

Class: Cumberland Dry Sclerophyll Forests

Related TEC: Cooks River/ Castlereagh Ironbark Forest EEC (TSC).

Castlereagh Ironbark Forest (DSF p1) is equivalent to DSF 1 described by Tindall *et al.* (2004). This unit is a eucalypt forest or woodland with a mixed understorey of sclerophyll shrubs and grasses, occurring on the Cumberland Plain (western Sydney) between Castlereagh and Holsworthy (Tozer 2003). It is found on clay soils with iron-indurated gravel derived from Tertiary alluvium or shale. Castlereagh Ironbark Forest occurs below 100m ASL where mean annual rainfall ranges from 800 to 1000mm. It typically occurs as small pockets within the more extensively distributed Castlereagh Scribbly Gum Woodland (DSF p7) which is found on free-draining soils with sandier texture. In areas of poor drainage, Castlereagh Ironbark Forest is replaced by Castlereagh Swamp Woodland (DSF p4). Where Tertiary Alluvium adjoins shale soils, Castlereagh Ironbark Forest grades to Shale-Gravel Transition Forest (DSF p502) with decreasing depth of alluvium. The naturally restricted distribution of Castlereagh Ironbark Forest has been largely cleared, and rural-residential and industrial development, rubbish dumping and high frequency fires pose continuing threats.

Floristic Summary:

Trees: *Eucalyptus fibrosa*, *Melaleuca decora*. **Shrubs:** *Lissanthe strigosa*, *Melaleuca nodosa*, *Daviesia ulicifolia*, *Ozothamnus diosmifolius*, *Acacia falcata*, *Bursaria spinosa*. **Climbers:** *Glycine clandestina*. **Groundcover:** *Entolasia stricta*, *Microlaena stipoides*, *Cheilanthes sieberi*, *Aristida vagans*, *Pratia purpurascens*, *Lomandra multiflora*, *Opercularia diphylla*, *Dianella revoluta*, *Lepidosperma laterale*, *Goodenia hederacea*, *Paspalidium distans*, *Pomax umbellata*, *Themeda australis*, *Panicum simile*, *Laxmannia gracilis*, *Austrodanthonia tenuior*, *Eragrostis brownii*.

Vegetation structure:

Stratum	Frequency (n=40)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	19.5 (6)	19.1 (9.3)
Small tree	83	9.6 (3.6)	29 (21.4)
Shrub	73	2.5 (0.6)	21.9 (19.7)
Ground cover	100	0.9 (0.2)	27.7 (24.5)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 21 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 35 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 21 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia elongata</i>	1(1-2)	19	1(1-1)	1
<i>Acacia falcata</i>	1(1-2)	55	1(1-1)	1
<i>Acacia parramattensis</i>	1(1-1)	19	1(1-2)	4
<i>Angophora bakeri</i>	1(1-1)	19	1(1-2)	2
<i>Aristida ramosa</i>	1(1-1)	24	1(1-2)	5
<i>Aristida vagans</i>	2(1-2)	81	1(1-2)	8
<i>Austrodanthonia tenuior</i>	1(1-2)	50	1(1-2)	2
<i>Austrostipa pubescens</i>	2(1-3)	19	1(1-2)	5
<i>Boronia polygalifolia</i>	1(1-1)	19	1(1-1)	1
<i>Brunoniella australis</i>	2(1-2)	29	2(1-2)	4
<i>Brunoniella pumilio</i>	1(1-2)	24	1(1-1)	4
<i>Bursaria spinosa</i>	1(1-2)	50	1(1-2)	14
<i>Calotis cuneifolia</i>	1(1-3)	21	1(1-2)	<1
<i>Cassutha glabella</i>	1(1-2)	38	1(1-1)	8
<i>Cheilanthes sieberi</i>	2(1-2)	90	1(1-1)	13
<i>Cyathochaeta diandra</i>	1(1-1)	26	1(1-2)	8
<i>Cymbopogon refractus</i>	1(1-1)	19	1(1-1)	4
<i>Daviesia ulicifolia</i>	1(1-2)	52	1(1-1)	6
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	76	1(1-1)	15

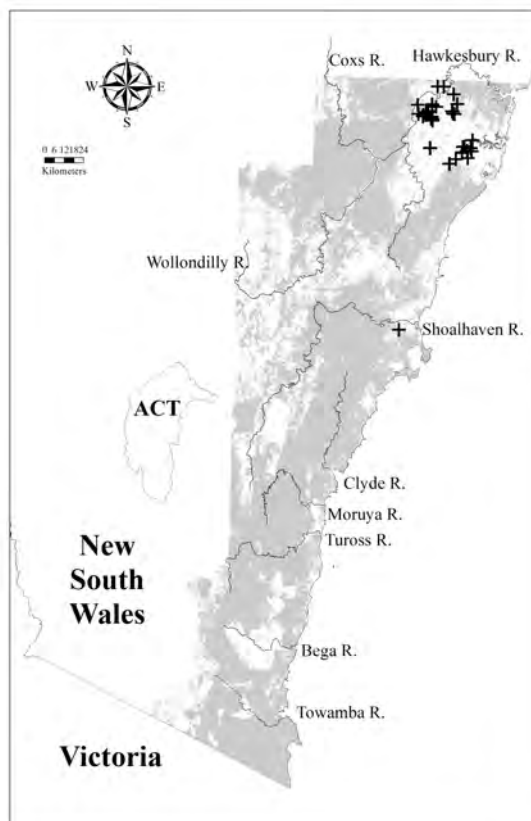
<i>Dichelachne micrantha</i>	1(1-1)	45	1(1-1)	9
<i>Dillwynia tenuifolia</i>	2(1-3)	38	2(1-2)	<1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-2)	43	1(1-1)	6
<i>Entolasia stricta</i>	2(1-2)	98	1(1-2)	33
<i>Eragrostis brownii</i>	1(1-2)	55	1(1-1)	3
<i>Eucalyptus eugenioides</i>	1(1-3)	21	2(1-3)	4
<i>Eucalyptus fibrosa</i>	3(3-4)	71	2(1-3)	3
<i>Eucalyptus longifolia</i>	1(1-1)	21	2(1-2)	2
<i>Exocarpos cupressiformis</i>	1(1-1)	19	1(1-1)	5
<i>Glycine clandestina</i>	1(1-1)	52	1(1-1)	26
<i>Glycine microphylla</i>	1(1-1)	26	1(1-2)	5
<i>Gonocarpus tetragynus</i>	1(1-1)	43	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	62	1(1-2)	14
<i>Grevillea mucronulata</i>	1(1-1)	24	1(1-1)	3
<i>Hakea sericea</i>	1(1-2)	31	1(1-1)	7
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-2)	26	1(1-1)	10
<i>Hypericum gramineum</i>	1(1-1)	36	1(1-1)	16
<i>Kunzea ambigua</i>	1(1-2)	29	1(1-2)	3
<i>Laxmannia gracilis</i>	1(1-2)	55	1(1-1)	3
<i>Lepidosperma laterale</i>	2(1-2)	74	1(1-1)	28
<i>Leucopogon juniperinus</i>	1(1-2)	21	1(1-1)	5
<i>Lissanthe strigosa</i>	2(1-2)	62	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-3)	29	1(1-1)	11
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	71	1(1-1)	25
<i>Melaleuca decora</i>	3(1-3)	69	2(1-3)	1
<i>Melaleuca nodosa</i>	3(2-4)	64	1(1-3)	1
<i>Microlaena stipoides</i>	2(1-3)	93	1(1-2)	36
<i>Olearia microphylla</i>	1(1-1)	29	1(1-1)	1
<i>Opercularia diphylla</i>	1(1-2)	74	1(1-1)	7
<i>Ozothamnus diosmifolius</i>	1(1-2)	67	1(1-1)	8
<i>Panicum simile</i>	1(1-2)	62	1(1-1)	6
<i>Paspalidium distans</i>	1(1-2)	69	1(1-2)	2
<i>Phyllanthus hirtellus</i>	1(1-2)	33	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	36	1(1-1)	13
<i>Pomax umbellata</i>	1(1-2)	64	1(1-1)	14
<i>Poranthera microphylla</i>	1(1-2)	36	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	79	1(1-1)	17
<i>Pultenaea parviflora</i>	2(1-2)	26	1(1-2)	<1
<i>Themeda australis</i>	2(1-3)	67	1(1-3)	17
<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	1(1-2)	21	1(1-1)	2
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-1)	45	1(1-1)	4
<i>Veronica plebeia</i>	1(1-1)	29	1(1-1)	10
<i>Wahlenbergia gracilis</i>	1(1-2)	31	1(1-1)	11

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	45	1(1-1)	28
<i>Lomandra longifolia</i>	1(1-1)	31	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	3(1-3)	7	1(1-2)	9
<i>Angophora subvelutina</i>	1(1-1)	2	3(1-3)	<1
<i>Corymbia eximia</i>	3(1-3)	5	1(1-2)	2
<i>Eucalyptus crebra</i>	1(1-1)	5	2(1-3)	3
<i>Eucalyptus globoidea</i>	2(1-3)	10	2(1-2)	12
<i>Eucalyptus haemastoma</i>	3(3-3)	2	1(1-2)	2
<i>Eucalyptus moluccana</i>	1(1-3)	10	3(1-3)	2
<i>Eucalyptus oblonga</i>	3(3-3)	5	1(1-2)	2
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	1(1-1)	5	1(1-3)	<1
<i>Eucalyptus punctata</i>	1(1-3)	14	2(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	3(1-3)	5	1(1-2)	1
<i>Eucalyptus sclerophylla</i>	2(1-3)	14	2(1-3)	4
<i>Eucalyptus sideroxylon</i>	1(1-1)	2	3(1-4)	<1
<i>Eucalyptus tereticornis</i>	1(1-3)	7	2(1-3)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-2)	12	2(1-3)	8



Locations of survey sites allocated to DSF p1. Grey shading indicates extant native vegetation cover within the study area.

GW p2: Cumberland Shale Sandstone Transition Forest

Plate p2. Cumberland Shale Sandstone Transition Forest (Map Unit p2) with a canopy dominated by *Eucalyptus punctata*, *E. tereticornis* and *E. globoidea* at Billets Creek, Orangeville.

Sample Sites: 79

Area Extant (ha): 9,600

Estimated % remaining: 20-40%

Area in conservation reserves (ha): 240

Estimated % of pre-clearing area in conservation reserves: <2%

No. Taxa (total / unique): 406 / 2

No. Taxa per Plot (\pm sd): 46 (9.4)

Class: Coastal Valley Grassy Woodlands

Related TECs: Shale/Sandstone Transition Forest EEC (TSC); Shale/Sandstone Transition Forest EEC (EPBC).

Cumberland Shale Sandstone Transition Forest (GW p2) is equivalent to GW 2 described by Tindall *et al.* (2004), and is a eucalypt forest or woodland with a mixed understorey of sclerophyll shrubs and grasses. It occurs on clay soils derived from Wianamatta shale (Bannerman and Hazelton 1990) predominantly on the margins of the Cumberland Plain, Sydney, where the underlying sandstone strata are near the surface. Minor occurrences are found on isolated shale remnants in the lower Blue Mountains and the Hornsby and Woronora plateaux and, more rarely, associated with shale lenses within sandstone strata. Cumberland Shale Sandstone Transition Forest is found up to 350m ASL in areas where mean annual rainfall ranges from 800 to 1100mm.

Cumberland Shale Sandstone Transition Forest is highly variable in floristic composition. Species composition varies as a function of the degree of sandstone influence in the soil: remnants close to outcropping sandstone may contain a large component of sclerophyll shrub species while those remote from the sandstone boundary contain more grasses and herbs, and resemble Cumberland Shale Plains Woodland (GW p29), (Tozer 2003). Remnants occurring in the higher rainfall range (> 1000mm) contain a proportion of mesic species and show similarities to Sydney Turpentine Ironbark Forest (WSF p87). This transition varies depending on exposure to solar radiation. Cumberland Shale Sandstone Transition Forest continues to be threatened by suburban expansion, weed invasion and high frequency fires, though important stands exist along the southeast margin of the Cumberland Plain from Appin to Thirlmere.

Floristic Summary:

Trees: *Eucalyptus crebra*, *Eucalyptus fibrosa*, *Allocasuarina littoralis*, *Eucalyptus punctata*. **Shrubs:** *Persoonia linearis*, *Bursaria spinosa*, *Ozothamnus diosmifolius*, *Hibbertia aspera*. **Climbers:** *Glycine clandestina*.

Groundcover: *Lepidosperma laterale*, *Cheilanthes sieberi*, *Aristida vagans*, *Pratia purpurascens*, *Microlaena stipoides*, *Entolasia stricta*, *Lomandra multiflora*, *Themeda australis*, *Panicum simile*, *Echinopogon caespitosus*, *Pomax umbellata*, *Dichondra* spp., *Billardiera scandens*, *Opercularia diphylla*.

Vegetation structure:

Stratum	Frequency (n=69)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	21.4 (4.5)	21.4 (10.4)
Small tree	78	10.9 (4.4)	17.9 (15.8)
Shrub	65	2.3 (0.6)	7.9 (9.2)
Ground cover	99	1 (0.1)	40.2 (22.5)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 26 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 39 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 26 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	1(1-1)	14	1(1-2)	2
<i>Acacia decurrens</i>	1(1-1)	27	1(1-1)	2
<i>Acacia elongata</i>	1(1-1)	6	1(1-1)	1
<i>Acacia falcata</i>	1(1-1)	18	1(1-1)	1
<i>Acacia floribunda</i>	1(1-1)	14	1(1-2)	2
<i>Acacia implexa</i>	1(1-1)	20	1(1-1)	6
<i>Acacia parramattensis</i>	1(1-1)	30	1(1-2)	4
<i>Allocasuarina littoralis</i>	1(1-2)	53	1(1-2)	16
<i>Allocasuarina torulosa</i>	1(1-1)	19	1(1-3)	5
<i>Angophora bakeri</i>	1(1-2)	16	1(1-2)	2
<i>Aristida vagans</i>	1(1-2)	80	1(1-2)	8
<i>Arthropodium milleflorum</i>	1(1-1)	19	1(1-1)	5
<i>Astroloma humifusum</i>	1(1-1)	20	1(1-1)	4
<i>Austrodanthonia fulva</i>	1(1-1)	20	1(1-2)	2
<i>Austrodanthonia tenuior</i>	1(1-1)	10	1(1-2)	2
<i>Austrostipa pubescens</i>	2(1-3)	33	1(1-2)	5
<i>Billardiera scandens</i>	1(1-1)	56	1(1-1)	27
<i>Boronia polygalifolia</i>	1(1-1)	6	1(1-1)	1
<i>Bossiaea prostrata</i>	1(1-1)	22	1(1-1)	2
<i>Brachyscome angustifolia</i>	1(1-1)	9	1(1-1)	2
<i>Breynia oblongifolia</i>	1(1-1)	27	1(1-1)	12
<i>Brunoniella australis</i>	1(1-2)	41	2(1-2)	3
<i>Brunoniella pumilio</i>	1(1-1)	24	1(1-1)	4
<i>Bursaria spinosa</i>	1(1-2)	65	1(1-2)	14
<i>Caesia parviflora</i>	1(1-2)	11	1(1-1)	2
<i>Calotis dentex</i>	1(1-2)	30	1(1-2)	<1
<i>Cassutha glabella</i>	1(1-1)	18	1(1-1)	8
<i>Cheilanthes sieberi</i>	1(1-2)	82	1(1-1)	13
<i>Corymbia maculata</i>	3(2-4)	11	2(1-3)	3
<i>Cymbopogon refractus</i>	1(1-1)	28	1(1-1)	4
<i>Daviesia squarrosa</i>	1(1-2)	6	1(1-1)	<1
<i>Daviesia ulicifolia</i>	1(1-1)	19	1(1-1)	6
<i>Desmodium rhytidophyllum</i>	1(1-1)	15	1(1-1)	1
<i>Dianella longifolia</i>	1(1-1)	13	1(1-1)	4

<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	42	1(1-1)	15
<i>Dichelachne micrantha</i>	1(1-1)	33	1(1-1)	9
<i>Dichelachne parva</i>	1(1-2)	8	1(1-1)	2
<i>Dichondra</i> spp.	1(1-2)	58	1(1-2)	25
<i>Digitaria parviflora</i>	1(1-2)	27	1(1-1)	2
<i>Digitaria ramularis</i>	1(1-2)	30	1(1-1)	1
<i>Dodonaea triquetra</i>	1(1-2)	20	1(1-2)	6
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-2)	62	1(1-1)	6
<i>Echinopogon ovatus</i>	1(1-1)	33	1(1-1)	14
<i>Entolasia marginata</i>	1(1-2)	41	1(1-1)	11
<i>Entolasia stricta</i>	2(1-2)	77	1(1-2)	33
<i>Eragrostis brownii</i>	1(1-1)	24	1(1-1)	3
<i>Eragrostis leptostachya</i>	1(1-2)	19	1(1-1)	4
<i>Eucalyptus crebra</i>	2(1-3)	63	2(1-3)	2
<i>Eucalyptus eugenioides</i>	1(1-3)	24	2(1-3)	4
<i>Eucalyptus fibrosa</i>	2(1-3)	52	2(1-3)	2
<i>Eucalyptus punctata</i>	2(1-3)	52	1(1-3)	8
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	6	1(1-2)	1
<i>Euchiton sphaericus</i>	1(1-1)	20	1(1-1)	3
<i>Exocarpos cupressiformis</i>	1(1-1)	22	1(1-1)	5
<i>Gahnia aspera</i>	1(1-2)	24	1(1-1)	4
<i>Galium binifolium</i>	1(1-1)	11	1(1-1)	3
<i>Glycine clandestina</i>	1(1-1)	72	1(1-1)	26
<i>Glycine microphylla</i>	1(1-1)	18	1(1-2)	5
<i>Glycine tabacina</i>	1(1-1)	28	1(1-1)	7
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	46	1(1-2)	14
<i>Hardenbergia violacea</i>	1(1-1)	47	1(1-1)	17
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-2)	51	1(1-1)	10
<i>Hibbertia diffusa</i>	1(1-1)	29	1(1-1)	3
<i>Hypoxis hygrometrica</i>	1(1-1)	15	1(1-1)	1
<i>Jacksonia scoparia</i>	1(1-2)	25	1(1-1)	1
<i>Kunzea ambigua</i>	1(1-3)	49	1(1-2)	3
<i>Lagenifera gracilis</i>	1(1-1)	39	1(1-1)	3
<i>Laxmannia gracilis</i>	1(1-1)	25	1(1-1)	3
<i>Lepidosperma laterale</i>	1(1-2)	87	1(1-1)	28
<i>Leucopogon juniperinus</i>	1(1-1)	48	1(1-1)	5
<i>Lissanthe strigosa</i>	1(1-1)	39	1(1-1)	8
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-3)	19	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	37	1(1-2)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	75	1(1-1)	24
<i>Microlaena stipoides</i>	1(1-2)	81	1(1-2)	36
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	27	1(1-1)	7
<i>Olearia microphylla</i>	1(1-1)	16	1(1-1)	1
<i>Opercularia diphylla</i>	1(1-1)	54	1(1-1)	6
<i>Oxalis perennans</i>	1(1-1)	38	1(1-1)	13
<i>Ozothamnus diosmifolius</i>	1(1-1)	56	1(1-1)	8

<i>Panicum simile</i>	1(1-1)	68	1(1-1)	5
<i>Paspalidium distans</i>	1(1-1)	30	1(1-2)	2
<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	1(1-1)	8	1(1-1)	1
<i>Persoonia linearis</i>	1(1-1)	77	1(1-1)	28
<i>Phyllanthus hirtellus</i>	1(1-2)	34	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	34	1(1-1)	13
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-1)	33	1(1-2)	12
<i>Polymeria calycina</i>	1(1-1)	11	1(1-1)	1
<i>Pomaderris lanigera</i>	1(1-1)	8	1(1-1)	1
<i>Pomax umbellata</i>	1(1-2)	62	1(1-1)	13
<i>Poranthera microphylla</i>	1(1-1)	37	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	82	1(1-1)	17
<i>Pterostylis concinna</i>	1(1-1)	8	1(1-1)	<1
<i>Pultenaea villosa</i>	1(1-2)	10	1(1-2)	1
<i>Rapanea variabilis</i>	1(1-1)	15	1(1-1)	4
<i>Solanum prinophyllum</i>	1(1-1)	37	1(1-1)	6
<i>Solanum pungetium</i>	1(1-1)	19	1(1-1)	5
<i>Stypandra glauca</i>	1(1-1)	27	1(1-2)	5
<i>Themeda australis</i>	2(1-3)	75	1(1-3)	17
<i>Tricoryne elatior</i>	1(1-1)	14	1(1-1)	3
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-1)	34	1(1-1)	4
<i>Veronica plebeia</i>	1(1-1)	42	1(1-1)	10
<i>Westringia longifolia</i>	1(1-3)	6	1(1-2)	<1

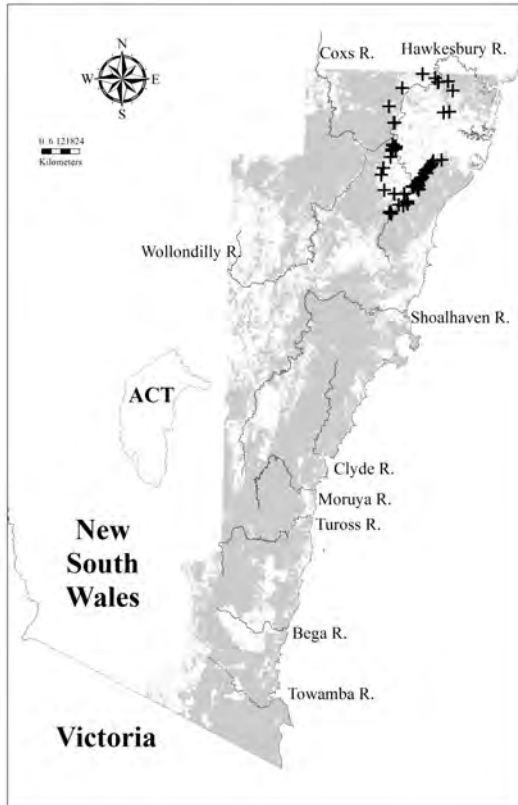
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Desmodium varians</i>	1(1-1)	32	1(1-1)	21
<i>Dianella caerulea</i>	1(1-1)	42	1(1-1)	28
<i>Gonocarpus tetragynus</i>	1(1-1)	34	1(1-1)	20

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-1)	3	1(1-3)	7
<i>Angophora floribunda</i>	1(1-1)	9	1(1-2)	9
<i>Corymbia eximia</i>	2(1-3)	5	1(1-2)	2
<i>Corymbia gummifera</i>	1(1-1)	14	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-1)	1	2(1-3)	8
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	4	2(1-3)	1
<i>Eucalyptus beyeriana</i>	2(2-2)	3	2(1-2)	<1
<i>Eucalyptus bosistoana</i>	1(1-1)	1	1(1-2)	3
<i>Eucalyptus deanei</i>	1(1-1)	1	3(1-3)	1
<i>Eucalyptus globoidea</i>	2(1-2)	23	2(1-2)	12
<i>Eucalyptus longifolia</i>	3(1-3)	5	1(1-2)	2
<i>Eucalyptus moluccana</i>	1(1-3)	8	3(1-3)	2
<i>Eucalyptus notabilis</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus oblonga</i>	2(1-3)	6	1(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	1	1(1-2)	3

<i>Eucalyptus pilularis</i>	3(1-4)	10	2(1-3)	5
<i>Eucalyptus scias</i> subsp. <i>scias</i>	2(2-2)	1	1(1-1)	<1
<i>Eucalyptus tereticornis</i>	1(1-2)	14	2(1-3)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(1-3)	15	2(1-3)	7



Locations of survey sites allocated to GW p2. Grey shading indicates extant native vegetation cover within the study area.

GW p3: South Coast Lowland Swamp Woodland



Plate p3. South Coast Lowland Swamp Woodland (Map Unit p3) at Croome Reserve, Albion Park, with *Eucalyptus longifolia* and *Melaleuca styphelioides* above a diverse grassy groundcover.

