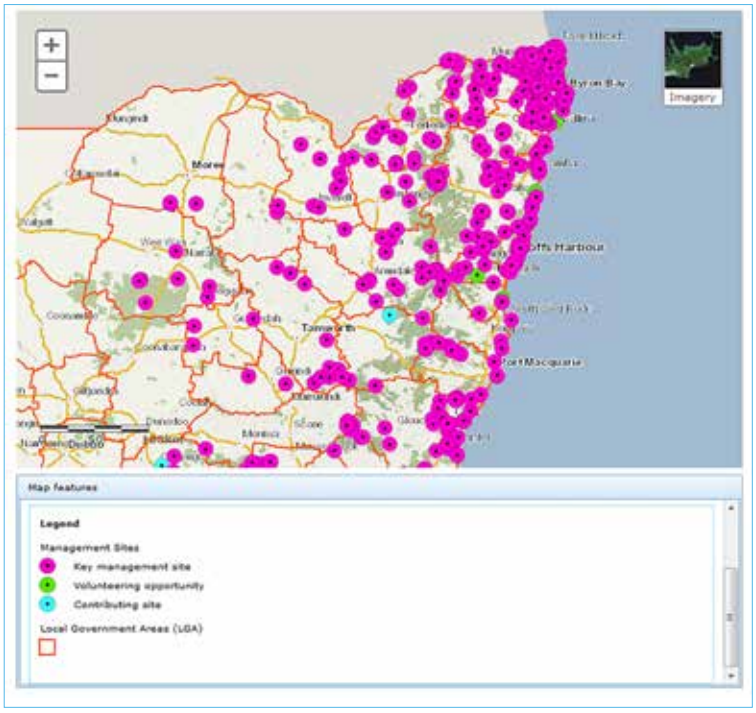
Generally speaking where the community occurs in TSR's plant diversity is high, providing it is not infested with weeds like Coolatai grass which elimates the TEC. Grey box *E. molucanna* is not included in the NSW listing but it is in the Commonwealth listing. The TEC is common in TSR's at elevations between 400 – 1,000 m in the Bundara, Inverell and Ashford region and at higher elevations in TSR's like Tilbuster and along the New England Highway to Bendemeer. The TEC community is present even if only one of the three tree species is present.

Section 3: Site managed threatened species SOS projects

NSW OEH have identified 'site-managed species' as threatened plants and animals that can be secured by conservation projects at specific sites. Actions to manage threats may include predator control, weeding, controlling erosion or revegetation, and monitoring the results.

For more information about project locations in the tablelands region visit: www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/saving-our-species-program/threatened-species-conservation/site-managed-species

In the Northern Tablelands Local Land Services region there are 40 site managed flora species and four site managed fauna species. Of those, five threatened plants have management sites located in TSRs in the Armidale, Glen Innes Guyra and Uralla districts, and three threatened animals have management sites associated with TSR's. Those site managed species for the Northern Tablelands Local Land Services region are listed in Table 3 with links to more information regarding their distribution, threats and management.



Map showing management sites and Local Government Areas in northern NSW for site managed species under the Saving Our Species program. www.environment.nsw.gov.au/savingourspeciesapp/managementstream.aspx?managementstream=sitemanaged

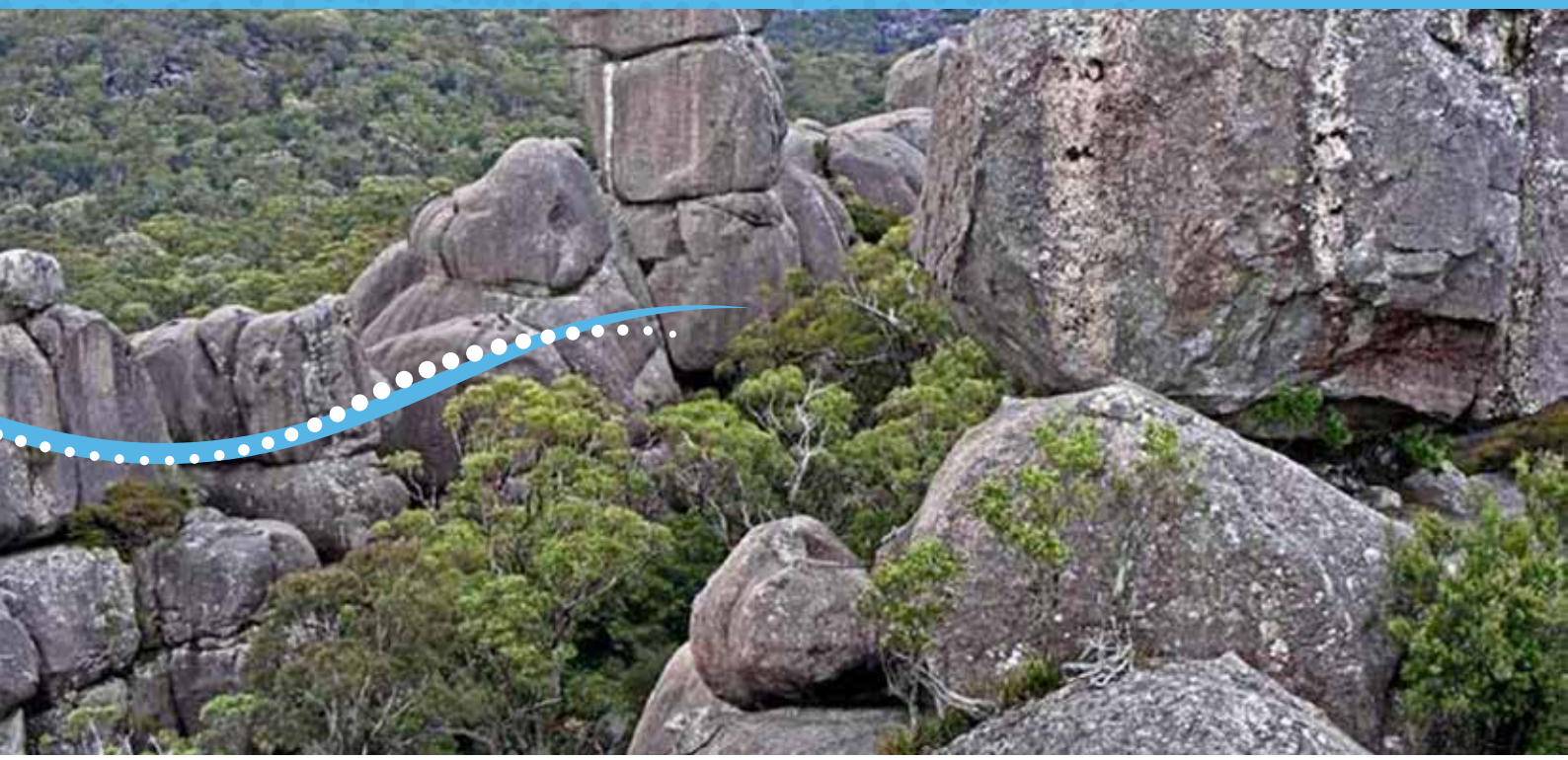


Table 3. Saving Our Species Site managed threatened species projects associated with TSR's in the Northern Tabelands Local Land Services Region

Key: A = Active; P = proposed management; M = Management Site; S = Significant population; sites located in TSR's.