Sample Sites: 19

Area Extant (ha): 1100
 Estimated % remaining: 5-15%
 Area in conservation reserves (ha): 90
 Estimated % of pre-clearing area in conservation reserves: <1%
 No. taxa (total / unique): 191 / 0
 No. taxa per plot (\pm sd): 38.7 (8.2)
 Class: Coastal Valley Grassy Woodlands
 Related TEC: Illawarra Lowlands Grassy Woodland EEC (TSC).

South Coast Lowland Swamp Woodland (GW p3) represents a revision and extension of GW 3 identified by Tindall *et al.* (2004), based on classification of a larger sample pool over a wider study area. This map unit is a grassy eucalypt woodland found in coastal valleys and floodplains, most extensively around Lake Illawarra and in the Moruya - Congo area, but with sporadic occurrences between including small areas near Worrige, Kioloa and Nelligen. Its distribution is restricted to flats below 100m ASL with sandy loam soils and partially impeded drainage, receiving over 1000mm of annual rainfall. South Coast Lowland Swamp Woodland is related to Castlereagh Swamp Woodland (DSF p4) but contains a higher and more diverse cover of grass species.

On the Illawarra plain, South Coast Lowland Swamp Woodland grades into South Coast Grassy Woodland (GW p34) with increasing soil clay content and better drainage. The occurrences of these two units on the Illawarra Plain are listed as 'Illawarra Lowlands Grassy Woodland' on Schedule 1 of the NSW *Threatened Species Conservation Act* (1995). At Moruya, improved drainage leads from GW p3 to Southeast Lowland Grassy Woodland (GW e20p229).

The naturally small distribution of South Coast Lowland Swamp Woodland has been severely depleted by land clearing and is threatened by continuing fragmentation, weed invasion and high frequency fire.

Floristic Summary:

Trees: *Eucalyptus globoidea*, *E. longifolia*, *Melaleuca decora*. **Shrubs:** *Leucopogon juniperinus*, *Pittosporum undulatum*, *Ozothamnus diosmifolius*. **Climbers:** *Glycine clandestina*, *G. tabacina*. **Groundcover:** *Microlaena stipoides*, *Pratia purpurascens*, *Entolasia stricta*, *Themeda australis*, *Cheilanthes sieberi*, *Lagenifera stipitata*, *Lepidosperma laterale*, *Cymbopogon refractus*, *Dichondra* spp., *Echinopogon caespitosus*, *Dianella longifolia*, *Imperata cylindrica*, *Arthropodium* species B, *Eragrostis leptostachya*, *Veronica plebeia*.

Vegetation structure:

Stratum	Frequency (n=18)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	18 (3.8)	23.9 (12.8)
Small tree	83	9 (3.3)	27.1 (25.2)
Shrub	33	1.9 (0.5)	9.7 (12.4)
Ground cover	100	0.9 (0.2)	66.7 (24.1)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 17 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 32 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	2(1-2)	21	1(1-2)	2
<i>Acacia falcata</i>	1(1-1)	26	1(1-1)	1
<i>Acacia mearnsii</i>	1(1-2)	37	1(1-2)	7
<i>Amyema gaudichaudii</i>	1(1-2)	21	1(1-1)	<1
<i>Arthropodium milleflorum</i>	1(1-1)	26	1(1-1)	5
<i>Arthropodium species B</i>	1(1-2)	47	1(1-1)	1
<i>Austrodanthonia pilosa</i>	1(1-1)	21	1(1-1)	3
<i>Breynia oblongifolia</i>	1(1-1)	42	1(1-1)	12
<i>Carex longibrachiata</i>	1(1-1)	32	1(1-2)	4
<i>Casuarina glauca</i>	2(1-2)	32	2(1-3)	1
<i>Centella asiatica</i>	1(1-2)	42	1(1-1)	4
<i>Cheilanthes sieberi</i>	1(1-2)	74	1(1-1)	14
<i>Commelina cyanea</i>	1(1-1)	37	1(1-1)	4

<i>Corymbia maculata</i>	2(1-3)	21	2(1-3)	3
<i>Cymbopogon refractus</i>	1(1-2)	74	1(1-1)	4
<i>Daviesia genistifolia</i>	1(1-1)	21	1(1-1)	<1
<i>Dianella longifolia</i>	2(1-2)	37	1(1-1)	4
<i>Dichondra spp.</i>	1(1-2)	74	1(1-2)	25
<i>Digitaria parviflora</i>	2(2-3)	26	1(1-1)	2
<i>Dodonaea viscosa</i> subsp. <i>angustifolia</i>	1(1-1)	26	1(1-1)	1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	2(1-2)	74	1(1-1)	6
<i>Entolasia stricta</i>	2(1-2)	79	1(1-2)	34
<i>Eragrostis leptostachya</i>	1(1-2)	58	1(1-1)	4
<i>Eucalyptus globoidea</i>	3(1-3)	68	2(1-2)	12
<i>Eucalyptus longifolia</i>	3(1-4)	68	1(1-2)	2
<i>Eucalyptus tereticornis</i>	1(1-2)	58	2(1-3)	7
<i>Exocarpos cupressiformis</i>	1(1-1)	47	1(1-1)	5
<i>Glycine clandestina</i>	1(1-2)	95	1(1-1)	26
<i>Glycine tabacina</i>	1(1-1)	37	1(1-1)	7
<i>Hypoxis hygrometrica</i>	2(1-3)	26	1(1-1)	1
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	63	1(1-2)	10
<i>Lagenifera stipitata</i>	1(1-2)	63	1(1-1)	14
<i>Laxmannia gracilis</i>	1(1-1)	21	1(1-1)	4
<i>Lepidosperma laterale</i>	1(1-2)	68	1(1-1)	29
<i>Leucopogon juniperinus</i>	1(1-2)	74	1(1-1)	5
<i>Lomandra longifolia</i>	1(1-2)	79	1(1-1)	44
<i>Melaleuca decora</i>	4(4-4)	47	2(1-3)	1
<i>Opercularia diphylla</i>	1(1-2)	32	1(1-1)	7
<i>Opercularia hispida</i>	1(1-2)	21	1(1-1)	3
<i>Ozothamnus diosmifolius</i>	1(1-1)	42	1(1-1)	9
<i>Panicum simile</i>	2(1-2)	26	1(1-1)	6
<i>Parsonsia straminea</i>	1(1-1)	37	1(1-1)	7
<i>Pittosporum undulatum</i>	1(1-1)	74	1(1-1)	14
<i>Polymeria calycina</i>	1(1-2)	26	1(1-1)	1
<i>Pratia purpurascens</i>	1(1-2)	89	1(1-1)	17
<i>Pultenaea retusa</i>	1(1-2)	26	1(1-1)	2
<i>Pultenaea villosa</i>	2(1-3)	21	1(1-2)	1
<i>Solanum prinophyllum</i>	1(1-1)	32	1(1-1)	6
<i>Themeda australis</i>	1(1-2)	68	1(1-3)	17
<i>Veronica plebeia</i>	1(1-1)	37	1(1-1)	10

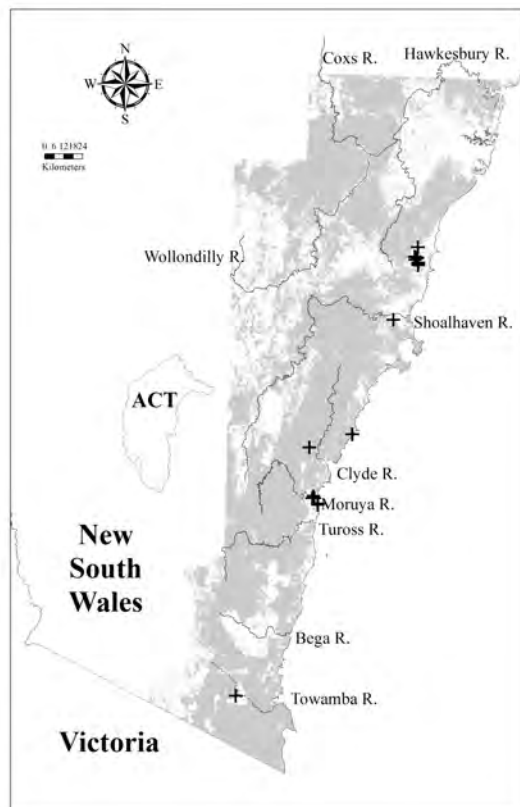
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Desmodium varians</i>	1(1-1)	42	1(1-1)	21
<i>Dianella caerulea</i>	1(1-1)	37	1(1-1)	28
<i>Echinopogon ovatus</i>	1(1-2)	37	1(1-1)	14
<i>Entolasia marginata</i>	1(1-1)	32	1(1-1)	11
<i>Geitonoplesium cymosum</i>	1(1-1)	32	1(1-1)	16
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	32	1(1-2)	14

<i>Hardenbergia violacea</i>	1(1-1)	42	1(1-1)	17
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	32	1(1-1)	25
<i>Microlaena stipoides</i>	2(1-3)	68	1(1-2)	36
<i>Oplismenus imbecillis</i>	1(1-2)	32	1(1-2)	14

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	2(1-3)	21	1(1-2)	9
<i>Eucalyptus bosistoana</i>	2(1-2)	11	1(1-2)	3
<i>Eucalyptus botryoides</i>	1(1-2)	16	2(1-3)	3
<i>Eucalyptus eugenioides</i>	3(3-3)	5	2(1-3)	4
<i>Eucalyptus maidenii</i>	1(1-1)	5	2(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	5	1(1-2)	3
<i>Eucalyptus pilularis</i>	3(3-3)	5	2(1-3)	5
<i>Eucalyptus polyanthemos</i> subsp. <i>vestita</i>	2(2-2)	5	1(1-1)	<1



Locations of survey sites allocated to GW p3. Grey shading indicates extant native vegetation cover within the study area.

DSF p4: Castlereagh Swamp Woodland

Plate p4. Castlereagh Swamp Woodland (Map Unit p4) near Agnes Banks with *Melaleuca decora* and *M. linariifolia* over a dense, sedge-dominated groundcover.

Sample Sites: 7

Area Extant (ha): 610

Estimated % remaining: 55-70%

Area in conservation reserves (ha): 120

Estimated % of pre-clearing area in conservation reserves: 5-15%

No. taxa (total / unique): 141 / 3

No. taxa per plot (\pm sd): 43.6 (8.1)

Class: Sydney Sand Flats Dry Sclerophyll Forests

Related TEC: Castlereagh Swamp Woodland EEC (TSC).

Castlereagh Swamp Woodland (DSF p4) is equivalent to DSF 4 described by Tindall *et al.* (2004). This unit is a low eucalypt woodland found below 50m ASL on flat, poorly drained Tertiary alluvium between Castlereagh and Holsworthy on the Cumberland Plain, western Sydney, where mean annual rainfall is 750 – 870mm (Tozer 2003). It occurs mainly in the Castlereagh area where it covers broad depressions loosely oriented around a network of ephemeral drainage channels. Elsewhere it is restricted to alluvium adjacent to larger drainage lines. Its naturally restricted range has been reduced by clearing and is further threatened by rural-residential and industrial development.

Floristic Summary:

Trees: *Melaleuca decora*, *Eucalyptus parramattensis*, *M. linariifolia*. **Groundcover:** *Goodenia paniculata*, *Schoenus apogon*, *Centella asiatica*, *Cheilanthes sieberi*, *Juncus usitatus*, *Opercularia diphylla*, *Pratia purpurascens*, *Themeda australis*, *Agrostis avenacea*, *Gratiola pedunculata*, *Hydrocotyle peduncularis*, *Hypericum gramineum*, *Paspalidium distans*, *Poranthera microphylla*, *Austrodanthonia tenuior*, *Eragrostis brownii*, *Fimbristylis dichotoma*, *Hypoxis hygrometrica*.

Vegetation structure:

Stratum	Frequency (n=7)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	17.6 (5.1)	24 (19.4)
Small tree	71	10.6 (2.2)	17.8 (10.1)
Shrub	43	2.7 (0.6)	7.3 (6.8)
Ground cover	100	1 (-)	56.3 (33.2)

Diagnostic Species:

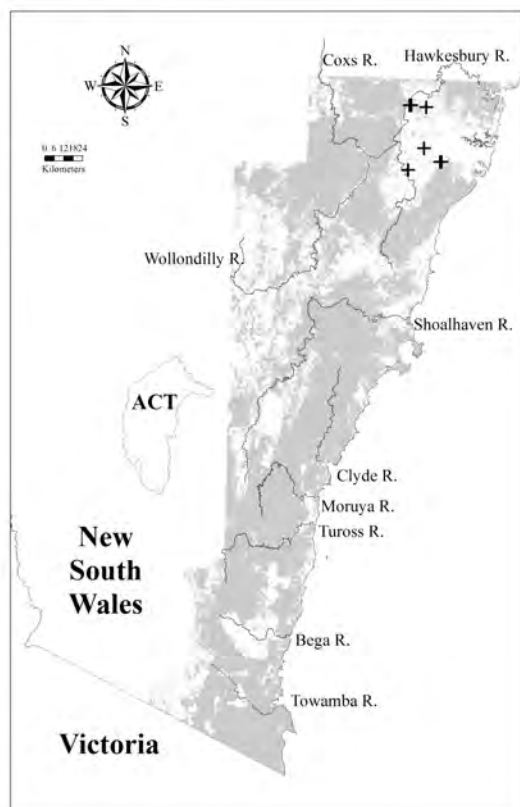
A 0.04 ha plot located in this Map Unit is expected to contain at least 19 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 37 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 19 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
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<i>Acacia elongata</i>	1(1-1)	29	1(1-1)	1
<i>Alternanthera denticulata</i>	1(1-1)	29	1(1-1)	1
<i>Angophora subvelutina</i>	3(1-3)	29	3(1-3)	<1
<i>Austrodanthonia tenuior</i>	1(1-1)	57	1(1-2)	2
<i>Brunoniella pumilio</i>	1(1-1)	43	1(1-1)	4
<i>Centella asiatica</i>	2(1-3)	86	1(1-1)	4
<i>Centipeda minima</i> var. <i>minima</i>	1(1-3)	43	1(1-1)	<1
<i>Cheilanthes sieberi</i>	1(1-1)	86	1(1-1)	14
<i>Dianella longifolia</i>	1(1-2)	43	1(1-1)	4
<i>Epaltes australis</i>	1(1-1)	43	1(1-1)	<1
<i>Eragrostis brownii</i>	1(1-3)	57	1(1-1)	3
<i>Eragrostis elongata</i>	1(1-1)	29	1(1-1)	<1
<i>Eragrostis leptostachya</i>	1(1-1)	43	1(1-1)	4
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	29	2(1-3)	1
<i>Eucalyptus fibrosa</i>	3(1-3)	29	2(1-3)	3
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	1(1-1)	57	1(1-3)	<1
<i>Euchiton sphaericus</i>	1(1-2)	43	1(1-1)	3
<i>Fimbristylis dichotoma</i>	2(1-3)	57	1(1-1)	1
<i>Goodenia paniculata</i>	2(1-2)	100	1(1-1)	<1
<i>Gratiola pedunculata</i>	1(1-2)	71	1(1-2)	<1
<i>Haloragis heterophylla</i>	3(3-3)	29	1(1-1)	1
<i>Hemarthria uncinata</i> var. <i>uncinata</i>	1(1-1)	29	1(1-1)	1
<i>Hydrocotyle peduncularis</i>	2(2-3)	71	1(1-1)	9
<i>Hypericum gramineum</i>	1(1-2)	71	1(1-1)	16
<i>Hypoxis hygrometrica</i>	1(1-2)	57	1(1-1)	1
<i>Isolepis inundata</i>	3(1-3)	43	1(1-1)	1
<i>Juncus planifolius</i>	2(1-3)	43	1(1-1)	1
<i>Juncus prismatocarpus</i>	2(1-2)	29	1(1-1)	<1
<i>Juncus usitatus</i>	2(1-2)	86	1(1-1)	2
<i>Lachnagrostis filiformis</i>	2(1-3)	71	1(1-1)	3
<i>Lepyrodia muelleri</i>	3(1-4)	43	1(1-1)	<1
<i>Melaleuca decora</i>	4(2-4)	86	2(1-3)	1
<i>Melaleuca linariifolia</i>	2(1-2)	43	1(1-2)	1
<i>Melaleuca thymifolia</i>	1(1-1)	29	1(1-1)	1
<i>Microlaena stipoides</i>	2(1-2)	86	1(1-2)	36
<i>Opercularia diphylla</i>	1(1-1)	86	1(1-1)	7
<i>Panicum effusum</i>	1(1-1)	29	1(1-1)	2
<i>Panicum simile</i>	1(1-2)	43	1(1-1)	6
<i>Paspalidium distans</i>	1(1-2)	71	1(1-2)	3
<i>Paspalum orbiculare</i>	1(1-1)	43	1(1-1)	<1
<i>Poranthera microphylla</i>	1(1-2)	71	1(1-1)	15
<i>Pratia purpurascens</i>	2(1-2)	86	1(1-1)	17
<i>Pultenaea villosa</i>	2(1-2)	29	1(1-2)	1
<i>Schoenus apogon</i>	1(1-2)	100	1(1-1)	2
<i>Themeda australis</i>	1(1-1)	86	1(1-3)	17
<i>Tricoryne elatior</i>	1(1-1)	43	1(1-1)	3

<i>Wurmbea dioica</i> subsp. <i>dioica</i>	3(1-3)	29	1(1-1)	<1
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Aristida vagans</i>	1(1-1)	43	1(1-2)	8
<i>Bursaria spinosa</i>	1(1-1)	43	1(1-2)	14
<i>Dichelachne micrantha</i>	1(1-2)	43	1(1-1)	9
<i>Dichondra</i> spp.	1(1-1)	71	1(1-2)	25
<i>Entolasia stricta</i>	2(1-4)	57	1(1-2)	34
<i>Lomandra longifolia</i>	3(1-3)	57	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	71	1(1-1)	25
<i>Wahlenbergia gracilis</i>	1(1-2)	43	1(1-1)	11
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	3(3-3)	14	1(1-2)	9
<i>Eucalyptus eugenioides</i>	1(1-1)	14	2(1-3)	4
<i>Eucalyptus sclerophylla</i>	1(1-1)	14	2(1-3)	4
<i>Eucalyptus sideroxylon</i>	3(3-3)	14	3(1-4)	<1
<i>Eucalyptus tereticornis</i>	3(1-3)	29	2(1-3)	7



Locations of survey sites allocated to DSF p4. Grey shading indicates extant native vegetation cover within the study area.

DSF p5: Burrarorang Hillslope Forest

Plate p5. Burrarorang Hillslope Forest (Map Unit p5) with *Eucalyptus fibrosa*, *E. eugenioides* and *E. punctata* at Cooba Bay, Lake Burrarorang. *Angophora floribunda* and *Persoonia linearis* are present in the midstorey, with a scattering of sclerophyllous shrubs above a sparse groundcover.

Sample Sites: 56

Area Extant (ha): 20700

Estimated % remaining: 75-90%

Area in conservation reserves (ha): 20400

Estimated % of pre-clearing area in conservation reserves: 70-90%

No. taxa (total / unique): 365 / 1

No. taxa per plot (\pm sd): 43.7 (10.3)

Class: Central Gorge Dry Sclerophyll Forests

Related TEC: n/a

Burrarorang Hillslope Forest (DSF p5) is equivalent to DSF 5 described by Tindall *et al.* (2004). This unit is a eucalypt forest or woodland with a sparse sclerophyll shrub layer and patchy groundcover of forbs, sedges and grasses, occurring on dry hill slopes in the Burrarorang Valley. It is found on sandy loams and loams and typically occupies more moderate topography with greater exposure to solar radiation than Burrarorang Escarpment Forest (DSF p88). These two units intergrade extensively. Burrarorang Hillslope Forest is distributed from 100 – 650m ASL and occurs in areas receiving 800 – 1000mm of annual rainfall. Extensive areas are represented in the southern portions of Blue Mountains National Park.

Floristic Summary:

Trees: *Eucalyptus punctata*, *E. fibrosa*, *E. eugenioides*. **Shrubs:** *Persoonia linearis*, *Phyllanthus hirtellus*, *Lissanthe strigosa*, *Notelaea longifolia*. **Climbers:** *Billardiera scandens*, *Hardenbergia violacea*, *Glycine clandestina*. **Groundcover:** *Pomax umbellata*, *Entolasia stricta*, *Lomandra multiflora*, *Goodenia hederacea*, *Aristida vagans*, *Dianella revoluta*, *Lepidosperma laterale*, *Cheilanthes sieberi*, *Pratia purpurascens*.

Vegetation structure:

Stratum	Frequency (n=55)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	21.6 (5.3)	26.7 (11)
Small tree	60	9.4 (3.1)	15 (12.7)
Shrub	87	2.2 (0.6)	15.5 (15.1)
Ground cover	100	0.7 (0.3)	27.2 (20.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 19 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 36 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 19 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-3)	29	1(1-1)	1
<i>Acacia implexa</i>	1(1-1)	32	1(1-1)	6
<i>Acacia parramattensis</i>	1(1-1)	27	1(1-2)	4
<i>Allocasuarina littoralis</i>	1(1-1)	39	1(1-2)	17
<i>Allocasuarina torulosa</i>	3(1-3)	29	1(1-3)	4
<i>Angophora bakeri</i>	1(1-3)	41	1(1-2)	2
<i>Aristida vagans</i>	1(1-2)	68	1(1-2)	8
<i>Astroloma humifusum</i>	1(1-1)	34	1(1-1)	4
<i>Astrotricha latifolia</i>	1(1-2)	14	1(1-1)	2
<i>Austrostipa ramosissima</i>	1(1-2)	13	1(1-2)	1
<i>Billardiera scandens</i>	1(1-1)	66	1(1-1)	27
<i>Brachyscome angustifolia</i>	1(1-2)	29	1(1-1)	2
<i>Breynia oblongifolia</i>	1(1-1)	38	1(1-1)	12
<i>Bursaria longisepala</i>	1(1-2)	50	1(1-1)	1
<i>Cheilanthes sieberi</i>	1(1-2)	52	1(1-1)	14
<i>Cymbopogon refractus</i>	1(1-1)	27	1(1-1)	4
<i>Dampiera purpurea</i>	1(1-1)	21	1(1-1)	4
<i>Daviesia ulicifolia</i>	1(1-1)	20	1(1-1)	7
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	68	1(1-1)	15
<i>Digitaria ramularis</i>	1(1-2)	18	1(1-1)	1
<i>Dillwynia retorta</i>	1(1-2)	34	1(1-2)	6
<i>Entolasia stricta</i>	2(1-2)	88	1(1-2)	33
<i>Eragrostis brownii</i>	1(1-1)	20	1(1-1)	3
<i>Eucalyptus crebra</i>	1(1-3)	29	2(1-3)	3
<i>Eucalyptus eugenioides</i>	3(1-3)	41	2(1-3)	4
<i>Eucalyptus fibrosa</i>	3(1-3)	70	2(1-3)	2
<i>Eucalyptus punctata</i>	3(1-3)	84	1(1-3)	8
<i>Exocarpos strictus</i>	1(1-1)	45	1(1-1)	9
<i>Gahnia aspera</i>	1(1-2)	14	1(1-1)	4
<i>Glycine clandestina</i>	1(1-2)	50	1(1-1)	26
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	79	1(1-2)	14
<i>Grevillea aspleniifolia</i>	2(1-3)	14	1(1-1)	<1
<i>Hardenbergia violacea</i>	1(1-1)	61	1(1-1)	17
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-2)	30	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	27	1(1-1)	9
<i>Jacksonia scoparia</i>	1(1-1)	25	1(1-1)	1
<i>Joycea pallida</i>	1(1-3)	36	1(1-2)	8
<i>Lepidosperma gunnii</i>	1(1-2)	30	1(1-1)	4
<i>Lepidosperma laterale</i>	1(1-2)	55	1(1-1)	28
<i>Leptospermum trinervium</i>	1(1-2)	39	1(1-2)	15
<i>Leucopogon muticus</i>	1(1-1)	25	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-2)	79	1(1-1)	8
<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	2(2-2)	16	1(1-2)	1
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	2(1-2)	14	1(1-1)	4

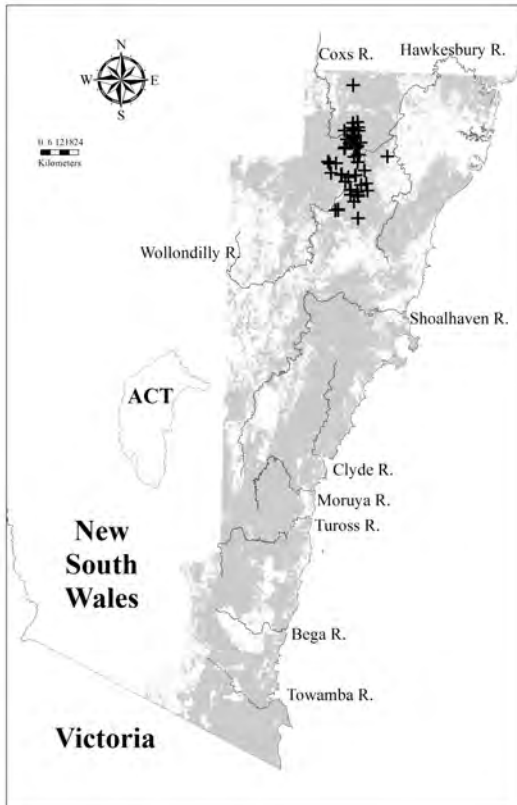
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	34	1(1-2)	10
<i>Lomandra glauca</i>	1(1-1)	25	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	86	1(1-1)	24
<i>Lomandra obliqua</i>	1(1-1)	48	1(1-1)	14
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-2)	59	1(1-1)	7
<i>Notodanthonia longifolia</i>	1(1-2)	16	1(1-2)	5
<i>Olearia viscidula</i>	1(1-1)	23	1(1-2)	5
<i>Opercularia diphylla</i>	1(1-1)	29	1(1-1)	7
<i>Opercularia hispida</i>	1(1-1)	20	1(1-1)	3
<i>Panicum simile</i>	1(1-1)	43	1(1-1)	6
<i>Persoonia linearis</i>	1(1-1)	100	1(1-1)	28
<i>Phyllanthus hirtellus</i>	1(1-2)	82	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	43	1(1-1)	13
<i>Podolobium ilicifolium</i>	1(1-1)	36	1(1-1)	9
<i>Pomax umbellata</i>	1(1-2)	89	1(1-1)	13
<i>Pratia purpurascens</i>	1(1-1)	52	1(1-1)	17
<i>Stackhousia viminea</i>	1(1-2)	14	1(1-1)	3
<i>Stypandra glauca</i>	2(1-2)	20	1(1-2)	5
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-1)	20	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Dianella caerulea</i>	1(1-1)	30	1(1-1)	28
<i>Lomandra longifolia</i>	1(1-1)	55	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-2)	30	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	3(1-3)	9	1(1-3)	7
<i>Angophora floribunda</i>	1(1-3)	13	1(1-2)	9
<i>Angophora hispida</i>	1(1-1)	2	1(1-2)	1
<i>Corymbia eximia</i>	2(1-3)	7	1(1-2)	2
<i>Corymbia gummifera</i>	3(1-3)	7	2(1-2)	16
<i>Corymbia maculata</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus agglomerata</i>	3(1-3)	11	2(1-3)	7
<i>Eucalyptus benthamii</i>	1(1-1)	2	3(2-3)	<1
<i>Eucalyptus globoidea</i>	3(1-3)	4	2(1-2)	12
<i>Eucalyptus piperita</i>	3(1-3)	4	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	2	2(1-3)	6
<i>Eucalyptus ralla</i>	3(3-3)	2	3(3-3)	<1
<i>Eucalyptus rossii</i>	1(1-1)	2	3(1-3)	2
<i>Eucalyptus sclerophylla</i>	3(1-3)	5	2(1-3)	4
<i>Eucalyptus sideroxylon</i>	4(4-4)	2	3(1-3)	<1
<i>Eucalyptus sparsifolia</i>	3(1-3)	4	2(1-3)	2
<i>Eucalyptus tereticornis</i>	1(1-1)	2	2(1-3)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(1-3)	14	2(1-3)	8



Locations of survey sites allocated to DSF p5. Grey shading indicates extant native vegetation cover within the study area.

DSF p6: Burragarang - Nepean Hinterland Woodland



Plate p6. Burragarang-Nepean Hinterland Woodland (Map Unit p6) with *Eucalyptus sclerophylla* over a diverse shrubby understorey including *Banksia oblongifolia*, *B. spinulosa* subsp. *spinulosa*, *Hakea laevipes* and *Isopogon anemonifolius* on deep sandy sediments in Cripple Creek Reserve, Mount Riverview.

Sample Sites: 25
Area Extant (ha): 960

Estimated % remaining: 80-90%
 Area in conservation reserves (ha): 550
 Estimated % of pre-clearing area in conservation reserves: 40-55%
 No. taxa (total / unique): 305 / 2
 No. taxa per plot (\pm sd): 44.8 (9.9)
 Class: Sydney Sand Flats Dry Sclerophyll Forests
 Related TEC: n/a

Burraborang – Nepean Hinterland Woodland (DSF 6) is equivalent to DSF 6 identified by Tindall *et al.* (2004), and is a eucalypt woodland with an open layer of sclerophyll shrubs and a grassy groundcover. This woodland has a restricted distribution and occurs primarily in the Kedumba and Megalong valleys, up to 700m ASL, on sandy loams and loams derived from Permian sedimentary rocks. These areas receive 800 – 1250mm mean annual rainfall. It may be more widely distributed than mapped, particularly where shale/sandstone inter-bedding is common in the surface strata, but is unlikely to cover large areas. For example, small outlying occurrences have been recorded sporadically in the upper Nepean catchment and in the vicinity of Riverstone, Ebenezer and East Kurrajong on soils derived from Triassic sediments. The limited areas of this unit are largely outside conservation reserves, however their remote location and poor soils have afforded them effective protection from land clearing.

Floristic Summary:

Trees: *Angophora bakeri*, *Eucalyptus punctata*, *Eucalyptus sclerophylla*. **Shrubs:** *Leptospermum trinervium*, *Pimelea linifolia*, *Persoonia linearis*, *Phyllanthus hirtellus*, *Banksia spinulosa*. **Groundcover:** *Entolasia stricta*, *Goodenia hederacea*, *Pomax umbellata*, *Dianella revoluta*, *Cheilanthes sieberi*, *Eragrostis brownii*, *Gonocarpus tetragynus*, *Laxmannia gracilis*, *Patersonia sericea*, *Cyathochaeta diandra*, *Lomandra multiflora*, *Aristida vagans*, *Themeda australis*, *Austrostipa pubescens*, *Lomandra obliqua*, *Pratia purpurascens*.

Vegetation structure:

Stratum	Frequency (n=17)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	19.2 (8)	19.8 (11.5)
Small tree	65	10.7 (2.5)	15.7 (13.2)
Shrub	76	2.2 (0.6)	16.2 (11.3)
Ground cover	94	0.6 (0.2)	48.6 (19.3)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 17 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 37 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	28	1(1-1)	1
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-2)	28	1(1-1)	1
<i>Acacia parramattensis</i>	1(1-3)	20	1(1-2)	4
<i>Angophora bakeri</i>	2(1-3)	60	1(1-2)	2
<i>Aristida vagans</i>	1(1-1)	52	1(1-2)	8
<i>Austrostipa pubescens</i>	1(1-2)	48	1(1-2)	5
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	56	1(1-2)	15
<i>Bossiaea obcordata</i>	1(1-1)	28	1(1-2)	7
<i>Bursaria longisepala</i>	1(1-1)	36	1(1-1)	1
<i>Calytrix tetragona</i>	3(2-4)	20	1(1-2)	2
<i>Cheilanthes sieberi</i>	1(1-1)	64	1(1-1)	14
<i>Cryptandra amara</i>	1(1-3)	20	1(1-1)	1
<i>Cyathochaeta diandra</i>	2(1-3)	56	1(1-2)	8
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	76	1(1-1)	15
<i>Dillwynia retorta</i>	1(1-2)	48	1(1-2)	7
<i>Drosera peltata</i>	1(1-1)	24	1(1-1)	2
<i>Entolasia stricta</i>	1(1-2)	92	1(1-2)	34

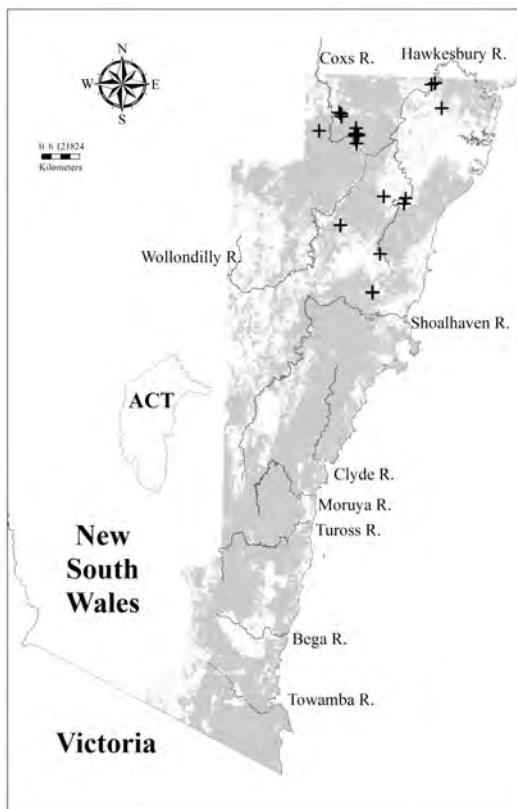
<i>Eragrostis brownii</i>	1(1-1)	64	1(1-1)	3
<i>Eucalyptus crebra</i>	1(1-3)	28	2(1-3)	3
<i>Eucalyptus eugenioides</i>	3(1-3)	44	2(1-3)	4
<i>Eucalyptus punctata</i>	1(1-3)	60	2(1-3)	8
<i>Eucalyptus sclerophylla</i>	2(1-3)	64	2(1-3)	4
<i>Gonocarpus tetragynus</i>	1(1-1)	60	1(1-1)	20
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	36	1(1-1)	4
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	88	1(1-2)	14
<i>Grevillea kedumbensis</i>	3(1-3)	24	1(1-1)	<1
<i>Hakea dactyloides</i>	1(1-1)	40	1(1-1)	12
<i>Helichrysum scorpioides</i>	1(1-2)	36	1(1-1)	7
<i>Hypericum gramineum</i>	1(1-1)	40	1(1-1)	16
<i>Isopogon anemonifolius</i>	1(1-2)	40	1(1-1)	8
<i>Kunzea ambigua</i>	2(2-4)	20	1(1-2)	4
<i>Laxmannia gracilis</i>	1(1-1)	60	1(1-1)	3
<i>Leptospermum parvifolium</i>	2(1-3)	20	1(1-1)	1
<i>Leptospermum trinervium</i>	1(1-2)	76	1(1-2)	15
<i>Leucopogon virgatus</i>	1(1-2)	36	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-2)	36	1(1-1)	8
<i>Lomandra cylindrica</i>	1(1-1)	28	1(1-1)	4
<i>Lomandra glauca</i>	1(1-2)	32	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	56	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-2)	48	1(1-1)	14
<i>Mirbelia rubrifolia</i>	1(1-1)	24	1(1-1)	3
<i>Panicum simile</i>	1(1-1)	24	1(1-1)	6
<i>Patersonia sericea</i>	1(1-1)	60	1(1-1)	9
<i>Persoonia linearis</i>	1(1-1)	72	1(1-1)	29
<i>Phyllanthus hirtellus</i>	1(1-1)	60	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	76	1(1-1)	13
<i>Pomax umbellata</i>	1(1-2)	80	1(1-1)	14
<i>Pratia purpurascens</i>	1(1-1)	52	1(1-1)	17
<i>Ptilothrix deusta</i>	2(1-3)	32	1(1-2)	2
<i>Stackhousia viminea</i>	1(1-1)	36	1(1-1)	3
<i>Tetradlea decora</i>	1(1-1)	24	1(1-2)	<1
<i>Themeda australis</i>	1(1-2)	52	1(1-3)	17

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Allocasuarina littoralis</i>	1(1-1)	40	1(1-2)	17
<i>Billardiera scandens</i>	1(1-1)	36	1(1-1)	28
<i>Gonocarpus teucrioides</i>	1(1-2)	36	1(1-1)	18
<i>Lepidosperma laterale</i>	1(1-2)	44	1(1-1)	29
<i>Lomandra longifolia</i>	1(1-1)	48	1(1-1)	44
<i>Monotoca scoparia</i>	1(1-1)	32	1(1-1)	12

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-1)	4	1(1-3)	7
<i>Angophora floribunda</i>	1(1-1)	8	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-1)	8	2(1-2)	16
<i>Eucalyptus fibrosa</i>	3(3-3)	8	2(1-3)	3
<i>Eucalyptus goniocalyx</i>	3(3-3)	4	1(1-3)	1
<i>Eucalyptus mannifera</i>	3(3-3)	4	2(1-3)	4
<i>Eucalyptus notabilis</i>	1(1-1)	4	1(1-2)	1
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	1(1-1)	4	1(1-3)	<1
<i>Eucalyptus sieberi</i>	1(1-1)	4	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	3(1-3)	8	2(1-3)	2
<i>Eucalyptus squamosa</i>	1(1-1)	4	1(1-2)	0
<i>Eucalyptus tereticornis</i>	1(1-1)	4	2(1-3)	7



Locations of survey sites allocated to DSF p6. Grey shading indicates extant native vegetation cover within the study area.

DSF p7: Castlereagh Scribbly Gum Woodland

Plate p7. Castlereagh Scribbly Gum Woodland (Map Unit p7) along Heathcote Road in Holsworthy, with *Eucalyptus sclerophylla* and *Angophora bakeri* over a diverse layer of sclerophyllous shrubs.

Sample Sites: 25
 Area Extant (ha): 3100
 Estimated % remaining: 50-70%
 Area in conservation reserves (ha): 390
 Estimated % of pre-clearing area in conservation reserves: <10%
 No. taxa (total / unique): 220 / 3
 No. taxa per plot (\pm sd): 48.8 (7.7)
 Class: Sydney Sand Flats Dry Sclerophyll Forests
 Related TEC: n/a

Castlereagh Scribbly Gum Woodland (DSF p7) is equivalent to DSF 7 described by Tindall *et al.* (2004). This unit is a low eucalypt woodland with an understorey of sclerophyll shrubs, grasses and sedges. It has a restricted distribution and occurs mainly in the vicinity of Castlereagh and Holsworthy (western Sydney), with small isolated occurrences between these localities. Castlereagh Scribbly Gum Woodland occurs exclusively on alluvial sand, gravel and clay of Tertiary origin or residual iron-indurated gravels overlying Wianamatta shale. It is found on flat or undulating terrain at elevations up to 70m ASL and where mean annual rainfall is from 800 – 900mm. About one-third of its distribution has been cleared, though important examples are represented in Agnes Banks, Castlereagh and Windsor Downs Nature Reserves. The remainder is threatened by rural-residential and industrial development, high frequency fires and weeds.

Floristic Summary:

Trees: *Angophora bakeri*, *Eucalyptus parramattensis*, *E. sclerophylla*, *Melaleuca decora*. **Shrubs:** *Pimelea linifolia*, *Banksia spinulosa*, *Hakea sericea*, *Melaleuca nodosa*, *Grevillea mucronulata*, *Leptospermum trinervium*, *Acacia brownii*, *Dillwynia tenuifolia*, *Platysace ericoides*. **Climbers:** *Cassytha glabella*. **Groundcover:** *Cyathochaeta diandra*, *Entolasia stricta*, *Themeda australis*, *Eragrostis brownii*, *Gonocarpus tetragynus*, *Lomandra multiflora*, *Xanthorrhoea minor*, *Dianella revoluta*, *Stylidium graminifolium*, *Opercularia diphylla*, *Aristida warburgii*, *Panicum simile*, *Cheilanthes sieberi*, *Lepyrodi scariosa*.

Vegetation structure:

Stratum	Frequency (n=25)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	14.4 (3.5)	15.2 (8.6)
Small tree	48	8.8 (2.7)	16 (12.6)
Shrub	88	2.2 (0.7)	24.8 (12.4)
Ground cover	100	1 (-)	39.8 (32.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 30 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 43 or greater. A 95% confidence interval means

that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 30 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	56	1(1-1)	1
<i>Acacia elongata</i>	1(1-2)	48	1(1-1)	1
<i>Angophora bakeri</i>	2(1-3)	76	1(1-2)	2
<i>Aristida ramosa</i>	1(1-2)	52	1(1-2)	5
<i>Aristida vagans</i>	1(1-2)	48	1(1-2)	8
<i>Aristida warburgii</i>	1(1-2)	60	1(1-1)	<1
<i>Austrostipa pubescens</i>	2(1-3)	28	1(1-2)	5
<i>Banksia oblongifolia</i>	1(1-2)	36	1(1-1)	2
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	2(1-3)	84	1(1-2)	15
<i>Boronia polygalifolia</i>	1(1-1)	24	1(1-1)	1
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	1(1-1)	24	2(1-3)	1
<i>Brunoniella pumilio</i>	1(1-1)	36	1(1-1)	4
<i>Burchardia umbellata</i>	1(1-1)	32	1(1-1)	2
<i>Caesia parviflora</i>	1(1-2)	32	1(1-1)	2
<i>Callistemon pinifolius</i>	1(1-1)	36	1(1-1)	<1
<i>Cassytha glabella</i>	1(1-1)	60	1(1-1)	8
<i>Cassytha pubescens</i>	1(1-2)	32	1(1-1)	8
<i>Cheilanthes sieberi</i>	1(1-2)	56	1(1-1)	14
<i>Cryptandra amara</i>	1(1-2)	24	1(1-1)	1
<i>Cyathochaeta diandra</i>	2(1-3)	92	1(1-2)	8
<i>Dampiera stricta</i>	1(1-1)	36	1(1-1)	8
<i>Daviesia squarrosa</i>	1(1-1)	40	1(1-1)	<1
<i>Daviesia ulicifolia</i>	1(1-2)	52	1(1-1)	6
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	76	1(1-1)	15
<i>Dillwynia tenuifolia</i>	2(1-3)	56	1(1-2)	<1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-1)	24	1(1-1)	6
<i>Entolasia stricta</i>	2(1-2)	96	1(1-2)	34
<i>Eragrostis brownii</i>	1(1-2)	80	1(1-1)	3
<i>Eucalyptus fibrosa</i>	1(1-2)	24	2(1-3)	3
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	1(1-3)	80	1(1-1)	<1
<i>Eucalyptus sclerophylla</i>	3(1-3)	72	2(1-3)	3
<i>Gompholobium inconspicuum</i>	1(1-2)	20	1(1-1)	<1
<i>Gompholobium pinnatum</i>	1(1-1)	28	1(1-1)	<1
<i>Gonocarpus tetragynus</i>	1(1-2)	80	1(1-1)	20
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	2(1-2)	36	1(1-1)	4
<i>Goodenia paniculata</i>	1(1-2)	28	1(1-1)	<1
<i>Grevillea mucronulata</i>	1(1-1)	72	1(1-1)	3
<i>Haemodorum planifolium</i>	1(1-1)	32	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-2)	80	1(1-1)	12
<i>Hakea sericea</i>	2(1-2)	84	1(1-1)	7
<i>Hovea linearis</i>	1(1-2)	32	1(1-1)	9
<i>Hypericum gramineum</i>	1(1-2)	52	1(1-1)	16

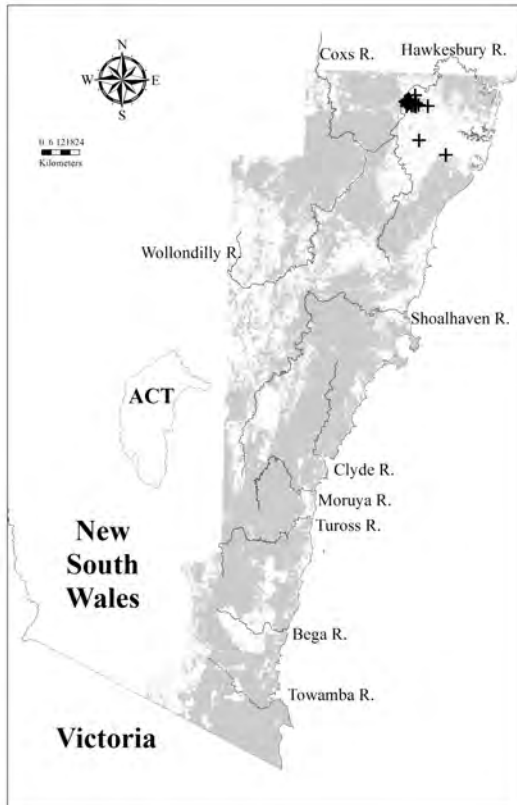
<i>Isopogon anemonifolius</i>	1(1-1)	36	1(1-1)	8
<i>Kunzea capitata</i>	1(1-1)	20	1(1-2)	1
<i>Laxmannia gracilis</i>	1(1-1)	52	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-2)	32	1(1-2)	8
<i>Leptospermum trinervium</i>	2(1-2)	56	1(1-2)	15
<i>Lepyrodia scariosa</i>	2(1-3)	52	1(1-2)	6
<i>Lissanthe strigosa</i>	1(1-2)	40	1(1-1)	8
<i>Lomandra cylindrica</i>	1(1-1)	24	1(1-1)	4
<i>Lomandra glauca</i>	1(1-1)	32	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	80	1(1-1)	25
<i>Melaleuca decora</i>	3(1-3)	56	2(1-3)	1
<i>Melaleuca erubescens</i>	1(1-2)	32	1(1-1)	<1
<i>Melaleuca nodosa</i>	2(1-3)	84	2(1-3)	1
<i>Melaleuca thymifolia</i>	1(1-3)	32	1(1-1)	1
<i>Microlaena stipoides</i>	1(1-2)	68	1(1-2)	36
<i>Micromyrtus ciliata</i>	1(1-2)	36	1(1-1)	<1
<i>Micromyrtus minutiflora</i>	1(1-2)	28	0(0-0)	<1
<i>Mitrasacme polymorpha</i>	1(1-1)	24	1(1-1)	3
<i>Opercularia diphylla</i>	1(1-1)	72	1(1-1)	7
<i>Panicum effusum</i>	2(1-2)	24	1(1-1)	2
<i>Panicum simile</i>	1(1-2)	60	1(1-1)	6
<i>Paspalidium distans</i>	1(1-2)	32	1(1-2)	3
<i>Patersonia sericea</i>	1(1-1)	52	1(1-1)	9
<i>Persoonia nutans</i>	1(1-1)	36	1(1-1)	<1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	88	1(1-1)	13
<i>Platysace ericoides</i>	1(1-1)	52	1(1-1)	2
<i>Pomax umbellata</i>	1(1-1)	48	1(1-1)	14
<i>Ptilothrix deusta</i>	2(1-2)	24	1(1-2)	2
<i>Pultenaea tuberculata</i>	1(1-2)	52	1(1-1)	3
<i>Stylidium graminifolium</i>	2(1-2)	72	1(1-1)	9
<i>Themeda australis</i>	2(2-3)	84	1(1-3)	17
<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	1(1-2)	28	1(1-1)	2
<i>Xanthorrhoea minor</i> subsp. <i>minor</i>	1(1-1)	76	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	32	1(1-2)	14
<i>Hardenbergia violacea</i>	2(1-2)	32	1(1-1)	17

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	1(1-3)	12	2(1-2)	16
<i>Eucalyptus beyeriana</i>	3(3-3)	4	2(1-2)	<1
<i>Eucalyptus eugenioides</i>	2(2-2)	4	2(1-3)	4
<i>Eucalyptus sideroxylon</i>	2(1-3)	16	3(3-4)	<1



Locations of survey sites allocated to DSF p7. Grey shading indicates extant native vegetation cover within the study area.