Threatened species - fauna	***Link to threatened species profile (OEH website)***	***LGA***	***Site name***	***Status***	***Site type***
Regent Honeyeater (*Anthochaera phrygia*)	www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10841	Uralla	Bundarra – Barraba region TSR's	A	M
Bell's Turtle, Western Sawshelled Turtle – *Myuchelys bellii*	www.environment.nsw.gov.au/savingourspeciesapp/Project.aspx?results=c&ProfileID=10266	Armidale Regional, Glen Innes Severn, Gwydir, Inverell, Tamworth Regional, Tenterfield, Uralla, Walcha	New England Tablelands TSR's with frontage to Macdonald, Gwydir, Severn, and Deepwater Rivers and Bald Rock Creek	A	M
Bellinger River Snapping Turtle (*Myuchelys georgesi*)	www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=20301	Bellingen, Armidale Regional	Bellinger Drainage Area	A	M
Threatened species - flora					
Blackbutt Candlebark (*Eucalyptus rubida subsp. barbigerorum*)	www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10312 http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWflpl?page=nswfl&lvl=in&name=Eucalyptus~rubida~subsp.+barbigerorum	Armidale Regional	Survey site	A	M
		Glen Innes Severn	Glen Innes to Deepwater TSR	P	M
		Inverell	Survey site	A	M
		Tenterfield	Demon Nature Reserve	A	M
			Malara State Forest	A	M
			Apex Lookout	A	M
Bluegrass (*Dichanthium setosum*)	www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10221 http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Dichanthium~setosum	Armidale Regional	Armidale Arboretum	A	M
			East of Guyra	A	M
			Saumarez North TSR	A	M
		Uralla	Saumarez North TSR	A	M
Diuris eborensis (*Diuris eborensis*)	www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=20293 http://www.environment.nsw.gov.au/threatenedSpeciesApp/profileData.aspx?id=20293&cmaName=New+England+Tablelands	Armidale Regional	Backwater Church	A	M
			Oban	A	M
			Rigney Creek TSR	P	M
		Walcha	Thungutti Swamp	A	M
			Racecourse Swamp	A	M
Hawkweed (*Picris evae*)	www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10627	Inverell	Barayamal	P	M
			Myall Creek	P	M
Metcalfe's Greenhood (*Pterostylis metcalfei*)	www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10702	Armidale Regional	Doughboy Mountain	A	M
			Ebor Falls	A	M
			Rigney Creek	A	M
Small Snake Orchid (*Diuris pedunculata*)	www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10239 http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Diuris~pedunculata	Armidale Regional	East of Guyra	A	M
			Rigney Creek TSR	A	M

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Web sites accessed:

EUCLID http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/index_species.htm

PLANTNET http://plantnet.rbgsyd.nsw.gov.au/floraonline.htm

The Habitat Advocate www.habitatadvocate.com.au/?p=6095

Threatened Species Recovery Hub www.nespthreatenedspecies.edu.au/news/lost-with-the-brigalow-rediscovering-something-lost-in-order-to-save-what-still-exists

Threatened species found in Nandewar IBRA www.environment.nsw.gov.au/threatenedSpeciesApp/cmaSearchResults.aspx?CmaName=Nandewar&SubCmaId=0

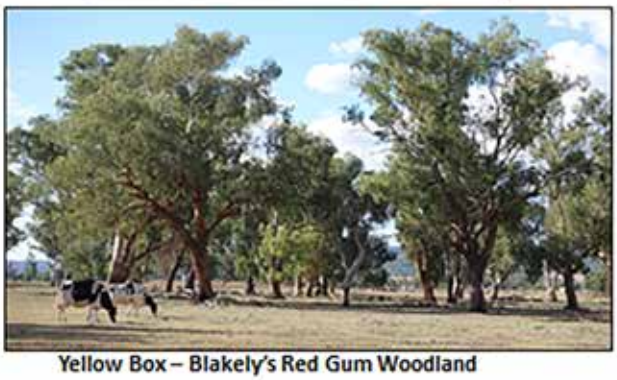
Threatened species found in New England Tablelands IBRA www.environment.nsw.gov.au/threatenedSpeciesApp/cmaSearchResults.aspx?CmaName=New%20England%20Tablelands&SubCmaId=0