DSF p8: Tableland Ridge Forest



Plate p8. Tableland Ridge Forest (Map Unit p8) at Nyanga Mountain on the Bindook Highlands in Blue Mountains National Park, with *Eucalyptus sieberi*, *E. radiata* and *E. cypellocarpa* over a sparse shrub layer with *Daviesia mimosoides* subsp. *mimosoides* and *Persoonia linearis* and a ground layer dominated by *Pteridium esculentum* and *Hibbertia empetrifolia* subsp. *empetrifolia*.

Sample Sites: 84

Area Extant (ha): 44500

Estimated % remaining: 80-90%

Area in conservation reserves (ha): 25600

Estimated % of pre-clearing area in conservation reserves: 40-60%

No. taxa (total / unique): 328 / 0

No. taxa per plot (\pm sd): 26 (8.6)

Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Tableland Ridge Forest (DSF p8) is equivalent to DSF 8 described by Tindall *et al.* (2004). This unit is a eucalypt forest with an open understorey of sclerophyll shrubs, forbs, sedges and grass, found at elevations from 600 to 1200m ASL along drier parts of the Great Diving Range receiving 700 – 1100mm mean annual rainfall. It occurs from Hartley to Big Badja, primarily on sandy-loams derived from sedimentary, acid-volcanic or, more rarely, granitic substrates. Tableland Ridge Forest often co-occurs with Cool Montane Wet Forest (WSF p73), with the former occupying ridgetops and dry slopes and the latter found on deeper, moister loam soils. While large areas of Tableland Ridge Forest are represented in western Blue Mountains and Kanangra-Boyd National Parks, the southern part of the distribution (south of Goulburn) has been reduced by some land clearing and some remnants are subject to rough grazing on the footslopes of ridges in rural landscapes.

Floristic Summary:

Trees: *Eucalyptus sieberi*, *E. radiata*. **Shrubs:** *Hibbertia obtusifolia*, *Persoonia linearis*, *Leucopogon lanceolatus*, *Monotoca scoparia*. **Groundcover:** *Gonocarpus tetragynus*, *Pteridium esculentum*, *Lomandra longifolia*, *Dianella revoluta*, *Poa sieberiana*.

Vegetation structure:

Stratum	Frequency (n=62)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	20.5 (4.6)	32.2 (13.9)
Small tree	42	8.8 (3.5)	10.1 (11.8)
Shrub	73	2 (0.7)	14 (12.7)
Ground cover	97	0.7 (0.3)	20.1 (16.3)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 11 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 19 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 11 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia falciformis</i>	1(1-1)	29	1(1-2)	10
<i>Acacia gunnii</i>	1(1-1)	13	1(1-1)	2
<i>Acacia obliquinervia</i>	1(1-2)	7	1(1-1)	1
<i>Acacia terminalis</i>	1(1-1)	32	1(1-1)	11
<i>Amperea xiphoclada</i>	1(1-1)	24	1(1-1)	7
<i>Austrodanthonia fulva</i>	3(2-3)	8	1(1-2)	2
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	31	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	48	1(1-1)	27
<i>Brachyloma daphnoides</i>	1(1-1)	19	1(1-1)	6
<i>Choretrum pauciflorum</i>	1(1-1)	8	1(1-1)	1
<i>Dampiera purpurea</i>	1(1-1)	13	1(1-1)	4
<i>Daviesia latifolia</i>	1(1-1)	10	1(1-2)	1
<i>Daviesia mimosoides</i>	2(1-3)	14	1(1-2)	2
<i>Daviesia ulicifolia</i>	1(1-1)	17	1(1-1)	6
<i>Deyeuxia quadriseta</i>	1(1-2)	10	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	57	1(1-1)	15
<i>Dianella tasmanica</i>	1(1-1)	19	1(1-1)	7
<i>Dichelachne inaequiglumis</i>	1(1-1)	12	1(1-1)	3
<i>Dillwynia phycoides</i>	1(1-2)	8	1(1-1)	1
<i>Eucalyptus blaxlandii</i>	1(1-3)	18	2(1-3)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	1(1-3)	10	1(1-2)	3

<i>Eucalyptus dives</i>	1(1-2)	24	2(1-3)	4
<i>Eucalyptus mannifera</i>	1(1-1)	13	2(1-3)	4
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-3)	55	2(1-3)	6
<i>Eucalyptus sieberi</i>	3(2-3)	95	2(1-3)	15
<i>Gonocarpus tetragynus</i>	1(1-1)	86	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	43	1(1-2)	14
<i>Hardenbergia violacea</i>	1(1-1)	33	1(1-1)	17
<i>Hibbertia obtusifolia</i>	1(1-1)	79	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	25	1(1-1)	9
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	69	1(1-1)	23
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2(1-2)	48	1(1-2)	10
<i>Lomandra glauca</i>	1(1-1)	21	1(1-1)	10
<i>Lomandra longifolia</i>	1(1-2)	64	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	42	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-2)	27	1(1-1)	14
<i>Lomatia silaifolia</i>	1(1-2)	25	1(1-1)	10
<i>Melichrus urceolatus</i>	1(1-1)	11	1(1-1)	4
<i>Monotoca scoparia</i>	1(1-1)	54	1(1-1)	12
<i>Patersonia glabrata</i>	1(1-1)	23	1(1-1)	10
<i>Persoonia laurina</i>	1(1-1)	11	1(1-1)	2
<i>Persoonia linearis</i>	1(1-1)	75	1(1-1)	28
<i>Platylobium formosum</i>	1(1-1)	10	1(1-1)	3
<i>Platysace ericoides</i>	2(1-2)	12	1(1-1)	3
<i>Poa sieberiana</i> var. <i>cyanophylla</i>	1(1-1)	10	1(1-2)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-2)	49	1(1-2)	10
<i>Podolobium ilicifolium</i>	1(1-2)	46	1(1-1)	8
<i>Polyscias sambucifolia</i>	1(1-1)	17	1(1-1)	6
<i>Pomax umbellata</i>	1(1-2)	30	1(1-1)	14
<i>Pteridium esculentum</i>	1(1-2)	75	1(1-2)	37
<i>Rhytidosporum procumbens</i>	1(1-1)	13	1(1-1)	3
<i>Stylidium graminifolium</i>	1(1-1)	32	1(1-1)	9
<i>Stypandra glauca</i>	1(1-2)	14	1(1-2)	5

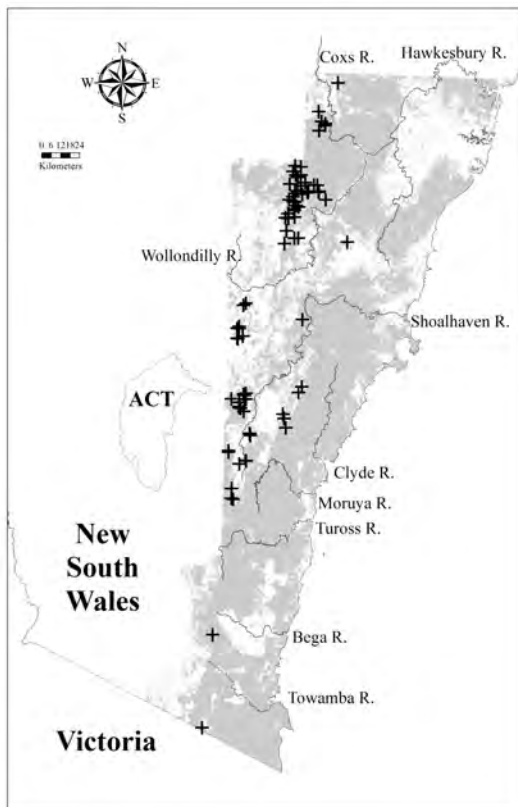
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Microlaena stipoides</i>	1(1-1)	35	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	1(1-3)	5	2(1-3)	7
<i>Eucalyptus cypellocarpa</i>	2(2-3)	12	2(1-2)	10
<i>Eucalyptus elata</i>	1(1-1)	1	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus fastigata</i>	1(1-1)	1	2(1-3)	6
<i>Eucalyptus fraxinoides</i>	2(2-2)	1	2(1-3)	1
<i>Eucalyptus globoidea</i>	3(1-3)	5	2(1-2)	12
<i>Eucalyptus goniocalyx</i>	1(1-1)	1	1(1-3)	1

<i>Eucalyptus macrorhyncha</i>	3(1-3)	2	2(1-3)	3
<i>Eucalyptus obliqua</i>	1(1-1)	4	2(1-3)	4
<i>Eucalyptus pauciflora</i>	3(3-3)	1	1(1-2)	3
<i>Eucalyptus punctata</i>	3(1-3)	10	2(1-3)	9
<i>Eucalyptus sclerophylla</i>	3(3-3)	1	2(1-3)	4
<i>Eucalyptus smithii</i>	1(1-2)	6	1(1-2)	2
<i>Eucalyptus sparsifolia</i>	1(1-1)	7	2(1-3)	2
<i>Eucalyptus stricta</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus viminalis</i>	1(1-1)	4	2(1-3)	5



Locations of survey sites allocated to DSF p8. Grey shading indicates extant native vegetation cover within the study area.

DSF p9: Tableland Low Woodland

Plate p9. Tableland Low Woodland (Map Unit p9) on Governor's Hill near Goulburn, with a canopy of *Eucalyptus rossii* and *E. macrorhyncha* above a very sparse shrub layer and a groundcover dominated by *Joycea pallida*.

Sample Sites: 44
 Area Extant (ha): 36700
 Estimated % remaining: 40-60%
 Area in conservation reserves (ha): 4400
 Estimated % of pre-clearing area in conservation reserves: <10%
 No. taxa (total / unique): 228 / 1
 No. taxa per plot (\pm sd): 28.1 (7.8)
 Class: Southern Tableland Dry Sclerophyll Forests
 Related TEC: n/a

Tableland Low Woodland (DSF p9) is equivalent to DSF 9 identified by Tindall *et al.* (2004). This unit is a low eucalypt woodland with an open understorey of sclerophyll shrubs, sedges, grass and forbs. It occurs on low ridges on the southern tablelands from Canyonleigh to Braidwood on sandy loam soils derived primarily from fine-grained sedimentary rocks. Tableland Low Woodland is found on dry parts of the tableland receiving 650-800mm mean annual rainfall, at elevations of 550 - 800m ASL. In moister areas or on slightly deeper soils it is replaced by Eastern Tablelands Dry Forest (DSF p10). About half of its original extent has been cleared, and very little is represented within conservation reserves. Use of some remaining stands as rough grazing country may have simplified the structure and diversity of the understorey, particularly in small fragments and edges of larger patches.

Floristic Summary:

Trees: *Eucalyptus rossii*, *E. mannifera*. **Shrubs:** *Brachyloma daphnoides*, *Persoonia linearis*, *Hibbertia obtusifolia*, *Allocasuarina littoralis*, *Melichrus urceolatus*. **Groundcover:** *Goodenia hederacea*, *Lepidosperma gunnii*, *Dianella revoluta*, *Lomandra obliqua*, *Gonocarpus tetragynus*, *Joycea pallida*, *Lomandra multiflora*, *L. filiformis*, *Patersonia sericea*.

Vegetation structure:

Stratum	Frequency (n=41)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	15.8 (3.6)	22.6 (7.8)
Small tree	46	6.9 (2.5)	9.9 (7.4)
Shrub	59	1.6 (0.6)	9.4 (12.1)
Ground cover	98	0.5 (0.3)	18.7 (14.9)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 11 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 22 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 11 positive diagnostic species.

Positive Diagnostic Species:

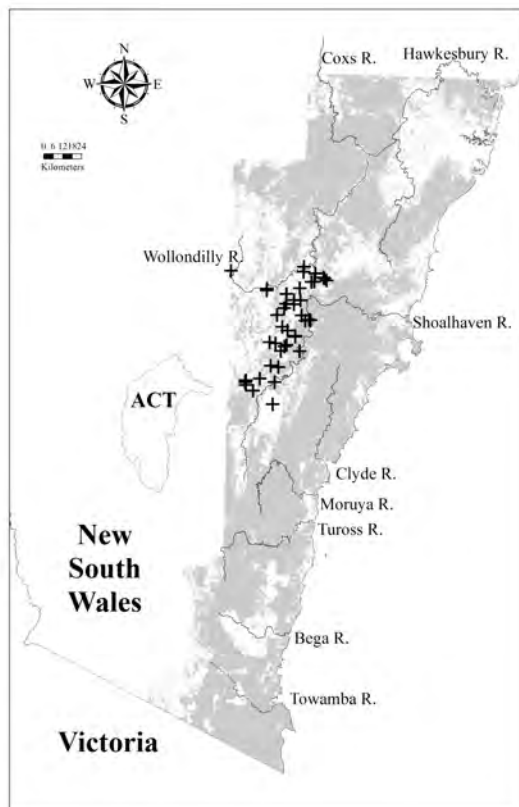
Species	C/A	Freq	C/A O	Freq O
<i>Acacia gunnii</i>	1(1-1)	20	1(1-1)	2
<i>Allocasuarina littoralis</i>	1(1-3)	48	1(1-2)	17
<i>Aotus ericoides</i>	2(1-2)	18	1(1-1)	3
<i>Aristida ramosa</i>	1(1-2)	34	1(1-2)	5
<i>Astroloma humifusum</i>	1(1-1)	20	1(1-1)	4
<i>Brachyloma daphnoides</i>	1(1-2)	64	1(1-1)	6
<i>Caustis flexuosa</i>	1(1-2)	23	1(1-2)	7
<i>Daviesia leptophylla</i>	1(1-2)	27	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	66	1(1-1)	15
<i>Dillwynia sericea</i>	1(1-1)	30	1(1-1)	2
<i>Entolasia stricta</i>	1(1-2)	61	1(1-2)	34
<i>Eucalyptus dives</i>	1(1-3)	30	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	1(1-3)	27	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-3)	41	2(1-3)	3
<i>Eucalyptus rossii</i>	3(3-3)	86	2(1-3)	2
<i>Gompholobium minus</i>	1(1-1)	27	1(1-1)	1
<i>Gonocarpus tetragynus</i>	1(1-1)	59	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	2(1-2)	91	1(1-2)	14
<i>Hibbertia obtusifolia</i>	1(1-1)	48	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	32	1(1-1)	9
<i>Joycea pallida</i>	2(1-3)	52	1(1-2)	8
<i>Laxmannia gracilis</i>	1(1-1)	30	1(1-1)	4
<i>Lepidosperma gunnii</i>	1(1-2)	70	1(1-1)	4
<i>Leucopogon virgatus</i>	1(1-2)	30	1(1-1)	1
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2(1-2)	48	1(1-2)	10
<i>Lomandra glauca</i>	1(1-2)	41	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	52	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-1)	59	1(1-1)	14
<i>Lomatia ilicifolia</i>	1(1-2)	25	1(1-1)	6
<i>Melichrus urceolatus</i>	1(1-1)	45	1(1-1)	3
<i>Opercularia diphylla</i>	1(1-1)	45	1(1-1)	7
<i>Patersonia glabrata</i>	1(1-2)	25	1(1-1)	10
<i>Patersonia longifolia</i>	1(1-2)	18	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	50	1(1-1)	9
<i>Persoonia linearis</i>	1(1-1)	64	1(1-1)	28
<i>Persoonia mollis</i> subsp. <i>livens</i>	1(1-1)	34	1(1-1)	0
<i>Poa sieberiana</i> var. <i>cyanophylla</i>	1(1-2)	20	1(1-2)	2
<i>Rhytidosporum procumbens</i>	1(1-1)	23	1(1-1)	3
<i>Stylidium graminifolium</i>	1(1-1)	39	1(1-1)	9
<i>Xanthorrhoea concava</i>	1(1-1)	34	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Hardenbergia violacea</i>	1(1-1)	32	1(1-1)	17
<i>Microlaena stipoides</i>	1(1-2)	55	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	3(1-3)	18	2(1-3)	7
<i>Eucalyptus bridgesiana</i>	3(3-3)	2	1(1-3)	1
<i>Eucalyptus cinerea</i>	1(1-2)	9	1(1-2)	1
<i>Eucalyptus globoidea</i>	2(1-2)	14	2(1-2)	12
<i>Eucalyptus goniocalyx</i>	1(1-1)	2	1(1-3)	1
<i>Eucalyptus melliodora</i>	1(1-1)	2	1(1-3)	2
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	4(1-4)	5	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	4(3-4)	7	2(1-3)	4
<i>Eucalyptus sieberi</i>	1(1-4)	7	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	1(1-1)	2	2(1-3)	2
<i>Eucalyptus tereticornis</i>	1(1-1)	2	2(1-3)	7



Locations of survey sites allocated to DSF p9. Grey shading indicates extant native vegetation cover within the study area.

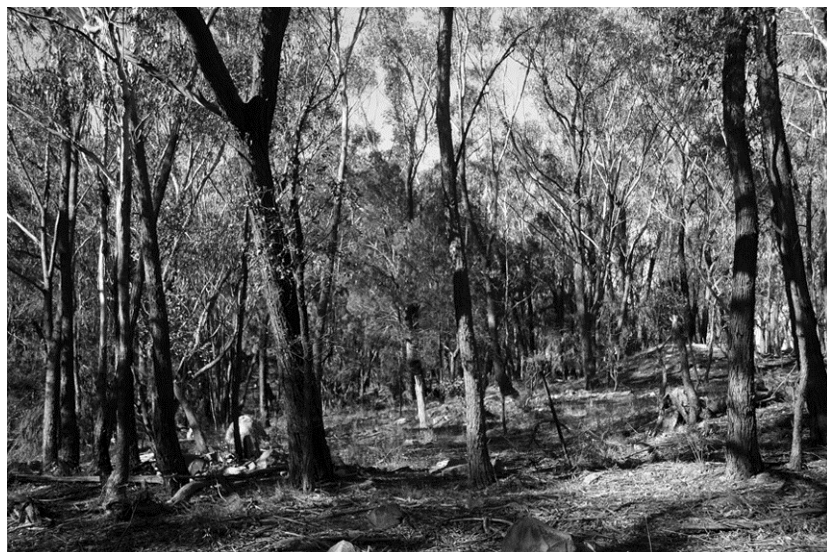
DSF p10: Eastern Tablelands Dry Forest

Plate p10. Eastern Tablelands Dry Forest (Map Unit p10) adjacent to the Hume Highway south of Marulan. The canopy is dominated by *Eucalyptus sieberi* and the ground cover is sparse and dominated by forbs and grasses.

Sample Sites: 65
 Area Extant (ha): 48000
 Estimated % remaining: 60-75%
 Area in conservation reserves (ha): 11200
 Estimated % of pre-clearing area in conservation reserves: 10-25%
 No. taxa (total / unique): 326 / 0
 No. taxa per plot (\pm sd): 30.7 (12.9)
 Class: South East Dry Sclerophyll Forests
 Related TEC: n/a

Eastern Tablelands Dry Forest (DSF p10) is equivalent to DSF 10 described by Tindall *et al.* (2004), and is an open eucalypt forest with an open understorey of sclerophyll shrubs, sedges and forbs. It occurs on ridges, primarily on the eastern edge of the Southern Tablelands between Joadja and Braidwood, and less frequently further west in the area between the Cookbundoon Range and Lake Bathurst. Eastern Tablelands Dry Forest is found on sandy-loams derived from fine or coarse grained sedimentary rocks, at elevations of 550 – 900m ASL. It replaces Tableland Low Woodland (DSF p9) in areas with higher annual rainfall (700 – 950mm compared with 650 – 800mm) or where soils are slightly deeper. Eastern Tablelands Dry Forest occurs mainly as residual vegetation on poor soils in rural landscapes, and has been depleted in some areas by land clearing, rough-country grazing and frequent fires. Examples occur in Bungonia State Recreation Area, Belanglo State Forest and along the western edge of Morton National Park.

Floristic Summary:

Trees: *Eucalyptus sieberi*, *E. agglomerata*. **Shrubs:** *Persoonia linearis*, *Allocasuarina littoralis*, *Hibbertia obtusifolia*, *Stypanandra glauca*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Goodenia hederacea*, *Pomax umbellata*, *Lomandra obliqua*, *Microlaena stipoides*.

Vegetation structure:

Stratum	Frequency (n=63)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	2	- (-)	5 (-)
Tree canopy	89	18.8 (4.7)	26.8 (12.3)
Small tree	67	8 (2.9)	16.2 (15.3)
Shrub	41	2.2 (0.8)	9.4 (9.8)
Ground cover	92	0.7 (0.7)	11.5 (13.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 12 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 20 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 12 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	11	1(1-1)	1
<i>Acacia gunnii</i>	1(1-1)	9	1(1-1)	2
<i>Acacia obtusifolia</i>	2(1-2)	25	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	42	1(1-1)	11
<i>Allocasuarina littoralis</i>	2(1-3)	75	1(1-2)	16
<i>Austrostipa rudis</i>	1(1-2)	29	1(1-2)	6
<i>Billardiera scandens</i>	1(1-1)	60	1(1-1)	27
<i>Brachyloma daphnoides</i>	1(1-1)	23	1(1-1)	6
<i>Dampiera purpurea</i>	1(1-2)	15	1(1-1)	4
<i>Daviesia leptophylla</i>	1(1-1)	22	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	45	1(1-1)	15
<i>Dichelachne inaequiglumis</i>	1(1-1)	11	1(1-1)	3
<i>Entolasia stricta</i>	1(1-2)	58	1(1-2)	34
<i>Eucalyptus agglomerata</i>	3(1-3)	65	2(1-3)	7
<i>Eucalyptus mannifera</i>	1(1-1)	18	2(1-3)	4
<i>Eucalyptus rossii</i>	1(1-2)	11	3(1-3)	2
<i>Eucalyptus sieberi</i>	2(2-3)	86	2(1-3)	15
<i>Gompholobium minus</i>	1(1-1)	15	1(1-1)	1
<i>Gonocarpus tetragynus</i>	1(1-1)	43	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	91	1(1-2)	13
<i>Hakea dactyloides</i>	1(1-2)	26	1(1-1)	12
<i>Helichrysum leucopsideum</i>	1(1-1)	26	1(1-1)	1
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	34	1(1-1)	6
<i>Hibbertia obtusifolia</i>	1(1-1)	62	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	34	1(1-1)	9
<i>Hybanthus monopetalus</i>	1(1-1)	9	1(1-1)	2
<i>Joycea pallida</i>	1(1-1)	32	1(1-2)	8
<i>Lagenifera gracilis</i>	1(1-2)	20	1(1-1)	3
<i>Lepidosperma gunnii</i>	1(1-1)	42	1(1-1)	4
<i>Lomandra cylindrica</i>	1(1-2)	20	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	42	1(1-2)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	46	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-1)	62	1(1-1)	14
<i>Lomatia ilicifolia</i>	1(1-1)	34	1(1-1)	6
<i>Melichrus urceolatus</i>	1(1-1)	35	1(1-1)	3
<i>Microlaena stipoides</i>	1(1-2)	55	1(1-2)	36
<i>Opercularia diphylla</i>	1(1-1)	25	1(1-1)	7
<i>Patersonia glabrata</i>	1(1-2)	31	1(1-1)	10
<i>Patersonia longifolia</i>	1(1-1)	20	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	26	1(1-1)	9
<i>Persoonia laurina</i>	1(1-1)	17	1(1-1)	2
<i>Persoonia linearis</i>	1(1-1)	89	1(1-1)	28
<i>Phyllanthus hirtellus</i>	1(1-2)	35	1(1-1)	14
<i>Platysace ericoides</i>	1(1-1)	20	1(1-1)	2

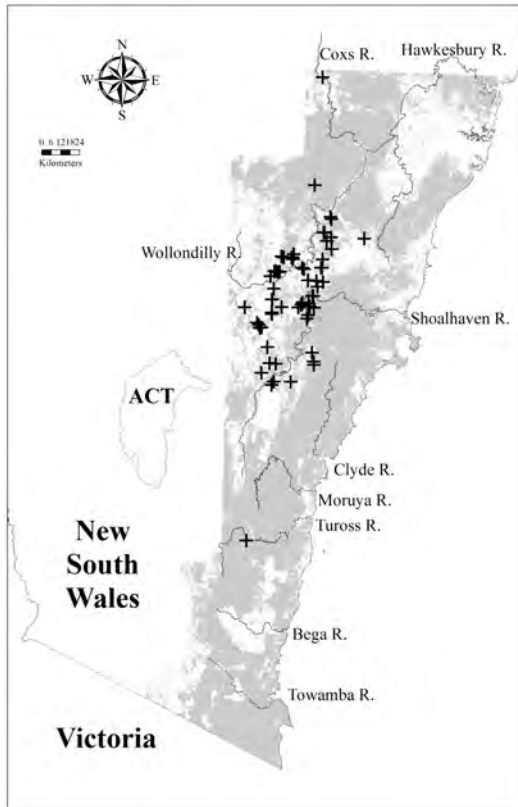
<i>Podolobium ilicifolium</i>	1(1-1)	23	1(1-1)	9
<i>Pomax umbellata</i>	1(1-2)	65	1(1-1)	13
<i>Rhytidosporum procumbens</i>	1(1-1)	32	1(1-1)	3
<i>Stypandra glauca</i>	1(1-2)	54	1(1-2)	4
<i>Xanthorrhoea concava</i>	1(1-1)	35	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Pteridium esculentum</i>	1(1-2)	34	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-1)	2	1(1-3)	7
<i>Angophora floribunda</i>	1(1-1)	2	1(1-2)	9
<i>Corymbia gummifera</i>	2(2-2)	3	2(1-2)	16
<i>Eucalyptus blaxlandii</i>	1(1-1)	2	1(1-3)	1
<i>Eucalyptus bosistoana</i>	1(1-1)	2	1(1-2)	3
<i>Eucalyptus cinerea</i>	1(1-2)	8	1(1-2)	1
<i>Eucalyptus consideniana</i>	2(2-2)	2	1(1-2)	2
<i>Eucalyptus cypellocarpa</i>	3(1-3)	3	2(1-2)	10
<i>Eucalyptus dives</i>	1(1-2)	11	2(1-3)	4
<i>Eucalyptus elata</i>	1(1-1)	2	2(1-3)	5
<i>Eucalyptus eugenioides</i>	2(2-2)	2	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-3)	25	2(1-2)	12
<i>Eucalyptus goniocalyx</i>	1(1-1)	2	1(1-3)	1
<i>Eucalyptus macrorhyncha</i>	1(1-4)	5	2(1-3)	3
<i>Eucalyptus piperita</i>	1(1-3)	6	2(1-3)	9
<i>Eucalyptus punctata</i>	1(1-1)	18	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	3	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	2(1-3)	9	2(1-3)	4
<i>Eucalyptus smithii</i>	3(2-3)	6	1(1-2)	2
<i>Eucalyptus sparsifolia</i>	3(3-3)	2	2(1-3)	2



Locations of survey sites allocated to DSF p10. Grey shading indicates extant native vegetation cover within the study area.

DSF p11: Elevated Gorge Forest



Plate p11. Elevated Gorge Forest (Map Unit p11) at Moogah Spur in Blue Mountains National Park with *Eucalyptus agglomerata*, *E. punctata* and *E. sparsifolia* over a patchy shrub layer dominated by *Exocarpos strictus* and *Daviesia mimosoides* subsp. *mimosoides* and a sparse groundcover including *Stypandra glauca* and *Lomandra filiformis* subsp. *filiformis*.

Sample Sites: 64
 Area Extant (ha): 34600
 Estimated % remaining: 80-95%
 Area in conservation reserves (ha): 14600
 Estimated % of pre-clearing area in conservation reserves: 30-45%

No. taxa (total / unique): 350 / 0
 No. taxa per plot (\pm sd): 34.7 (11)
 Class: Central Gorge Dry Sclerophyll Forests
 Related TEC: n/a

Elevated Gorge Forest (DSF p11) is equivalent to DSF 11 described by Tindall *et al.* (2004). This unit is a eucalypt forest with an open understorey of sclerophyll shrubs and grasses, found on the dry upper slopes of rocky gorges along the Shoalhaven, Wingecarribee, Wollondilly, Nattai and Tarlo Rivers and their tributaries. It occurs from 400 to 850m ASL on loam or sandy loam soils derived from fine or coarse grained sedimentary rocks. Average annual rainfall across the distribution ranges from 700 to 900mm. Several examples of Elevated Gorge Forest are represented in conservation reserves. Other stands have largely escaped land clearing due to their steep terrain, and are used primarily for rough grazing.

Floristic Summary:

Trees: *Eucalyptus punctata*, *E. agglomerata*. **Shrubs:** *Persoonia linearis*, *Phyllanthus hirtellus*, *Hibbertia obtusifolia*, *Olearia viscidula*, *Podolobium ilicifolium*. **Climbers:** *Hardenbergia violacea*, *Billardiera scandens*. **Groundcover:** *Goodenia hederacea*, *Pomax umbellata*, *Dianella revoluta*, *Lomandra multiflora*, *L. filiformis*, *Opercularia diphylla*.

Vegetation structure:

Stratum	Frequency (n=63)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	92	19.4 (4.7)	30.3 (11.2)
Small tree	41	9.3 (4.5)	14.3 (10.3)
Shrub	67	2.1 (0.7)	10.7 (11.3)
Ground cover	100	0.6 (0.3)	15.5 (16.3)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 13 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 26 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 13 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-2)	14	1(1-1)	1
<i>Acacia decurrens</i>	1(1-1)	16	1(1-1)	2
<i>Acacia falciformis</i>	1(1-2)	25	1(1-2)	10
<i>Acacia longifolia</i>	1(1-1)	23	1(1-2)	9
<i>Aristida ramosa</i>	2(1-2)	16	1(1-2)	5
<i>Austrostipa rudis</i>	1(1-2)	30	1(1-2)	6
<i>Billardiera scandens</i>	1(1-1)	61	1(1-1)	27
<i>Bossiaea buxifolia</i>	1(1-2)	11	1(1-1)	3
<i>Brachyloma daphnoides</i>	1(1-1)	17	1(1-1)	7
<i>Brachyscome angustifolia</i>	1(1-1)	20	1(1-1)	2
<i>Cassinia aculeata</i>	1(1-2)	20	1(1-1)	6
<i>Cassinia laevis</i>	1(1-1)	13	1(1-2)	1
<i>Dampiera purpurea</i>	1(1-1)	30	1(1-1)	4
<i>Daviesia mimosoides</i>	2(1-2)	16	1(1-2)	2
<i>Deyeuxia quadriseta</i>	1(1-2)	19	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-2)	77	1(1-1)	15
<i>Dichelachne inaequiglumis</i>	1(1-1)	20	1(1-1)	3
<i>Dichelachne micrantha</i>	1(1-2)	39	1(1-1)	9
<i>Dichelachne parva</i>	1(1-2)	17	1(1-1)	1
<i>Entolasia stricta</i>	1(1-2)	58	1(1-2)	34
<i>Eucalyptus agglomerata</i>	3(2-3)	56	2(1-3)	7

<i>Eucalyptus globoidea</i>	3(1-3)	36	1(1-2)	12
<i>Eucalyptus punctata</i>	3(2-3)	75	1(1-3)	8
<i>Exocarpos strictus</i>	1(1-2)	31	1(1-1)	9
<i>Gonocarpus tetragynus</i>	1(1-2)	45	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	2(1-2)	88	1(1-1)	14
<i>Hardenbergia violacea</i>	1(1-1)	69	1(1-1)	17
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	19	1(1-1)	6
<i>Hibbertia obtusifolia</i>	1(1-1)	50	1(1-1)	10
<i>Joycea pallida</i>	2(1-2)	47	1(1-2)	8
<i>Lagenifera gracilis</i>	1(1-1)	23	1(1-1)	3
<i>Lepidosperma gunnii</i>	1(1-1)	22	1(1-1)	4
<i>Leucopogon muticus</i>	2(1-3)	9	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-1)	39	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2(1-2)	59	1(1-2)	10
<i>Lomandra glauca</i>	1(1-2)	31	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	73	1(1-1)	25
<i>Melichrus urceolatus</i>	1(1-1)	19	1(1-1)	4
<i>Notodanthonia longifolia</i>	1(1-2)	19	1(1-2)	5
<i>Olearia viscidula</i>	1(1-1)	48	1(1-2)	5
<i>Opercularia diphylla</i>	1(1-1)	52	1(1-1)	7
<i>Oxalis perennans</i>	1(1-1)	31	1(1-1)	13
<i>Ozothamnus diosmifolius</i>	1(1-1)	23	1(1-1)	9
<i>Persoonia linearis</i>	1(1-1)	81	1(1-1)	28
<i>Phyllanthus hirtellus</i>	1(1-2)	56	1(1-1)	14
<i>Podolobium ilicifolium</i>	1(1-2)	48	1(1-1)	8
<i>Pomax umbellata</i>	2(1-2)	81	1(1-1)	13
<i>Senecio prenanthoides</i>	1(1-1)	28	1(1-1)	8
<i>Stypandra glauca</i>	2(1-2)	44	1(1-2)	4
<i>Veronica plebeia</i>	1(1-1)	25	1(1-1)	10
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	1(1-1)	9	1(1-1)	1
<i>Wahlenbergia communis</i>	1(1-1)	9	1(1-1)	2
<i>Wahlenbergia gracilis</i>	1(1-1)	39	1(1-1)	10

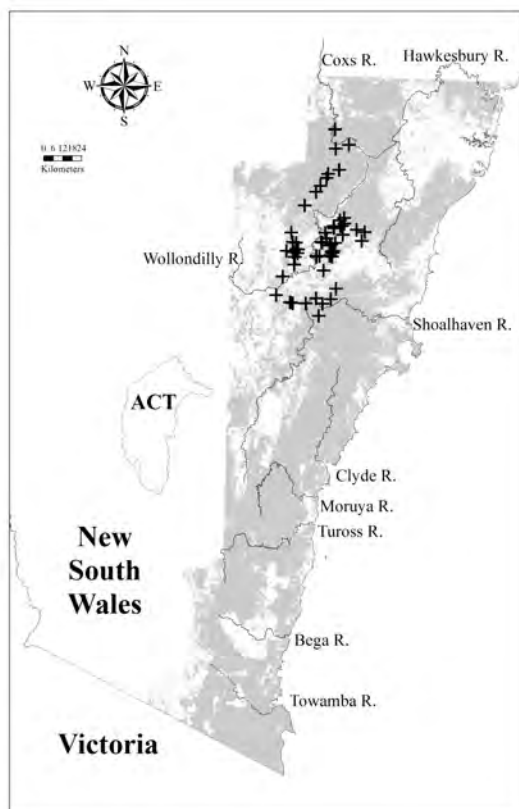
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Allocasuarina littoralis</i>	1(1-3)	31	1(1-2)	17
<i>Lomandra longifolia</i>	1(1-1)	36	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-2)	52	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-1)	2	1(1-2)	9
<i>Eucalyptus blakelyi</i>	1(1-1)	3	2(1-3)	1
<i>Eucalyptus blaxlandii</i>	1(1-1)	3	2(1-3)	1
<i>Eucalyptus bosistoana</i>	2(1-2)	6	1(1-2)	3
<i>Eucalyptus bridgesiana</i>	1(1-1)	2	1(1-3)	1
<i>Eucalyptus cinerea</i>	1(1-1)	2	1(1-2)	1

<i>Eucalyptus crebra</i>	3(3-3)	8	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	3(1-3)	3	2(1-2)	10
<i>Eucalyptus dives</i>	1(1-1)	3	2(1-3)	4
<i>Eucalyptus elata</i>	3(3-3)	2	2(1-3)	5
<i>Eucalyptus eugenioides</i>	3(3-3)	5	2(1-3)	4
<i>Eucalyptus fibrosa</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus goniocalyx</i>	2(1-3)	5	1(1-3)	1
<i>Eucalyptus imitans</i>	1(1-1)	2	1(1-3)	<1
<i>Eucalyptus macrorhyncha</i>	3(3-3)	9	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-1)	9	2(1-3)	4
<i>Eucalyptus melliodora</i>	1(1-1)	8	1(1-3)	2
<i>Eucalyptus ovata</i>	1(1-1)	2	2(1-3)	1
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	2(2-2)	2	1(1-2)	3
<i>Eucalyptus piperita</i>	1(1-1)	3	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-3)	9	2(1-3)	6
<i>Eucalyptus rossii</i>	1(1-3)	6	3(1-3)	2
<i>Eucalyptus sclerophylla</i>	3(1-3)	9	2(1-3)	4
<i>Eucalyptus sideroxylon</i>	3(3-3)	2	3(1-4)	<1
<i>Eucalyptus sieberi</i>	3(1-3)	17	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	3(1-3)	5	2(1-3)	2
<i>Eucalyptus tereticornis</i>	3(3-3)	8	2(1-3)	7
<i>Eucalyptus viminalis</i>	1(1-1)	2	2(1-3)	5
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	2	2(1-3)	8



Locations of survey sites allocated to DSF p11. Grey shading indicates extant native vegetation cover within the study area.

DSF p14: Western Tablelands Dry Forest

Plate p14. Western Tablelands Dry Forest (Map Unit p14) in Abercrombie River National Park at the Goulburn-Oberon Road crossing, with *Eucalyptus rossii* and *E. mannifera* above a groundcover dominated by low shrubs and grasses including *Brachyloma daphnoides*, *Hibbertia obtusifolia* and *Poa sieberiana* var. *cyanophylla*.

Sample Sites: 154

Area Extant (ha): 121600

Estimated % remaining: 45-65%

Area in conservation reserves (ha): 24500

Estimated % of pre-clearing area in conservation reserves: <15%

No. taxa (total / unique): 401 / 10

No. taxa per plot (\pm sd): 26.2 (8.8)

Class: Southern Tableland Dry Sclerophyll Forests

Related TEC: n/a

Western Tablelands Dry Forest (DSF p14) is equivalent to DSF 14 described by Tindall *et al.* (2004). This unit is a low eucalypt forest with an open understorey of sclerophyll shrubs, grasses and forbs. It is widely distributed on dry ridges in the Southern Tablelands between Wallerawang and Captains Flat, at elevations 550 – 1150m ASL and where average annual rainfall is 670 – 920mm. Similar habitats extend further to the west of the study area. Western Tablelands Dry Forest shares several species with Braidwood Dry Forest but there is little overlap in distribution, the latter having a restricted distribution on sandy rises between Nerriga and Captains Flat. Western Tablelands Dry Forest covers broad areas in the rocky hills to the west of the Great Dividing Range north of Goulburn, where it grades into Abercrombie-Tarlo Foothlope Woodland (GW p19) on hill foothlopes. Elsewhere, it may co-occur with Tableland Grassy Box-Gum Woodland (GW p24), which occupies more gently undulating land with deeper loamy soils. Examples of Western Tablelands Dry Forest are represented in Abercrombie River and Tarlo River National Parks. Elsewhere, large areas have been cleared or used for rough-country grazing.

Floristic Summary:

Trees: *Eucalyptus macrorhyncha*, *E. mannifera*, *E. rossii*, *E. dives*. **Shrubs:** *Hibbertia obtusifolia*, *Brachyloma daphnoides*, *Daviesia leptophylla*. **Groundcover:** *Gonocarpus tetragynus*, *Lomandra filiformis* subsp. *coriacea*, *Poa sieberiana*, *Goodenia hederacea*, *Dianella revoluta*, *Joycea pallida*, *Hovea linearis*.

Vegetation structure:

Stratum	Frequency (n=126)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	97	15.5 (4)	31.4 (12.1)
Small tree	16	7.4 (3.3)	14.1 (17.7)
Shrub	63	1.8 (0.8)	15 (18.3)
Ground cover	96	0.7 (0.3)	30 (20.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 12 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 19 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 12 positive diagnostic species.

Positive Diagnostic Species:

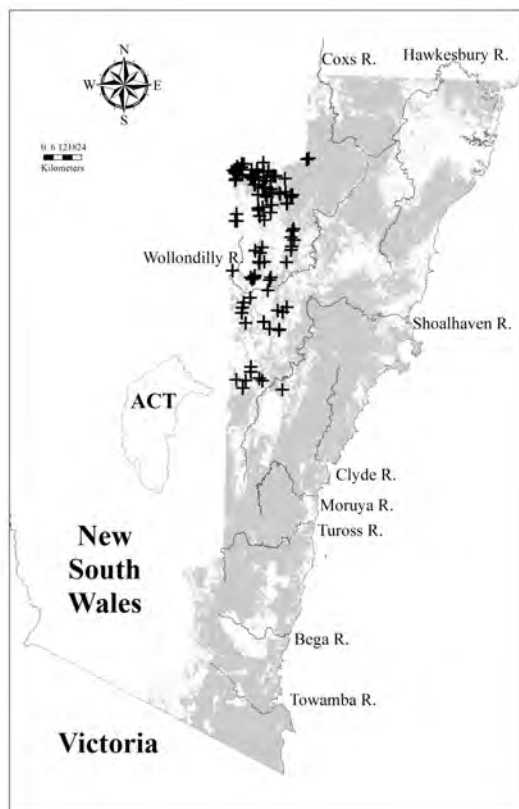
Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	5	1(1-1)	1
<i>Acacia dawsonii</i>	1(1-1)	2	1(1-1)	<1
<i>Acacia dealbata</i>	1(1-1)	16	1(1-2)	5
<i>Acacia decurrens</i>	1(1-1)	6	1(1-1)	2
<i>Acacia genistifolia</i>	1(1-2)	8	1(1-2)	<1
<i>Acacia gunnii</i>	1(1-1)	41	1(1-1)	1
<i>Acacia lanigera</i>	1(1-1)	3	1(1-2)	<1
<i>Acrotriche serrulata</i>	1(1-1)	8	1(1-1)	3
<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>	1(1-2)	4	1(1-2)	<1
<i>Astrotricha ledifolia</i>	1(1-1)	2	1(1-1)	<1
<i>Austrodanthonia fulva</i>	3(2-4)	10	1(1-2)	2
<i>Austrostipa mollis</i>	2(2-3)	4	1(1-2)	<1
<i>Brachyloma daphnoides</i>	1(1-1)	66	1(1-1)	6
<i>Caladenia carnea</i> var. <i>carnea</i>	1(1-1)	5	1(1-1)	<1
<i>Cassinia aculeata</i>	1(1-1)	13	1(1-1)	6
<i>Cassinia arcuata</i>	1(1-1)	10	1(1-1)	<1
<i>Cassinia laevis</i>	1(1-2)	5	1(1-2)	1
<i>Cassinia longifolia</i>	1(1-2)	18	1(1-2)	6
<i>Cassinia uncata</i>	1(1-1)	3	1(1-1)	<1
<i>Cheiranthra cyanea</i> var. <i>cyanea</i>	1(1-1)	5	1(1-1)	<1
<i>Choretrum pauciflorum</i>	1(1-1)	6	1(1-1)	1
<i>Cyrtostylis reniformis</i>	1(1-1)	3	1(1-1)	<1
<i>Daucus glochidiatus</i>	1(1-1)	15	1(1-1)	2
<i>Daviesia latifolia</i>	1(1-2)	14	1(1-2)	1
<i>Daviesia leptophylla</i>	1(1-2)	44	1(1-1)	1
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	57	1(1-1)	14
<i>Dichelachne inaequiglumis</i>	1(1-1)	11	1(1-1)	2
<i>Dichelachne sieberiana</i>	1(1-2)	10	1(1-1)	<1
<i>Dillwynia phyllicoides</i>	1(1-1)	10	1(1-2)	1
<i>Dillwynia sericea</i>	1(1-1)	21	1(1-1)	2
<i>Eriochilus cucullatus</i>	1(1-1)	5	1(1-1)	<1
<i>Eucalyptus blakelyi</i>	1(1-1)	8	3(1-3)	<1
<i>Eucalyptus bridgesiana</i>	1(1-2)	11	1(1-3)	1
<i>Eucalyptus cinerea</i>	1(1-4)	3	1(1-2)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	2(1-3)	14	1(1-2)	3
<i>Eucalyptus dives</i>	3(1-3)	49	2(1-3)	4
<i>Eucalyptus goniocalyx</i>	1(1-3)	26	2(1-3)	<1
<i>Eucalyptus macrorhyncha</i>	1(1-3)	70	2(1-3)	2
<i>Eucalyptus mannifera</i>	3(1-3)	56	1(1-2)	3
<i>Eucalyptus melliodora</i>	1(1-1)	8	1(1-3)	2

<i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i>	2(1-2)	12	1(1-1)	<1
<i>Eucalyptus praecox</i>	2(1-2)	2	1(1-2)	<1
<i>Eucalyptus rossii</i>	3(1-3)	56	3(1-3)	1
<i>Galium gaudichaudii</i>	1(1-1)	14	1(1-1)	3
<i>Glossodia major</i>	1(1-1)	3	1(1-1)	<1
<i>Gompholobium huegelii</i>	1(1-1)	23	1(1-1)	1
<i>Gompholobium minus</i>	1(1-1)	6	1(1-1)	1
<i>Gonocarpus tetragynus</i>	1(1-1)	86	1(1-1)	19
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	61	1(1-2)	13
<i>Hakea decurrens</i>	1(1-1)	2	1(1-1)	<1
<i>Hardenbergia violacea</i>	1(1-1)	38	1(1-1)	17
<i>Hibbertia obtusifolia</i>	1(1-1)	86	1(1-1)	9
<i>Hibbertia riparia</i>	1(1-2)	11	1(1-1)	2
<i>Hovea linearis</i>	1(1-1)	55	1(1-1)	9
<i>Hydrocotyle laxiflora</i>	1(1-1)	34	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-1)	33	1(1-1)	16
<i>Joycea pallida</i>	2(1-4)	56	1(1-2)	7
<i>Lepidosperma gunnii</i>	1(1-1)	11	1(1-1)	4
<i>Leptospermum multicaule</i>	2(1-3)	2	1(1-3)	<1
<i>Leptospermum myrtifolium</i>	1(1-1)	5	1(1-1)	1
<i>Leptospermum obovatum</i>	1(1-1)	3	2(1-3)	<1
<i>Leucopogon virgatus</i>	1(1-1)	19	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-1)	16	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	65	1(1-2)	9
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	19	1(1-1)	11
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	42	1(1-1)	25
<i>Luzula densiflora</i>	1(1-1)	4	1(1-1)	1
<i>Melichrus urceolatus</i>	1(1-1)	41	1(1-1)	3
<i>Microseris lanceolata</i>	1(1-1)	10	1(1-1)	<1
<i>Monotoca scoparia</i>	1(1-1)	34	1(1-1)	12
<i>Persoonia chamaepeuce</i>	1(1-2)	5	1(1-1)	1
<i>Persoonia mollis</i> subsp. <i>livens</i>	1(1-1)	4	1(1-1)	<1
<i>Persoonia rigida</i>	1(1-1)	18	1(1-1)	<1
<i>Pimelea curviflora</i> var. <i>gracilis</i>	1(1-1)	2	1(1-1)	<1
<i>Pimelea curviflora</i> var. <i>sericea</i>	1(1-1)	5	1(1-1)	1
<i>Platylobium formosum</i>	1(1-2)	8	1(1-1)	3
<i>Poa sieberiana</i> var. <i>cyanophylla</i>	2(1-2)	17	1(1-2)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-2)	65	1(1-2)	10
<i>Pomaderris angustifolia</i>	1(1-1)	3	1(1-4)	<1
<i>Pomaderris betulina</i>	1(1-2)	7	1(1-3)	<1
<i>Pomaderris prunifolia</i> var. <i>prunifolia</i>	1(1-1)	3	1(1-1)	<1
<i>Pultenaea microphylla</i>	1(1-2)	13	1(1-1)	1
<i>Pultenaea procumbens</i>	1(1-1)	7	1(1-2)	<1
<i>Pultenaea subspicata</i>	1(1-2)	6	1(1-2)	<1
<i>Ranunculus sessiliflorus</i> var. <i>pilulifer</i>	1(1-1)	2	1(1-1)	<1
<i>Ranunculus sessiliflorus</i> var. <i>sessiliflorus</i>	1(1-1)	3	1(1-1)	<1

<i>Rhytidosporum procumbens</i>	1(1-2)	8	1(1-1)	3
<i>Senecio prenanthoides</i>	1(1-1)	28	1(1-1)	8
<i>Senecio tenuiflorus</i>	1(1-1)	10	1(1-1)	<1
<i>Stylidium graminifolium</i>	1(1-1)	30	1(1-1)	9
<i>Stypandra glauca</i>	1(1-1)	15	1(1-2)	5
<i>Styphelia triflora</i>	1(1-1)	4	1(1-1)	<1
<i>Tetratheca bauerifolia</i>	1(1-1)	4	1(1-1)	<1
<i>Thysanotus patersonii</i>	1(1-1)	8	1(1-1)	<1
<i>Wahlenbergia luteola</i>	1(1-2)	3	1(1-2)	1
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	24	1(1-1)	5
<i>Wahlenbergia victoriensis</i>	1(1-1)	2	0(0-0)	0

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	2(2-2)	1	2(1-3)	1
<i>Eucalyptus pauciflora</i>	2(1-2)	1	1(1-2)	3
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-3)	2	1(1-2)	2



Locations of survey sites allocated to DSF p14. Grey shading indicates extant native vegetation cover within the study area.