Appendix 1

How to identify some common Eucalypts that are potential indicators of Fuzzy box and White box – Yellow box – Blakely's red gum Threatened Ecological Communities

Identifying Eucalypts that are indicators of Threatened Ecological Communities

1. Juvenile leaf
2. Adult leaf
3. Buds
4. Fruit

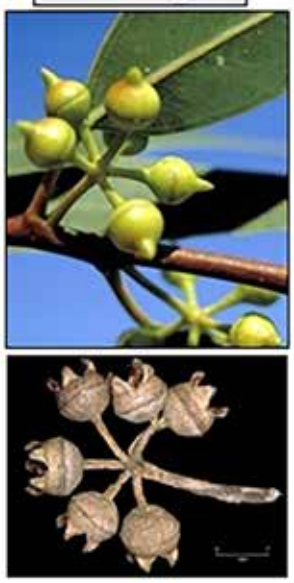


Yellow Box – Blakely's Red Gum Woodland

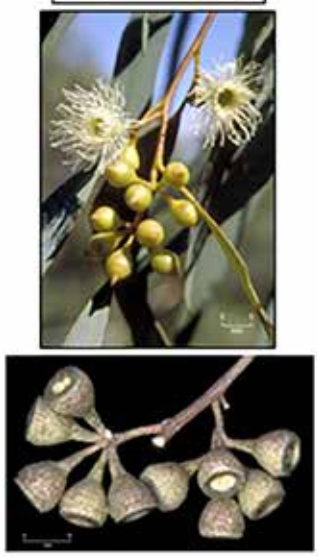
For most trees you can find distinguishing features such as the buds and fruit of these