DSF p15: Braidwood Dry Forest

Plate p15. Braidwood Dry Forest (Map Unit p15) along Mulloon Fire trail in Tallaganda State Conservation Area, with *Eucalyptus dives* and *E. mannifera* above a sparse groundcover including *Dianella revoluta* var. *revoluta* and *Hibbertia obtusifolia*.

Sample Sites: 40

Area Extant (ha): 35200

Estimated % remaining: 45-65%

Area in conservation reserves (ha): 2800

Estimated % of pre-clearing area in conservation reserves: <10%

No. taxa (total / unique): 267 / 2

No. taxa per plot (\pm sd): 30.3 (9.4)

Class: Southern Tableland Dry Sclerophyll Forests

Related TEC: n/a

Braidwood Dry Forest (DSF p15) is equivalent to DSF 15 described by Tindall *et al.* (2004). This unit is a low eucalypt forest with an open understorey of sclerophyll shrubs, grasses and forbs. It is found on the eastern edge of the Southern Tablelands between Nerriga and Captains Flat, in areas receiving 670 – 900mm mean annual rainfall. Braidwood Dry Forest typically lies on rises in gently undulating terrain with deep sandy loams or coarse sands between 600 and 900m elevation. Braidwood Dry Forest shares several species with Western Tablelands Dry Forest (DSF p14), which has a much wider but non-overlapping distribution to the north and west.

About half of the original distribution of Braidwood Dry Forest has been cleared. Most of the remaining area occurs as remnants subject to grazing in rural landscapes, although small areas occur within the south-western fringe of Morton National Park.

Floristic Summary:

Trees: *Eucalyptus dives*, *E. mannifera*, *E. radiata*. **Shrubs:** *Brachyloma daphnoides*, *Lomatia ilicifolia*, *Gompholobium minus*, *Acacia gunnii*. **Groundcover:** *Goodenia hederacea*, *Dianella revoluta*, *Hovea linearis*, *Styidium graminifolium*, *Gonocarpus tetragynus*, *Poa sieberiana*, *Hibbertia obtusifolia*, *Lomandra multiflora*.

Vegetation structure:

Stratum	Frequency (n=34)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	94	13.7 (3)	28.1 (16.5)
Small tree	29	7.1 (4.3)	20.4 (15.4)
Shrub	53	1.9 (0.8)	14.2 (15.6)
Ground cover	97	0.6 (0.3)	29.7 (20.5)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 23 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 10 positive diagnostic species.

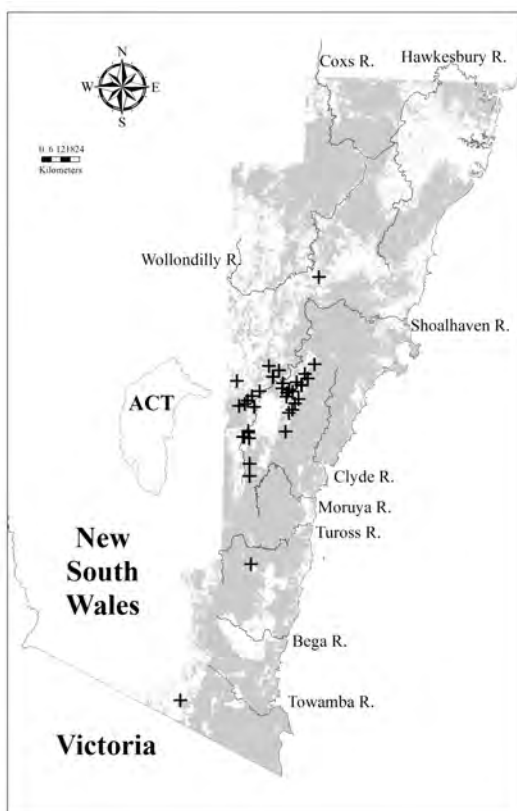
Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia gunnii</i>	1(1-1)	45	1(1-1)	1
<i>Aotus ericoides</i>	1(1-2)	23	1(1-1)	3
<i>Aristida ramosa</i>	1(1-2)	20	1(1-2)	5
<i>Austrostipa rudis</i>	1(1-2)	25	1(1-2)	6
<i>Banksia marginata</i>	1(1-1)	25	1(1-1)	3
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	35	1(1-2)	15
<i>Brachyloma daphnoides</i>	1(1-1)	63	1(1-1)	6
<i>Daviesia mimosoides</i>	1(1-2)	28	1(1-2)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	63	1(1-1)	15
<i>Eucalyptus dives</i>	3(2-3)	75	2(1-3)	4
<i>Eucalyptus mannifera</i>	3(2-3)	73	1(1-3)	3
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-3)	40	2(1-3)	6
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-2)	28	1(1-2)	1
<i>Gompholobium minus</i>	1(1-1)	53	1(1-1)	1
<i>Gonocarpus tetragynus</i>	1(1-2)	58	1(1-1)	20
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	20	1(1-1)	4
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	68	1(1-2)	14
<i>Hakea dactyloides</i>	1(1-1)	60	1(1-1)	12
<i>Hibbertia obtusifolia</i>	1(1-1)	50	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	65	1(1-1)	9
<i>Hypericum gramineum</i>	1(1-1)	40	1(1-1)	16
<i>Joycea pallida</i>	2(1-2)	43	1(1-2)	8
<i>Kunzea parvifolia</i>	1(1-2)	23	1(1-2)	<1
<i>Lepidosperma gunnii</i>	1(1-2)	28	1(1-1)	4
<i>Leucopogon virgatus</i>	1(1-1)	30	1(1-1)	1
<i>Lomandra glauca</i>	1(1-2)	30	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	53	1(1-1)	25
<i>Lomatia ilicifolia</i>	1(1-1)	58	1(1-1)	6
<i>Melichrus urceolatus</i>	1(1-1)	38	1(1-1)	4
<i>Mirbelia platylobioides</i>	1(1-1)	30	1(1-1)	<1
<i>Monotoca scoparia</i>	1(1-1)	38	1(1-1)	12
<i>Patersonia longifolia</i>	1(1-2)	20	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	40	1(1-1)	9
<i>Persoonia mollis</i> subsp. <i>livens</i>	1(1-2)	23	1(1-1)	<1
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-3)	50	1(1-2)	10
<i>Pultenaea subspicata</i>	2(1-2)	30	1(1-1)	<1
<i>Rhytidosporum procumbens</i>	1(1-1)	33	1(1-1)	3
<i>Stylidium graminifolium</i>	1(1-1)	68	1(1-1)	9
<i>Xanthorrhoea concava</i>	1(1-2)	20	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-2)	65	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-1)	43	1(1-2)	36

<i>Themeda australis</i>	1(1-2)	30	1(1-3)	17
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus bridgesiana</i>	3(3-3)	3	1(1-3)	1
<i>Eucalyptus cinerea</i>	1(1-1)	3	1(1-2)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	1(1-2)	8	1(1-2)	3
<i>Eucalyptus macrorhyncha</i>	2(2-2)	3	2(1-3)	3
<i>Eucalyptus pauciflora</i>	2(1-3)	15	1(1-2)	3
<i>Eucalyptus rossii</i>	2(1-3)	15	3(1-3)	2
<i>Eucalyptus sclerophylla</i>	3(3-3)	5	2(1-3)	4
<i>Eucalyptus sieberi</i>	3(1-3)	5	2(1-3)	16
<i>Eucalyptus viminalis</i>	3(1-3)	8	2(1-3)	4



Locations of survey sites allocated to DSF p15. Grey shading indicates extant native vegetation cover within the study area.

GW p17: Lithgow-Abercrombie Grassy Forest

Plate p17. Lithgow-Abercrombie Grassy Forest (Map Unit p17) near Hartley Vale Cemetery where a canopy of *Eucalyptus rubida* subsp. *rubida* and *E. dives* grows above a patchy shrub layer dominated by *Leptospermum myrtifolium* and a groundcover with *Poa sieberiana* subsp. *cyanophylla* and *Lomandra longifolia*.

Sample Sites: 9

Area Extant (ha): 100

Estimated % remaining: 35-55%

Area in conservation reserves (ha): 0

Estimated % of pre-clearing area in conservation reserves: 0

No. taxa (total / unique): 143 / 0

No. taxa per plot (\pm sd): 30 (15.5)

Class: Southern Tableland Grassy Woodlands

Related TEC: n/a

Lithgow-Abercrombie Grassy Forest (GW p17) is equivalent to GW 17 described by Tindall *et al.* (2004). This unit is an open eucalypt forest with a sparse shrub layer and grassy groundcover, found primarily in the upper Coxs River valley but also recorded in the Abercrombie River area. It occupies granite soils on undulating terrain, 600 – 1100m ASL where average annual rainfall varies from 730 to 930mm. It is likely to extend further to the north and west of the study area.

The small areas of Lithgow-Abercrombie Grassy Forest mapped within the study area persist as paddock and roadside remnants threatened by small-scale clearing and grazing.

Floristic Summary:

Trees: *Eucalyptus dives*, *E. viminalis*, *E. pauciflora*. **Shrubs:** *Hibbertia obtusifolia*, *Acacia dealbata*, *Bursaria spinosa*, *Lissanthe strigosa*, *Bossiaea buxifolia*. **Groundcover:** *Poranthera microphylla*, *Hypericum gramineum*, *Lomandra glauca*, *Poa labillardierei*, *Dichelachne micrantha*.

Vegetation structure:

Stratum	Frequency (n=4)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	50	23.5 (2.1)	22.5 (17.7)
Small tree	50	9 (4.2)	10 (7.1)
Shrub	25	1.5 (-)	15 (-)
Ground cover	100	0.4 (0.1)	37.5 (18.5)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 6 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 17 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 6 positive diagnostic species.

Positive Diagnostic Species:

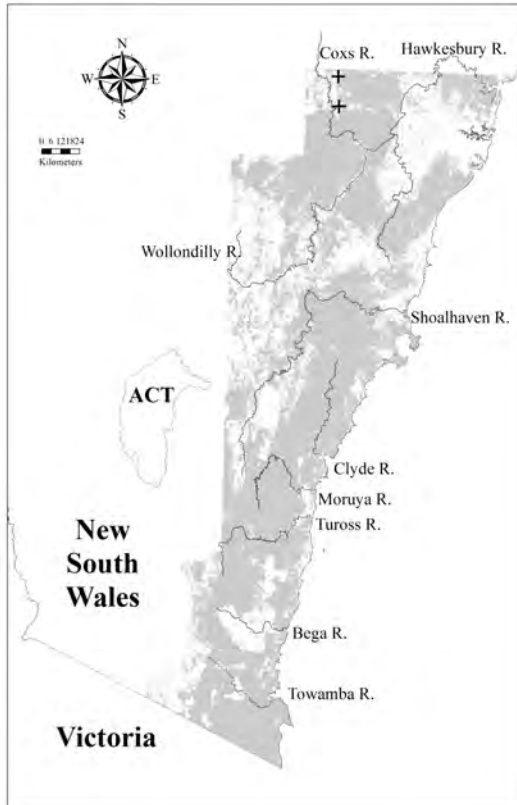
Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-1)	56	1(1-2)	5
<i>Acaena ovina</i>	1(1-1)	33	1(1-1)	1
<i>Austrodanthonia caespitosa</i>	1(1-1)	22	1(1-2)	1
<i>Austrodanthonia tenuior</i>	1(1-2)	33	1(1-2)	2
<i>Bossiaea buxifolia</i>	1(1-1)	44	1(1-1)	3
<i>Bursaria spinosa</i>	1(1-1)	67	1(1-2)	14
<i>Centaurium spicatum</i>	1(1-1)	22	1(1-1)	<1
<i>Dichelachne micrantha</i>	1(1-1)	44	1(1-1)	9
<i>Dichelachne rara</i>	1(1-2)	33	1(1-1)	5
<i>Eucalyptus bridgesiana</i>	2(1-2)	33	1(1-3)	1
<i>Eucalyptus dives</i>	2(2-2)	67	2(1-3)	4
<i>Eucalyptus pauciflora</i>	1(1-5)	33	1(1-2)	3
<i>Eucalyptus viminalis</i>	2(2-2)	56	2(1-3)	4
<i>Gompholobium huegelii</i>	1(1-1)	22	1(1-1)	2
<i>Hibbertia obtusifolia</i>	1(1-1)	89	1(1-1)	11
<i>Hypericum gramineum</i>	1(1-1)	67	1(1-1)	16
<i>Lissanthe strigosa</i>	2(1-2)	44	1(1-1)	8
<i>Lomandra glauca</i>	1(1-1)	56	1(1-1)	10
<i>Microtis unifolia</i>	1(1-1)	22	1(1-1)	1
<i>Plantago hispida</i>	1(1-1)	22	1(1-1)	<1
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-2)	56	1(1-2)	12
<i>Poranthera microphylla</i>	1(1-1)	67	1(1-1)	15
<i>Senecio quadridentatus</i>	1(1-1)	22	1(1-1)	1
<i>Sorghum leiocladum</i>	1(1-1)	22	1(1-1)	<1
<i>Themeda australis</i>	1(1-1)	67	1(1-3)	17

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Asplenium flabellifolium</i>	1(1-1)	33	1(1-1)	12
<i>Cheilanthes sieberi</i>	1(1-1)	33	1(1-1)	14
<i>Desmodium varians</i>	1(1-1)	44	1(1-1)	21
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	33	1(1-1)	15
<i>Dichondra</i> spp.	1(1-1)	44	1(1-2)	25
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	33	1(1-1)	8
<i>Glycine clandestina</i>	1(1-1)	44	1(1-1)	26
<i>Gonocarpus tetragynus</i>	1(1-1)	56	1(1-1)	20
<i>Hardenbergia violacea</i>	1(1-1)	33	1(1-1)	17
<i>Indigofera australis</i>	1(1-1)	33	1(1-1)	9
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-2)	33	1(1-2)	11

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus eugenioides</i>	2(2-2)	11	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	1(1-1)	11	2(1-3)	3
<i>Eucalyptus mannifera</i>	2(2-2)	22	2(1-3)	4
<i>Eucalyptus praecox</i>	2(2-2)	11	1(1-2)	<1



Locations of survey sites allocated to GW p17. Grey shading indicates extant native vegetation cover within the study area.

GW p19: Abercrombie – Tarlo Foothlope Woodland

Plate p19. Abercrombie-Tarlo Foothlope Woodland (Map Unit p19) on a foothlope above the river in Abercrombie River National Park. *Eucalyptus bridgesiana* grows above scattered shrubs including *Cassinia longifolia* and a dense grassy groundcover dominated by *Poa labillardierei* var. *labillardierei*.

Sample Sites: 42

Area Extant (ha): 5200

Estimated % remaining: 70-85%

Area in conservation reserves (ha): 1700

Estimated % of pre-clearing area in conservation reserves: 15-35%

No. taxa (total / unique): 306 / 2

No. taxa per plot (\pm sd): 32.5 (9.7)

Class: Southern Tableland Grassy Woodlands

Related TEC: n/a

Abercrombie – Tarlo Foothlope Woodland (GW p19) is equivalent to GW 19 described by Tindall *et al.* (2004). This unit is an open eucalypt woodland or forest with a sparse shrub layer and grassy groundcover. It occurs on the foothslopes of rocky hills along the Abercrombie and lower Tarlo Rivers at 530 – 800m ASL in areas receiving 680 – 780 mm mean annual rainfall. Abercrombie-Tarlo Foothlope Woodland frequently occurs in association with Western Tablelands Dry Forest (DSF p14), which usually occupies the mid-upper slopes and ridgelines. It is closely related to Wombeyan Caves Woodland (DSF p219), which is restricted to clay soils derived from limestone in a small area around Wombeyan Caves. While some of these woodlands have been cleared or used as rough grazing country, examples are represented within Abercrombie National Park.

Floristic Summary:

Trees: *Eucalyptus bridgesiana*, *E. macrorhyncha*. **Shrubs:** *Cassinia longifolia*. **Groundcover:** *Hydrocotyle laxiflora*, *Geranium solanderi*, *Microlaena stipoides*, *Acaena novae-zelandiae*, *Cheilanthes sieberi*, *Poa sieberiana*, *Dichondra* spp., *Stellaria pungens*, *Asplenium flabellifolium*, *Gonocarpus tetragynus*, *Rumex brownii*.

Vegetation structure:

Stratum	Frequency (n=40)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	83	16.9 (6.7)	26.4 (17.2)
Small tree	35	5.6 (2)	14.7 (14.9)
Shrub	58	2.2 (0.6)	23.1 (25)
Ground cover	83	0.7 (0.3)	53.8 (24.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 10 positive diagnostic species.

Positive Diagnostic Species:

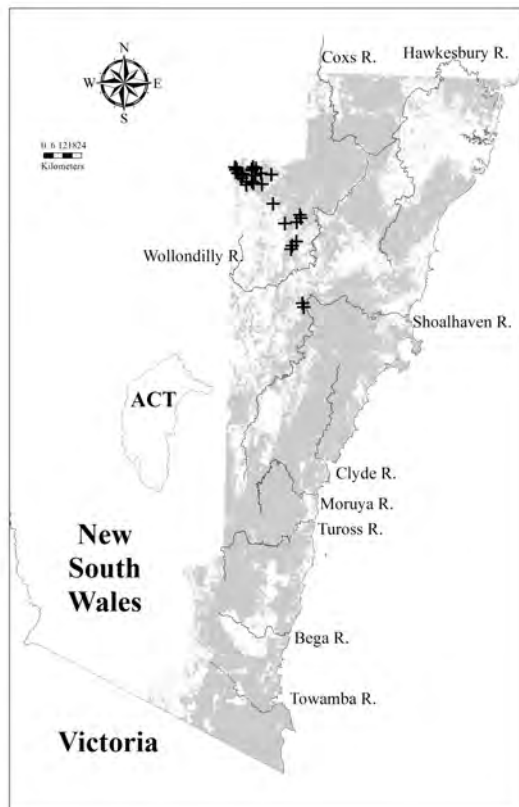
Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-2)	21	1(1-2)	5
<i>Acacia falciiformis</i>	1(1-2)	36	1(1-2)	10
<i>Acaena novae-zelandiae</i>	1(1-1)	67	1(1-1)	7
<i>Asplenium flabellifolium</i>	1(1-1)	55	1(1-1)	11
<i>Austrodanthonia pilosa</i>	2(2-3)	19	1(1-1)	3
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	2(1-2)	29	1(1-2)	6
<i>Bursaria spinosa</i>	1(1-2)	36	1(1-2)	14
<i>Cassinia longifolia</i>	2(1-2)	48	1(1-2)	6
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	3(2-4)	21	3(1-3)	1
<i>Cheilanthes sieberi</i>	1(1-1)	69	1(1-1)	14
<i>Crassula sieberiana</i>	1(1-1)	26	1(1-1)	3
<i>Daucus glochidiatus</i>	1(1-1)	36	1(1-1)	2
<i>Dichondra</i> spp.	1(1-2)	62	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-1)	40	1(1-1)	14
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	36	1(1-1)	5
<i>Eucalyptus bridgesiana</i>	2(1-3)	62	1(1-3)	1
<i>Eucalyptus dives</i>	1(1-2)	19	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	2(1-3)	40	2(1-3)	3
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	74	1(1-1)	7
<i>Gonocarpus tetragynus</i>	1(1-1)	50	1(1-1)	20
<i>Hibbertia obtusifolia</i>	1(1-1)	29	1(1-1)	11
<i>Hydrocotyle laxiflora</i>	1(1-1)	90	1(1-1)	15
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	26	1(1-2)	10
<i>Luzula flaccida</i>	1(1-1)	21	1(1-1)	4
<i>Microlaena stipoides</i>	1(1-2)	71	1(1-2)	36
<i>Oxalis perennans</i>	1(1-1)	33	1(1-1)	13
<i>Plantago debilis</i>	1(1-1)	29	1(1-1)	7
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-2)	67	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-2)	29	1(1-2)	12
<i>Rumex brownii</i>	1(1-1)	48	1(1-1)	5
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-1)	19	1(1-1)	3
<i>Senecio prenanthoides</i>	1(1-1)	43	1(1-1)	8
<i>Senecio quadridentatus</i>	1(1-1)	29	1(1-1)	1
<i>Stellaria pungens</i>	1(1-1)	57	1(1-1)	6
<i>Urtica incisa</i>	1(1-2)	21	1(1-1)	5
<i>Veronica plebeia</i>	1(1-1)	31	1(1-1)	10
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	31	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Desmodium varians</i>	1(1-1)	38	1(1-1)	21
<i>Glycine clandestina</i>	1(1-1)	36	1(1-1)	26
<i>Hypericum gramineum</i>	1(1-1)	33	1(1-1)	16
<i>Lomandra longifolia</i>	1(1-2)	57	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	2	2(1-3)	1
<i>Eucalyptus blakelyi</i>	1(1-1)	5	2(1-3)	1
<i>Eucalyptus blakelyi</i> X <i>dealbata</i>	3(3-3)	5	3(1-3)	<1
<i>Eucalyptus cinerea</i>	2(2-2)	5	1(1-2)	1
<i>Eucalyptus consideriana</i>	1(1-1)	2	2(1-2)	2
<i>Eucalyptus elata</i>	2(2-2)	2	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	2	2(1-3)	4
<i>Eucalyptus goniocalyx</i>	2(1-2)	14	1(1-3)	1
<i>Eucalyptus mannifera</i>	2(1-4)	12	2(1-3)	4
<i>Eucalyptus melliodora</i>	1(1-1)	12	1(1-3)	2
<i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i>	1(1-1)	5	2(1-2)	<1
<i>Eucalyptus praecox</i>	1(1-1)	2	2(1-2)	<1
<i>Eucalyptus rossii</i>	1(1-3)	10	3(1-3)	2
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-1)	5	1(1-2)	2



Locations of survey sites allocated to GW p19. Grey shading indicates extant native vegetation cover within the study area.

GW p20: Tableland Basalt Forest

Plate p20. Tableland Basalt Forest (Map Unit p20) on rocky basalt scree above Pipeclay creek at Golspie, with *Eucalyptus viminalis* and *Acacia melanoxylon* over a groundcover dominated by *Poa sieberiana* var. *sieberiana*, *Austrodanthonia racemosa* var. *racemosa* and various soft forbs.

Sample Sites: 28

Area Extant (ha): 10700

Estimated % remaining: 5-20%

Area in conservation reserves (ha): 280

Estimated % of pre-clearing area in conservation reserves: <2%

No. taxa (total / unique): 206 / 0

No. taxa per plot (\pm sd): 30.8 (9)

Class: Tableland Clay Grassy Woodlands

Related TEC: n/a

Tableland Basalt Forest (GW p20) is equivalent to GW 20 described by Tindall *et al.* (2004). This unit is a eucalypt forest with sparse shrubs and dense groundcover of herbs and grass. It is restricted to heavy clay soils derived from basalt and occurs sporadically on the central tablelands at localities such as Taralga, Fullerton, Jerrong, Wanganderry and the Moss Vale and Tolwong Plateaux. Tableland Basalt Forest typically occurs from 600–900m ASL in areas receiving 750–1000mm mean annual rainfall, or occasionally up to 1100mm on the Moss Vale Plateau. Where rainfall exceeds 1100mm, Tableland Basalt Forest is replaced by Southern Highlands Basalt Forest (WSF p266) east of Moss Vale and on the summit of Mount Gibraltar, or by Blue Mountains Basalt Forest (WSF p72) further north (e.g. Mount Tomah). Only about one fifth of the original distribution of Tableland Basalt Forest has escaped land clearing to develop its fertile soils on flat terrain for pastoral uses. The remnants, found almost exclusively on freehold land, are exposed to continued small-scale clearing, grazing and weed invasion.

Floristic Summary:

Trees: *Acacia melanoxylon*, *Eucalyptus viminalis*, *E. radiata*. **Groundcover:** *Microlaena stipoides*, *Stellaria pungens*, *Pteridium esculentum*, *Acaena novae-zelandiae*, *Dichondra* spp., *Geranium solanderi*, *Hydrocotyle laxiflora*, *Desmodium varians*, *Echinopogon ovatus*, *Austrodanthonia racemosa*, *Austrostipa rudis*, *Plantago varia*, *Viola betonicifolia*.

Vegetation structure:

Stratum	Frequency (n=27)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	93	23.8 (6.4)	31.8 (10.6)
Small tree	30	8.8 (5.8)	8.4 (6.2)
Shrub	44	2 (0.9)	14.6 (23.3)
Ground cover	96	0.5 (0.2)	72.6 (26.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 11 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 24 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 11 positive diagnostic species.

Positive Diagnostic Species:

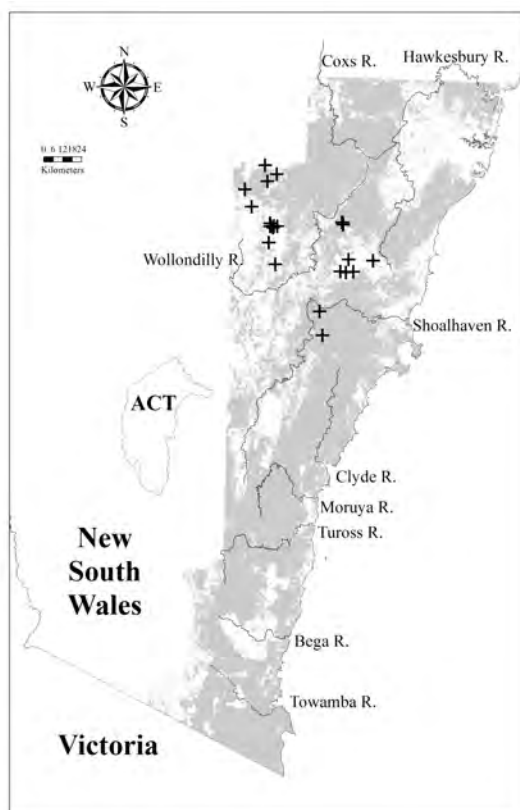
Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxydon</i>	1(1-2)	36	1(1-1)	6
<i>Acaena novae-zelandiae</i>	1(1-2)	75	1(1-1)	7
<i>Asperula conferta</i>	1(1-2)	50	1(1-1)	4
<i>Austrodanthonia pilosa</i>	2(1-3)	25	1(1-1)	3
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	2(1-2)	54	1(1-2)	6
<i>Austrostipa rudis</i>	3(2-3)	50	1(1-2)	6
<i>Carex inversa</i>	1(1-1)	39	1(1-1)	3
<i>Cymbonotus lawsonianus</i>	1(1-1)	29	1(1-1)	1
<i>Desmodium varians</i>	1(1-2)	57	1(1-1)	21
<i>Dichelachne inaequiglumis</i>	1(1-2)	32	1(1-1)	3
<i>Dichondra</i> spp.	2(1-2)	71	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-2)	57	1(1-1)	14
<i>Einadia nutans</i>	1(1-2)	25	1(1-1)	3
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-2)	32	1(1-1)	5
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	3(2-3)	21	1(1-2)	3
<i>Eucalyptus pauciflora</i>	1(1-2)	21	1(1-2)	3
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(1-4)	32	2(1-3)	6
<i>Eucalyptus viminalis</i>	3(3-4)	32	2(1-3)	4
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-2)	68	1(1-1)	7
<i>Glycine microphylla</i>	1(1-2)	39	1(1-1)	5
<i>Hydrocotyle laxiflora</i>	2(1-2)	68	1(1-1)	15
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	46	1(1-2)	10
<i>Microlaena stipoides</i>	2(2-4)	82	1(1-2)	36
<i>Oreomyrrhis eriopoda</i>	2(2-2)	21	1(1-1)	1
<i>Oxalis perennans</i>	1(1-1)	43	1(1-1)	13
<i>Plantago varia</i>	1(1-2)	50	1(1-1)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	3(2-4)	39	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-3)	46	1(1-2)	12
<i>Pteridium esculentum</i>	1(1-2)	79	1(1-2)	37
<i>Ranunculus lappaceus</i>	1(1-2)	25	1(1-1)	1
<i>Rubus parvifolius</i>	1(1-1)	46	1(1-1)	9
<i>Rumex brownii</i>	1(1-1)	36	1(1-1)	5
<i>Stellaria pungens</i>	2(1-2)	82	1(1-1)	6
<i>Themeda australis</i>	1(1-2)	43	1(1-3)	17
<i>Veronica plebeia</i>	1(1-1)	32	1(1-1)	10
<i>Viola betonicifolia</i>	1(1-2)	54	1(1-1)	5
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	39	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	2(2-2)	43	1(1-1)	20
<i>Glycine clandestina</i>	1(1-1)	39	1(1-1)	26

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-1)	4	1(1-2)	9
<i>Eucalyptus blaxlandii</i>	3(1-3)	14	1(1-3)	1
<i>Eucalyptus bosistoana</i>	1(1-1)	4	1(1-2)	3
<i>Eucalyptus bridgesiana</i>	3(1-3)	7	1(1-3)	1
<i>Eucalyptus dives</i>	3(3-3)	7	2(1-3)	4
<i>Eucalyptus elata</i>	4(3-4)	14	2(1-2)	5
<i>Eucalyptus fastigata</i>	3(2-4)	11	2(1-3)	6
<i>Eucalyptus goniocalyx</i>	1(1-1)	4	1(1-3)	1
<i>Eucalyptus macrorhyncha</i>	3(3-3)	7	2(1-3)	3
<i>Eucalyptus mannifera</i>	4(4-4)	4	2(1-3)	4
<i>Eucalyptus obliqua</i>	3(3-3)	4	2(1-3)	4
<i>Eucalyptus tereticornis</i>	1(1-3)	14	2(1-3)	7



Locations of survey sites allocated to GW p20. Grey shading indicates extant native vegetation cover within the study area.

GW p22: Frost Hollow Grassy Woodland

Plate p22. Frost Hollow Grassy Woodland (Map Unit p22) on Showground Reserve, Taralga, with a canopy of *Eucalyptus pauciflora* and dense groundcover dominated by *Poa sieberiana* var. *sieberiana*, *Themeda australis* and *Austrodanthonia pilosa* with a diverse complement of forbs.

Sample Sites: 71

Area Extant (ha): 14100

Estimated % remaining: 5-20%

Area in conservation reserves (ha): 680

Estimated % of pre-clearing area in conservation reserves: <2%

No. taxa (total / unique): 319 / 4

No. taxa per plot (\pm sd): 25.2 (11)

Class: Subalpine Woodlands

Related TEC: includes areas matching Natural Temperate Grasslands of the Southern Tablelands of NSW and the ACT EEC (EPBC).

Frost Hollow Grassy Woodland (GW p22) represents a revision and extension of GW 22 identified by Tindall *et al.* (2004), based on classification of a larger sample pool over a larger study area. The revised unit includes additional sites classified by Keith & Bedward (1999) as Monaro Basalt Grass Woodland (unit 23B) and by Beukers (undated) as Monaro Dry Grassy Woodland.

Frost Hollow Grassy Woodland is a low open eucalypt woodland with a sparse shrub layer and dense, diverse groundcover of grasses and forbs. In some areas the trees may have been so sparse that the community had a grassland structure, however these patterns are now difficult to discern given extensive clearing of this vegetation. Frost Hollow Grassy Woodland is found between Abercrombie and the Monaro tableland south of Bombala, within a mean annual rainfall range of 650–950 mm, and probably extends to the west of the study area. Within the study area it occurs from 600–1100m ASL on soils derived from a variety of substrates including fine-grained sedimentary, granite, acid volcanics and alluvium. Frost Hollow Grassy Woodland is typically restricted to broad valley flats of the tablelands where cold air accumulates or frosts occur frequently. It has been extensively cleared and persists almost exclusively as small remnants on grazing properties.

Floristic Summary:

Trees: *Eucalyptus pauciflora*, *E. rubida*. **Groundcover:** *Themeda australis*, *Gonocarpus tetragynus*, *Microlaena stipoides*, *Hypericum gramineum*, *Chrysocephalum apiculatum*, *Poa sieberiana*, *Asperula conferta*, *Elymus scaber*, *Hydrocotyle laxiflora*.

Vegetation structure:

Stratum	Frequency (n=51)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	63	11.1 (6)	23.5 (17.3)
Small tree	10	8.6 (4.2)	11 (5.5)
Shrub	31	2.1 (0.8)	10 (14.1)
Ground cover	98	0.4 (0.3)	53 (33.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 8 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 16 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 8 positive diagnostic species.

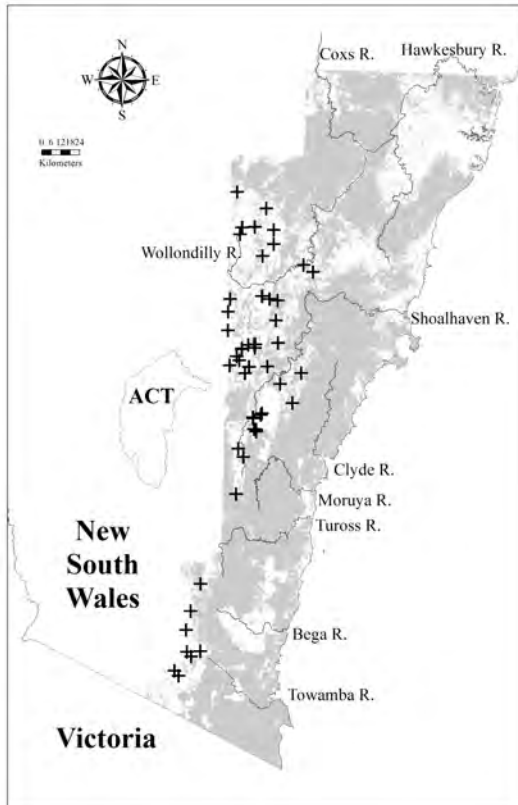
Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acaena echinata</i>	1(1-1)	27	1(1-1)	2
<i>Acaena ovina</i>	1(1-1)	13	1(1-1)	1
<i>Acrotriche serrulata</i>	1(1-1)	15	1(1-1)	3
<i>Aristida ramosa</i>	1(1-2)	25	1(1-2)	5
<i>Asperula conferta</i>	1(1-1)	48	1(1-1)	3
<i>Astroloma humifusum</i>	1(1-2)	13	1(1-1)	4
<i>Austrostipa bigeniculata</i>	1(1-2)	11	1(1-2)	<1
<i>Austrodanthonia laevis</i>	1(1-2)	11	1(1-2)	1
<i>Austrodanthonia pilosa</i>	1(1-2)	15	1(1-1)	3
<i>Austrostipa scabra</i>	1(1-1)	8	1(1-2)	1
<i>Bossiaea prostrata</i>	1(1-1)	14	1(1-1)	3
<i>Bothriochloa macra</i>	1(1-2)	10	1(1-2)	1
<i>Calocephalus citreus</i>	1(1-1)	27	1(1-1)	<1
<i>Carex inversa</i>	1(1-1)	14	1(1-1)	3
<i>Chrysocephalum apiculatum</i>	1(1-1)	58	1(1-1)	2
<i>Convolvulus erubescens</i>	1(1-1)	23	1(1-1)	1
<i>Dichelachne micrantha</i>	1(1-1)	30	1(1-1)	9
<i>Dichelachne crinita</i>	1(1-1)	11	1(1-1)	1
<i>Dichopogon fimbriatus</i>	1(1-1)	11	1(1-1)	<1
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	38	1(1-1)	5
<i>Epilobium billardioreanum</i>	1(1-1)	11	1(1-1)	2
<i>Eragrostis brownii</i>	1(1-1)	13	1(1-1)	3
<i>Eryngium ovinum</i>	1(1-1)	17	1(1-1)	<1
<i>Eucalyptus bridgesiana</i>	1(1-3)	8	1(1-3)	1
<i>Eucalyptus pauciflora</i>	2(1-3)	62	1(1-2)	3
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	2(1-3)	30	1(1-2)	1
<i>Eucalyptus stellulata</i>	1(1-2)	13	1(1-3)	<1
<i>Eucalyptus viminalis</i>	1(1-1)	14	2(1-3)	4
<i>Gonocarpus tetragynus</i>	1(1-1)	63	1(1-1)	20
<i>Haloragis heterophylla</i>	1(1-1)	21	1(1-1)	1
<i>Hydrocotyle laxiflora</i>	1(1-1)	34	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-1)	55	1(1-1)	16
<i>Juncus australis</i>	1(1-1)	11	1(1-1)	1
<i>Juncus filicaulis</i>	1(1-1)	14	1(1-1)	<1
<i>Juncus subsecundus</i>	1(1-1)	8	1(1-1)	1
<i>Kunzea parvifolia</i>	1(1-4)	13	1(1-2)	<1
<i>Leptospermum squarrosus</i>	1(1-1)	21	1(1-1)	1
<i>Leptospermum myrtifolium</i>	1(1-1)	14	1(1-1)	1
<i>Leptorhynchus squamatus</i> subsp. <i>A</i>	1(1-1)	27	1(1-2)	<1
<i>Luzula densiflora</i>	1(1-1)	8	1(1-1)	1

<i>Melichrus urceolatus</i>	1(1-1)	14	1(1-1)	4
<i>Microlaena stipoides</i>	1(1-2)	62	1(1-2)	36
<i>Microtis unifolia</i>	1(1-1)	21	1(1-1)	<1
<i>Opercularia hispida</i>	1(1-1)	14	1(1-1)	3
<i>Panicum effusum</i>	1(1-1)	23	1(1-1)	2
<i>Pimelea curviflora</i> var. <i>sericea</i>	1(1-1)	17	1(1-1)	1
<i>Plantago gaudichaudii</i>	1(1-1)	15	1(1-2)	<1
<i>Plantago varia</i>	1(1-1)	25	1(1-1)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-3)	48	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-2)	39	1(1-2)	12
<i>Pultenaea subspicata</i>	1(1-3)	8	1(1-2)	<1
<i>Rumex brownii</i>	1(1-1)	15	1(1-1)	5
<i>Schoenus apogon</i>	1(1-1)	20	1(1-1)	2
<i>Scleranthus biflorus</i>	1(1-1)	30	1(1-1)	2
<i>Solenogyne dominii</i>	1(1-1)	13	1(1-1)	<1
<i>Solenogyne gunnii</i>	1(1-1)	14	1(1-1)	1
<i>Themeda australis</i>	3(2-4)	99	1(1-2)	17
<i>Tricoryne elatior</i>	1(1-1)	28	1(1-1)	3
<i>Viola betonicifolia</i>	1(1-2)	17	1(1-1)	5
<i>Vittadinia muelleri</i>	1(1-1)	10	1(1-1)	<1
<i>Wurmbea dioica</i> subsp. <i>dioica</i>	1(1-1)	11	1(1-1)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus aggregata</i>	1(1-2)	4	3(3-3)	<1
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	1	2(1-3)	1
<i>Eucalyptus cinerea</i>	2(1-2)	4	1(1-2)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	2(1-2)	3	1(1-2)	3
<i>Eucalyptus dives</i>	1(1-2)	8	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	2(1-2)	3	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-2)	6	2(1-3)	4
<i>Eucalyptus melliodora</i>	2(1-2)	3	1(1-3)	2
<i>Eucalyptus ovata</i>	3(3-3)	3	2(1-2)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	3	2(1-3)	6
<i>Eucalyptus tereticornis</i>	1(1-1)	1	2(1-3)	7



Locations of survey sites allocated to GW p22. Grey shading indicates extant native vegetation cover within the study area.

GW p23: Tableland Hills Grassy Woodland



Plate p23. Tableland Hills Grassy Woodland (Map Unit p23) adjacent to Hartley cemetery. *Eucalyptus rubida* and *E. pauciflora* are the dominant tree species and the grassy ground cover is dominated by *Lomandra longifolia*, *Poa sieberiana* var. *cyanophylla* and *Microlaena stipoides*.

Sample Sites: 122
 Area Extant (ha): 18800
 Estimated % remaining: 20-40%
 Area in conservation reserves (ha): 710
 Estimated % of pre-clearing area in conservation reserves: <2%
 No. taxa (total / unique): 439 / 2
 No. taxa per plot (\pm sd): 33.8 (11.7)

Class: transitional between Southern Tableland Grassy Woodlands and Southern Tableland Dry Sclerophyll Forests
Related TEC: n/a

Tableland Hills Grassy Woodland (GW p23) is equivalent to GW 23 described by Tindall *et al.* (2004). This unit is an open eucalypt forest or woodland with a sparse shrub layer and grassy groundcover. It occurs across the tablelands, primarily between the Abercrombie River district, Berrima and Braidwood, with an outlying area to the north around Hartley. Tableland Hills Grassy Woodland occurs on loamy soils from 550 – 1100m ASL and extends to the north-west and south-west of the study area within a mean annual rainfall band of 650 – 950 mm. This woodland shares several species with Tableland Grassy Box-Gum Woodland (GW p24). Both communities are found in undulating terrain on the tablelands, although Tableland Hills Grassy Woodland occurs more frequently than Tableland Grassy Box-Gum Woodland closer to the coast. Where their distributions overlap, Tableland Hills Grassy Woodland is found in more rugged terrain. In the eastern portion of its distribution Tableland Hills Grassy Woodland is usually found on lower slopes, and grades into dry sclerophyll forest communities such as Tableland Low Woodland (DSF p9) on upper slopes. The extensive original distribution of Tableland Hills Grassy Woodland has been heavily fragmented by clearing and rough grazing, but small examples exist within several conservation reserves and state forests.

Floristic Summary:

Trees: *Eucalyptus dives*, *E. macrorhyncha*. **Shrubs:** *Melichrus urceolatus*. **Groundcover:** *Microlaena stipoides*, *Gonocarpus tetragynus*, *Lomandra filiformis* ssp. *coriacea*, *Hydrocotyle laxiflora*, *Hypericum gramineum*, *Hibbertia obtusifolia*, *Goodenia hederacea*, *Oxalis perennans*, *Austrodanthonia racemosa*.

Vegetation structure:

Stratum	Frequency (n=114)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	99	18.1 (5.7)	27.5 (11)
Small tree	35	7.9 (4.2)	12.2 (10.4)
Shrub	49	1.6 (0.7)	10.8 (12.8)
Ground cover	100	0.5 (0.3)	43.4 (26.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 16 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-2)	14	1(1-2)	5
<i>Acacia decurrens</i>	1(1-2)	13	1(1-1)	2
<i>Acacia genistifolia</i>	1(1-2)	4	1(1-2)	1
<i>Acacia gunnii</i>	1(1-1)	8	1(1-1)	2
<i>Acaena novae-zelandiae</i>	1(1-1)	37	1(1-1)	7
<i>Acianthus exsertus</i>	2(1-2)	3	1(1-2)	<1
<i>Ajuga australis</i>	1(1-2)	11	1(1-1)	3
<i>Aristida calycina</i> var. <i>calycina</i>	2(1-3)	3	1(1-1)	<1
<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>	1(1-2)	3	1(1-2)	<1
<i>Aristida ramosa</i>	1(1-2)	30	1(1-2)	5
<i>Astroloma humifusum</i>	1(1-1)	23	1(1-1)	4
<i>Austrodanthonia auriculata</i>	3(2-3)	3	3(1-3)	<1
<i>Austrostipa densiflora</i>	1(1-3)	14	1(1-1)	<1
<i>Austrodanthonia laevis</i>	1(1-3)	9	1(1-2)	1
<i>Austrostipa mollis</i>	2(1-3)	7	1(1-2)	<1
<i>Austrodanthonia monticola</i>	2(1-2)	7	1(1-1)	<1
<i>Austrodanthonia pilosa</i>	1(1-2)	17	1(1-1)	3
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	2(1-2)	46	1(1-2)	5
<i>Austrostipa rudis</i>	1(1-2)	25	1(1-2)	6

<i>Austrostipa scabra</i>	1(1-1)	6	1(1-2)	1
<i>Bossiaea buxifolia</i>	1(1-2)	20	1(1-1)	3
<i>Bossiaea prostrata</i>	1(1-1)	15	1(1-1)	2
<i>Brachyloma daphnoides</i>	1(1-1)	32	1(1-1)	6
<i>Brachyscome spathulata</i>	1(1-1)	8	1(1-1)	1
<i>Cassinia aculeata</i>	1(1-1)	23	1(1-1)	6
<i>Cassinia cunninghamii</i>	1(1-2)	5	1(1-1)	<1
<i>Cassinia laevis</i>	1(1-1)	8	1(1-2)	1
<i>Cheilanthes sieberi</i>	1(1-1)	42	1(1-1)	13
<i>Chrysocephalum apiculatum</i>	1(1-1)	8	1(1-1)	2
<i>Convolvulus erubescens</i>	1(1-1)	5	1(1-1)	1
<i>Cymbonotus lawsonianus</i>	1(1-1)	20	1(1-1)	1
<i>Daviesia latifolia</i>	1(1-2)	13	1(1-2)	1
<i>Daviesia leptophylla</i>	1(1-1)	7	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	30	1(1-1)	15
<i>Dichelachne micrantha</i>	1(1-1)	28	1(1-1)	9
<i>Dichelachne parva</i>	1(1-1)	6	1(1-1)	2
<i>Dillwynia phycoides</i>	1(1-2)	7	1(1-1)	1
<i>Dillwynia sericea</i>	1(1-1)	7	1(1-1)	2
<i>Echinopogon ovatus</i>	1(1-1)	25	1(1-1)	14
<i>Einadia nutans</i>	1(1-1)	9	1(1-1)	3
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	20	1(1-1)	5
<i>Eragrostis benthamii</i>	1(1-2)	3	1(1-1)	<1
<i>Eriochilus cucullatus</i>	1(1-1)	3	1(1-1)	<1
<i>Eucalyptus blakelyi</i>	3(1-3)	4	1(1-3)	<1
<i>Eucalyptus bridgesiana</i>	1(1-3)	15	1(1-3)	1
<i>Eucalyptus cinerea</i>	3(1-3)	12	1(1-2)	<1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	3(1-4)	19	1(1-2)	3
<i>Eucalyptus dives</i>	3(1-3)	53	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	3(1-3)	38	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-3)	31	2(1-3)	3
<i>Eucalyptus melliodora</i>	2(1-3)	12	1(1-3)	2
<i>Eucalyptus rossii</i>	2(1-3)	14	3(1-3)	2
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	3(2-3)	7	1(1-2)	1
<i>Eucalyptus viminalis</i>	2(1-3)	12	2(1-3)	4
<i>Euchiton gymnocephalus</i>	1(1-1)	25	1(1-1)	7
<i>Euchiton involucratus</i>	1(1-1)	8	1(1-1)	1
<i>Galium gaudichaudii</i>	1(1-1)	19	1(1-1)	3
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	21	1(1-1)	7
<i>Gonocarpus tetragynus</i>	2(1-2)	87	1(1-1)	19
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	2(1-2)	64	1(1-1)	13
<i>Hardenbergia violacea</i>	1(1-1)	34	1(1-1)	17
<i>Helichrysum leucopsideum</i>	1(1-1)	5	1(1-1)	1
<i>Helichrysum scorpioides</i>	1(1-2)	16	1(1-1)	7
<i>Hibbertia obtusifolia</i>	1(1-2)	68	1(1-1)	10
<i>Hovea linearis</i>	1(1-1)	30	1(1-1)	9