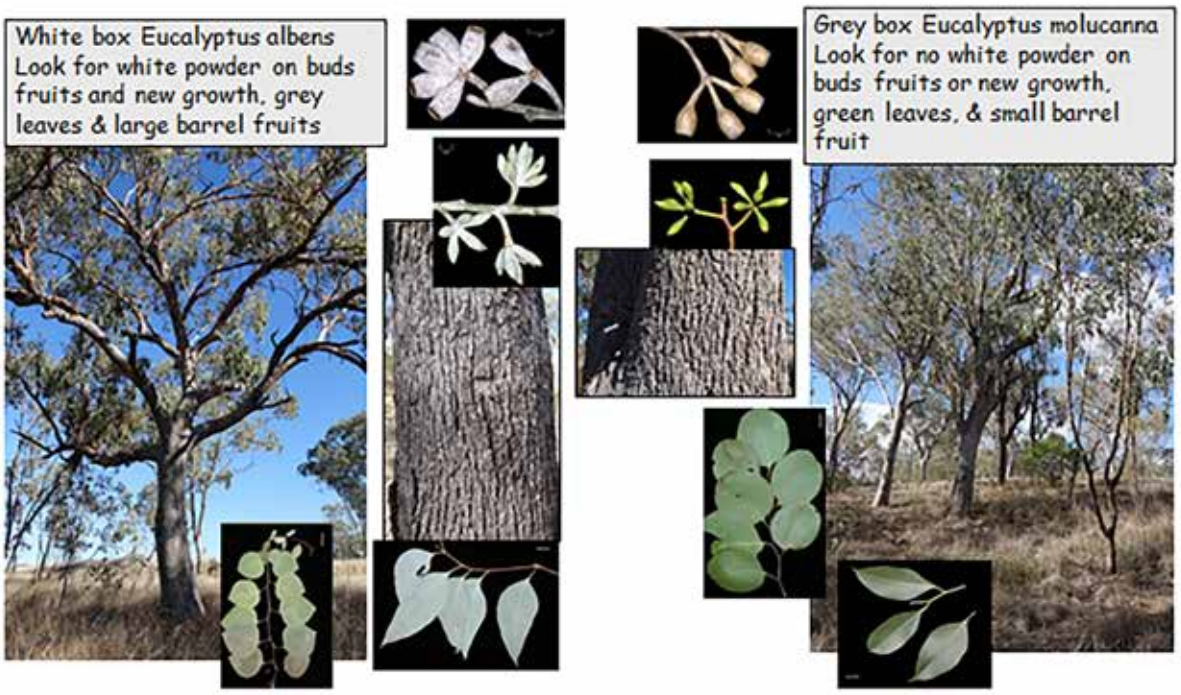
Blakely's red gum

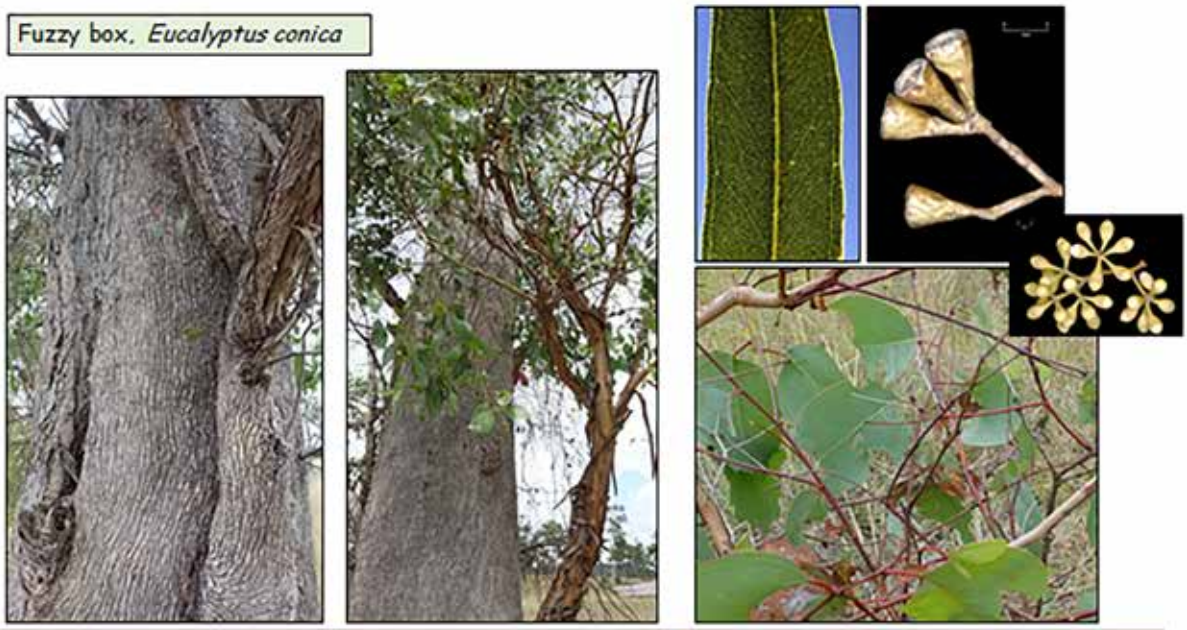
River red gum



Yellow box







Tesselated bark, slightly rough; juvenile leaves always petiolate, ovate green to blue green; fruit obconical; adult leaves lanceolate, dull, blue green to green, densely reticulate, intramarginal vein parallel to and remote from margin

Web sites for plant identification

PLANTNET
http://plantnet.rbgsyd.nsw.gov.au/floraonline.htm

EUCLID
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/index.htm

DPI NSW
https://www.dpi.nsw.gov.au/agriculture/pastures-and-rangelands/rangelands/publications-and-information/grassedup/species

PLANTS OF WESTERN NSW
https://keys.lucidcentral.org/keys/v3/scotia/key/Plants%20and%20Fungi%20of%20south%20western%20NSW/Media/Html/index.htm

ATLAS OF LIVING AUSTRALIA
http://bie.ala.org.au/species/http://id.biodiversity.org.au/instance/apni/954720

OEH NSW HOW CAN I IDENTIFY A NSW PLANT?
http://www.environment.nsw.gov.au/questions/identifying-nsw-plants

NSW NATIVE PLANT IDENTIFICATION PUBLIC GROUP | FACEBOOK
https://www.facebook.com/groups/332752936930981/

Appendix 2

Links to assist the identification of common Eucalypts and other dominant trees of the Northern Tablelands Local Land Services region to identify Vegetation Classes and Threatened Ecological Communities.

Box

Eucalyptus bridgesiana (apple box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_bridgesiana.htm

E. malacoxylon (Moonbi apple box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_malacoxylon.htm

E. conica (fuzzy box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_conica.htm

E. melliodora (yellow box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_melliodora.htm

E. moluccana (grey box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_moluccana.htm

E. albens (white box)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_albens.htm

E. nortonii (large flowered bundy)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_nortonii.htm

E. banksii (Tenterfield Woollybutt)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_banksii.htm

Gums

E. blakelyi (Blakelys red gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_blakelyi.htm

E. brunnea (Brown gum, Round-leaf gum)
http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Eucalyptus~brunnea

E. dalrympleana subsp. heptantha (mountain gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_dalrympleana_subsp._heptantha.htm

E. dealbata (tumbledown red gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_dealbata.htm

E. deanei (Round-leaved gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_deanei.htm

E. dorrigoensis (Dorrigo white gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_dorrigoensis.htm

E. elliptica (Bendemeer white gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_elliptica.htm

E. nobilis (ribbon gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_nobilis.htm

E. oreades (Blue Mountain ash)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_oreades.htm

E. pauciflora (snow gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_pauciflora_subsp._pauciflora.htm

E. prava (orange gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_prava.htm

E. rubida (Blackbutt/Candlebark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_rubida_subsp._barbigerorum.htm

E. saligna (Sydney blue gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_saligna.htm

E. stellulata (black sally)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_stellulata.htm

E. tereticornis (forest red gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_tereticornis_subsp._tereticornis.htm

E. viminalis (ribbon gum)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_viminalis_subsp._viminalis.htm

Stringy barks

E. caliginosa (broad-leaved stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_caliginosa.htm

E. cameronii (diehard stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_cameronii.htm

E. eugenioides (narrow-leaved stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_eugenioides.htm

E. laevopinea (silver-top stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_laevopinea.htm

E. mckieana (McKie's stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_mckieana.htm

E. microcorys Tallowwood
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_microcorys.htm

E. obliqua (messmate)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_obliqua.htm

E. subtilior (stringybark)
http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Eucalyptus~subtilior

E. williamsiana (Williams stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_williamsiana.htm

E. youmanii (Youmans stringybark)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_youmanii.htm

Peppermints

E. andrewsii subsp. campanulata (gum-topped peppermint, New England blackbutt)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_andrewsii_subsp._campanulata.htm

E. acaciiformis (wattle-leaved peppermint)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_acaciiformis.htm

E. radiata subsp. sejuncta (New England narrow-leaved peppermint) http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_radiata_subsp._sejuncta.htm

E. nova-anglica (New England peppermint)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Eucalyptus_nova-anglica.htm

Angophora

Angophora floribunda (rough-barked apple)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Angophora_floribunda.htm

Angophora subvelutina (broad-leaved apple)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Angophora_subvelutina.htm

Rusty gum, smooth barked apple (Angophora leiocarpa)
http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Angophora_costata_subsp._leiocarpa.htm

Bloodwood

Carbeen (*Corymbia tessellaris*) http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Corymbia_tessellaris.htm

Long-fruited bloodwood (*Corymbia dolichocarpa*)
http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Corymbia~dolichocarpa and http://keyserver.lucidcentral.org:8080/euclid/data/02050e02-0108-490e-8900-0e0601070d00/media/Html/Corymbia_clarksoniana.htm

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