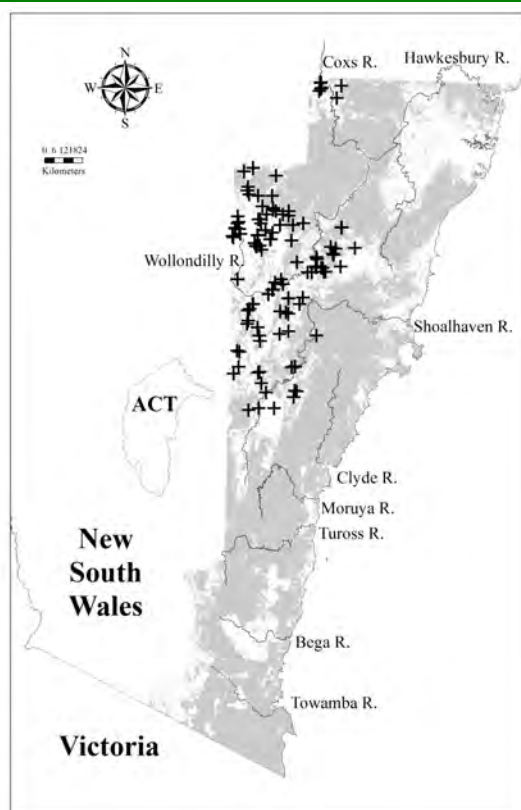
<i>Hydrocotyle laxiflora</i>	1(1-2)	77	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-1)	75	1(1-1)	15
<i>Joycea pallida</i>	2(1-3)	30	1(1-2)	8
<i>Juncus filicaulis</i>	1(1-1)	7	1(1-1)	1
<i>Kunzea ericoides</i>	1(1-3)	7	1(1-2)	2
<i>Kunzea parvifolia</i>	1(1-3)	3	1(1-2)	1
<i>Lagenifera gracilis</i>	1(1-2)	14	1(1-1)	3
<i>Laxmannia gracilis</i>	1(1-1)	12	1(1-1)	4
<i>Lepidosperma gunnii</i>	1(1-2)	15	1(1-1)	4
<i>Lissanthe strigosa</i>	1(1-2)	25	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	79	1(1-2)	9
<i>Luzula densiflora</i>	1(1-1)	20	1(1-1)	<1
<i>Melichrus urceolatus</i>	1(1-1)	46	1(1-1)	3
<i>Microlaena stipoides</i>	2(1-3)	91	1(1-2)	36
<i>Opercularia diphylla</i>	1(1-2)	30	1(1-1)	7
<i>Oreomyrrhis eriopoda</i>	1(1-2)	11	1(1-1)	1
<i>Oxalis exilis</i>	1(1-2)	9	1(1-1)	3
<i>Oxalis perennans</i>	1(1-1)	57	1(1-1)	12
<i>Oxalis radicata</i>	1(1-1)	5	1(1-1)	<1
<i>Persoonia mollis</i> subsp. <i>livens</i>	1(1-1)	4	1(1-1)	<1
<i>Pimelea curviflora</i> var. <i>sericea</i>	1(1-2)	11	1(1-1)	1
<i>Plantago varia</i>	1(1-2)	13	1(1-1)	2
<i>Poa meionectes</i>	2(1-2)	34	1(1-2)	16
<i>Poa sieberiana</i> var. <i>cyanophylla</i>	2(2-3)	30	1(1-2)	1
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-2)	26	1(1-2)	10
<i>Pomaderris prunifolia</i> var. <i>prunifolia</i>	1(1-4)	3	1(1-1)	<1
<i>Poranthera microphylla</i>	1(1-1)	27	1(1-1)	15
<i>Ranunculus lappaceus</i>	1(1-1)	6	1(1-1)	1
<i>Schoenus apogon</i>	1(1-1)	8	1(1-1)	2
<i>Scleranthus biflorus</i>	1(1-2)	15	1(1-1)	2
<i>Senecio diaschides</i>	1(1-1)	5	1(1-1)	1
<i>Senecio prenanthoides</i>	1(1-1)	36	1(1-1)	8
<i>Solenogyne dominii</i>	1(1-1)	10	1(1-1)	<1
<i>Solenogyne gunnii</i>	1(1-1)	13	1(1-1)	1
<i>Stackhousia monogyna</i>	1(1-1)	9	1(1-1)	2
<i>Stellaria pungens</i>	2(1-2)	18	1(1-1)	6
<i>Themeda australis</i>	1(1-1)	39	1(1-3)	17
<i>Thysanotus patersonii</i>	1(1-1)	7	1(1-1)	<1
<i>Tricoryne elatior</i>	1(1-2)	15	1(1-1)	3
<i>Veronica plebeia</i>	1(1-1)	43	1(1-1)	10
<i>Viola betonicifolia</i>	1(1-2)	30	1(1-1)	5
<i>Wahlenbergia communis</i>	1(1-1)	8	1(1-1)	2
<i>Wahlenbergia gracilis</i>	1(1-1)	34	1(1-1)	10
<i>Wahlenbergia luteola</i>	1(1-2)	4	1(1-2)	1
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	27	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Dichondra</i> spp.	1(1-2)	30	1(1-2)	25
<i>Lomandra longifolia</i>	1(1-2)	38	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	33	1(1-1)	25

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	2(1-2)	2	2(1-3)	8
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	2(2-2)	1	2(1-3)	1
<i>Eucalyptus blakelyi</i> X <i>dealbata</i>	3(1-3)	2	3(3-3)	<1
<i>Eucalyptus elata</i>	2(1-3)	2	2(1-3)	5
<i>Eucalyptus eugenioides</i>	2(1-3)	6	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus globoidea</i>	3(1-4)	4	2(1-2)	12
<i>Eucalyptus goniocalyx</i>	3(1-3)	2	1(1-3)	1
<i>Eucalyptus pauciflora</i>	1(1-3)	7	1(1-2)	3
<i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i>	1(1-1)	1	1(1-2)	<1
<i>Eucalyptus praecox</i>	1(1-1)	1	2(1-2)	<1
<i>Eucalyptus punctata</i>	4(3-4)	2	1(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(2-4)	12	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	4(3-4)	2	2(1-3)	4
<i>Eucalyptus smithii</i>	3(3-3)	2	1(1-2)	2
<i>Eucalyptus tereticornis</i>	1(1-3)	4	2(1-3)	7



Locations of survey sites allocated to GW p23. Grey shading indicates extant native vegetation cover within the study area.

GW p24: Tableland Grassy Box-Gum Woodland

Plate p24. Tableland Grassy Box-Gum Woodland (Map Unit p24) in Doughboy Travelling Stock Reserve at Manar. A canopy of *Eucalyptus rubida* subsp. *rubida* and *E. melliodora* is shown over a diverse grassy groundcover dominated by *Themeda australis* and *Joycea pallida*.

Sample Sites: 80

Area Extant (ha): 17900

Estimated % remaining: 10-25%

Area in conservation reserves (ha): 10

Estimated % of pre-clearing area in conservation reserves: <1%

No. taxa (total / unique): 299 / 3

No. taxa per plot (\pm sd): 28.4 (10.5)

Class: Southern Tableland Grassy Woodlands

Related TECs: includes areas matching White Box Yellow Box Blakely's Red Gum Woodland EEC (TSC); White Box-Yellow Box-Blakely's Red Gum Grassy Woodland CEEC and Natural Temperate Grasslands of the Southern Tablelands of NSW and the ACT EEC (EPBC).

Tableland Grassy Box-Gum Woodland (GW p24) is equivalent to GW 24 described by Tindall *et al.* (2004), and is a eucalypt woodland with a sparse shrub layer and grassy groundcover. It is found on undulating country on the tablelands between Hartley and Braidwood, and is likely to extend west of the study area. Tableland Grassy Box-Gum Woodland spans elevations from 600 to 900m ASL in areas receiving from 650 – 900mm average annual rainfall. It occurs on loamy soils derived predominantly from fine-grained sedimentary or acid-volcanic substrates, but is also found on granite soils near Hartley and between Woodhouselee and the Breadalbane Plains. Tableland Grassy Box-Gum Woodland is replaced by Tableland Hills Grassy Woodland (GW p23) with increasing topographic roughness, the latter unit being more extensively distributed closer to the coast. Tableland Grassy Box-Gum Woodland has been extensively cleared for pastoral land use. The remnants are distributed almost exclusively on freehold land and are subject to continuing small-scale clearing, grazing and weed invasion.

Floristic Summary:

Trees: *Eucalyptus melliodora*, *E. dives*, *E. macrorhyncha*. **Shrubs:** *Lissanthe strigosa*, *Melichrus urceolatus*.

Groundcover: *Lomandra filiformis* ssp. *coriacea*, *Themeda australis*, *Microlaena stipoides*, *Gonocarpus tetragynus*, *Hydrocotyle laxiflora*, *Poa sieberiana*, *Austrodanthonia racemosa*, *Goodenia hederacea*.

Vegetation structure:

Stratum	Frequency (n=66)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	97	16 (5.5)	21.8 (14.9)
Small tree	35	7.5 (2.4)	11.1 (10.4)
Shrub	58	1.5 (0.5)	7.6 (8.8)
Ground cover	98	0.4 (0.2)	45 (21.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 14 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 20 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 14 positive diagnostic species.

Positive Diagnostic Species:

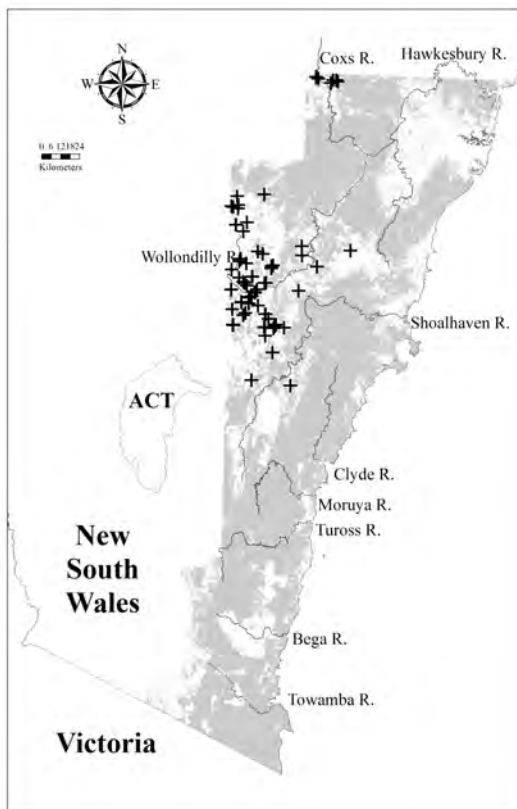
Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-1)	16	1(1-2)	5
<i>Acacia deanei</i> subsp. <i>paucijuga</i>	1(1-3)	6	1(1-3)	<1
<i>Acacia decurrens</i>	1(1-3)	21	1(1-1)	2
<i>Acacia genistifolia</i>	1(1-2)	18	1(1-1)	<1
<i>Acaena echinata</i>	1(1-1)	28	1(1-1)	2
<i>Acaena novae-zelandiae</i>	1(1-1)	18	1(1-1)	7
<i>Acaena ovina</i>	1(1-1)	8	1(1-1)	1
<i>Aristida jerichoensis</i> var. <i>jerichoensis</i>	1(1-2)	18	1(1-2)	<1
<i>Aristida ramosa</i>	1(1-2)	29	1(1-2)	5
<i>Asperula conferta</i>	1(1-1)	21	1(1-1)	4
<i>Austrostipa bigeniculata</i>	1(1-3)	8	1(1-2)	<1
<i>Austrodanthonia laevis</i>	2(1-3)	24	1(1-2)	1
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	2(1-2)	50	1(1-2)	5
<i>Austrostipa rudis</i>	2(2-3)	16	1(1-2)	6
<i>Austrostipa scabra</i>	2(1-2)	30	1(1-2)	1
<i>Austrodanthonia setacea</i>	1(1-1)	6	1(1-1)	<1
<i>Austrodanthonia tenuior</i>	2(1-2)	18	1(1-1)	2
<i>Bossiaea buxifolia</i>	1(1-2)	34	1(1-1)	3
<i>Bossiaea prostrata</i>	1(1-1)	14	1(1-1)	3
<i>Bothriochloa macra</i>	1(1-1)	13	1(1-2)	1
<i>Brachyloma daphnoides</i>	1(1-1)	19	1(1-1)	6
<i>Calocephalus citreus</i>	1(1-1)	8	1(1-1)	<1
<i>Cassinia arcuata</i>	1(1-1)	19	1(1-1)	<1
<i>Cassinia laevis</i>	1(1-1)	10	1(1-2)	1
<i>Cheilanthes sieberi</i>	1(1-1)	33	1(1-1)	14
<i>Chenopodium pumilio</i>	1(1-1)	8	1(1-1)	<1
<i>Chrysocephalum apiculatum</i>	1(1-1)	43	1(1-1)	2
<i>Chrysocephalum semipapposum</i>	1(1-2)	13	1(1-1)	1
<i>Convolvulus erubescens</i>	1(1-1)	8	1(1-1)	1
<i>Crassula sieberiana</i>	1(1-2)	11	1(1-1)	3
<i>Cryptandra amara</i>	1(1-2)	6	1(1-1)	1
<i>Cymbonotus lawsonianus</i>	1(1-1)	15	1(1-1)	1
<i>Cynoglossum australe</i>	1(1-1)	8	1(1-1)	2
<i>Daviesia genistifolia</i>	1(1-2)	8	1(1-1)	<1
<i>Daviesia latifolia</i>	1(1-3)	30	1(1-2)	1
<i>Dianella longifolia</i>	1(1-1)	14	1(1-1)	4
<i>Dianella revoluta</i> var. <i>revoluta</i>	2(1-2)	45	1(1-1)	15
<i>Dichelachne micrantha</i>	1(1-1)	31	1(1-1)	9
<i>Dillwynia phyllicoides</i>	1(1-2)	14	1(1-1)	1
<i>Dillwynia sericea</i>	1(1-2)	9	1(1-1)	2

<i>Einadia nutans</i>	1(1-1)	31	1(1-1)	2
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	31	1(1-1)	5
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	3(2-3)	8	2(1-3)	1
<i>Eucalyptus blakelyi</i>	3(1-3)	23	1(1-2)	<1
<i>Eucalyptus bridgesiana</i>	2(1-3)	29	1(1-3)	1
<i>Eucalyptus dives</i>	2(1-3)	33	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	1(1-3)	30	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-3)	15	2(1-3)	4
<i>Eucalyptus melliodora</i>	3(1-3)	38	1(1-3)	2
<i>Eucalyptus pauciflora</i>	3(1-3)	20	1(1-2)	3
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-3)	25	1(1-2)	1
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	24	1(1-1)	8
<i>Gonocarpus tetragynus</i>	1(1-2)	65	1(1-1)	20
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	49	1(1-2)	14
<i>Hibbertia obtusifolia</i>	1(1-1)	29	1(1-1)	10
<i>Hydrocotyle laxiflora</i>	1(1-2)	55	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-1)	39	1(1-1)	16
<i>Juncus filicaulis</i>	1(1-1)	10	1(1-1)	1
<i>Juncus subsecundus</i>	1(1-1)	10	1(1-1)	1
<i>Juncus usitatus</i>	1(1-1)	9	1(1-1)	2
<i>Leptorhynchus squamatus</i> subsp. <i>A</i>	1(1-1)	9	1(1-1)	<1
<i>Leucochrysum albicans</i> subsp. <i>albicans</i>	1(1-1)	9	1(1-1)	<1
<i>Lissanthe strigosa</i>	1(1-2)	46	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2(1-2)	90	1(1-2)	9
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	41	1(1-1)	25
<i>Melichrus urceolatus</i>	1(1-1)	43	1(1-1)	3
<i>Microlaena stipoides</i>	2(1-3)	76	1(1-2)	36
<i>Opercularia aspera</i>	1(1-1)	28	1(1-1)	8
<i>Opercularia hispida</i>	1(1-1)	13	1(1-1)	3
<i>Oxalis exilis</i>	1(1-1)	13	1(1-1)	3
<i>Oxalis perennans</i>	1(1-2)	39	1(1-1)	13
<i>Panicum effusum</i>	1(1-1)	18	1(1-1)	2
<i>Pimelea curviflora</i> var. <i>gracilis</i>	1(1-1)	8	1(1-1)	<1
<i>Pimelea curviflora</i> var. <i>sericea</i>	1(1-1)	21	1(1-1)	1
<i>Plantago debilis</i>	1(1-2)	19	1(1-1)	7
<i>Plantago gaudichaudii</i>	1(1-2)	19	1(1-1)	<1
<i>Plantago varia</i>	2(1-2)	10	1(1-1)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-3)	55	1(1-2)	10
<i>Pultenaea microphylla</i>	1(1-1)	14	1(1-1)	1
<i>Rumex brownii</i>	1(1-1)	19	1(1-1)	5
<i>Scleranthus biflorus</i>	1(1-1)	16	1(1-1)	2
<i>Solenogyne dominii</i>	1(1-1)	8	1(1-1)	<1
<i>Solenogyne gunnii</i>	1(1-1)	9	1(1-1)	1
<i>Stackhousia monogyna</i>	1(1-1)	10	1(1-1)	2
<i>Themeda australis</i>	2(1-3)	81	1(1-2)	17
<i>Tricoryne elatior</i>	1(1-1)	29	1(1-1)	3

<i>Wahlenbergia communis</i>	1(1-2)	13	1(1-1)	2
<i>Wahlenbergia graniticola</i>	1(1-1)	6	1(1-1)	<1
<i>Wahlenbergia luteola</i>	1(1-1)	10	1(1-2)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	3(3-3)	1	2(1-3)	8
<i>Eucalyptus aggregata</i>	3(3-3)	1	2(1-3)	<1
<i>Eucalyptus cinerea</i>	2(1-2)	3	1(1-2)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	3(3-3)	3	1(1-2)	3
<i>Eucalyptus eugenioides</i>	4(1-4)	3	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-2)	3	2(1-2)	12
<i>Eucalyptus polyanthemos</i> subsp. <i>polyanthemos</i>	1(1-1)	1	1(1-2)	<1
<i>Eucalyptus rossii</i>	3(1-3)	5	3(1-3)	2
<i>Eucalyptus stellulata</i>	3(1-3)	3	1(1-2)	1
<i>Eucalyptus tereticornis</i>	3(3-3)	1	2(1-3)	7
<i>Eucalyptus viminalis</i>	3(1-3)	11	2(1-3)	4



Locations of survey sites allocated to GW p24. Grey shading indicates extant native vegetation cover within the study area.

DSF p27: Bungonia Slates Woodland

Plate p27. Bungonia Slates Woodland (Map Unit p27) on Old Timberlight Road northwest of Nerriga. A sparse canopy dominated by *Eucalyptus bosistoana* and *E. macrorhyncha*, subcanopy of *Acacia deanei* and *E. cinerea*, shrub layer dominated by *Cassinia uncata* and a very sparse groundcover.

Sample Sites: 19

Area Extant (ha): 21200

Estimated % remaining: 85-95%

Area in conservation reserves (ha): 9200

Estimated % of pre-clearing area in conservation reserves: 30-50%

No. taxa (total / unique): 155 / 2

No. taxa per plot (\pm sd): 27.8 (7.5)

Class: Central Gorge Dry Sclerophyll Forests

Related TEC: n/a

Bungonia Slates Woodland (DSF p27) represents a slight revision of DSF 27 described by Tindall *et al.* (2004), with the addition of some recent sites from the Bungonia area. This unit is a dry eucalypt woodland with a sparse understorey of shrubs and grasses, restricted to mid-upper slopes in the Shoalhaven and Endrick gorges between Tallong and Nerriga. It is found almost exclusively on soils derived from Ordovician metasediments, at 320–570m elevation and within a mean annual rainfall range of 700–770mm. At higher elevations Bungonia Slates Woodland is replaced by Eastern Tablelands Dry Forest (DSF p10) or, less frequently, Western Tablelands Dry Forest (DSF p14). At lower elevations in the Shoalhaven Gorge it grades into Wollondilly-Cox-Shoalhaven Gorge Woodland (DSF p35). Little clearing of Bungonia Slates Woodland has taken place due to the steep terrain, and much of this woodland is within conservation reserves.

Floristic Summary:

Trees: *Eucalyptus bosistoana*, *E. macrorhyncha*. **Shrubs:** *Olearia viscidula*, *Lissanthe strigosa*, *Cassinia uncata*, *Daviesia leptophylla*. **Climbers:** *Clematis microphylla*. **Groundcover:** *Dianella revoluta*, *Lomandra filiformis*, *L. multiflora*, *Goodenia hederacea*, *Senecio* sp. E, *Hydrocotyle laxiflora*, *Opercularia varia*, *Notodanthonia longifolia*.

Vegetation structure:

Stratum	Frequency (n=18)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	89	19.2 (4)	18.7 (8.5)
Small tree	56	6.3 (2.5)	11.2 (13.8)
Shrub	50	1.7 (0.5)	12.2 (8.3)
Ground cover	89	0.4 (0.3)	12.8 (11.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 9 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 22 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 9 positive diagnostic species.

Positive Diagnostic Species:

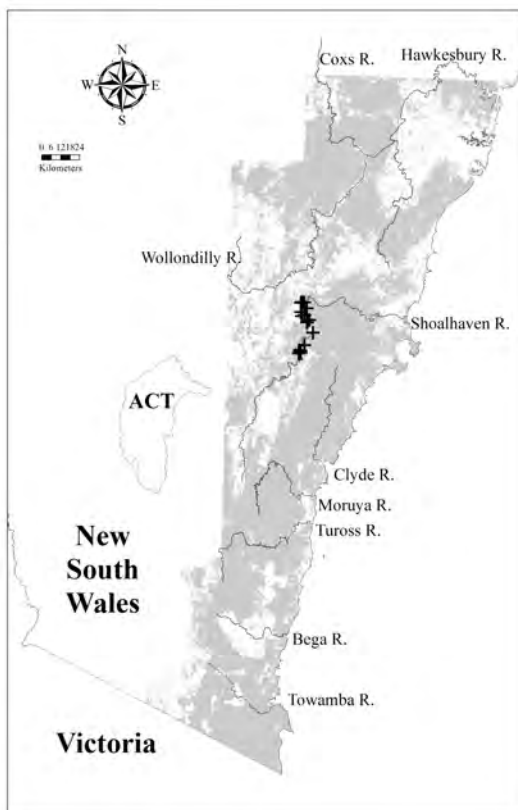
Species	C/A	Freq	C/A O	Freq O
<i>Acacia deanei</i> subsp. <i>paucijuga</i>	3(1-3)	21	1(1-3)	<1
<i>Acacia parramattensis</i>	1(1-2)	32	1(1-2)	4
<i>Cassinia aculeata</i>	1(1-1)	32	1(1-1)	6
<i>Cassinia uncata</i>	2(1-3)	37	1(1-1)	<1
<i>Clematis microphylla</i> var. <i>leptophylla</i>	1(1-1)	37	1(1-1)	<1
<i>Crassula sieberiana</i>	1(1-1)	32	1(1-1)	3
<i>Daviesia leptophylla</i>	1(1-2)	47	1(1-1)	2
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	79	1(1-1)	15
<i>Einadia hastata</i>	1(1-1)	26	1(1-1)	3
<i>Einadia nutans</i>	1(1-1)	21	1(1-1)	3
<i>Eucalyptus agglomerata</i>	1(1-2)	37	2(1-3)	7
<i>Eucalyptus bosistoana</i>	1(1-2)	68	1(1-2)	3
<i>Eucalyptus cinerea</i>	1(1-1)	21	1(1-2)	1
<i>Eucalyptus macrorhyncha</i>	2(1-2)	37	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-3)	21	2(1-3)	4
<i>Eucalyptus melliodora</i>	1(1-2)	26	1(1-3)	2
<i>Galium gaudichaudii</i>	1(1-1)	21	1(1-1)	3
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	84	1(1-2)	14
<i>Hydrocotyle laxiflora</i>	1(1-1)	47	1(1-1)	16
<i>Lepidosperma gunnii</i>	1(1-1)	37	1(1-1)	5
<i>Lissanthe strigosa</i>	1(1-1)	63	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	89	1(1-2)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	68	1(1-1)	25
<i>Melichrus urceolatus</i>	1(1-1)	26	1(1-1)	4
<i>Notodanthonia longifolia</i>	1(1-1)	37	1(1-2)	5
<i>Olearia viscidula</i>	1(1-2)	79	1(1-2)	5
<i>Opercularia varia</i>	1(1-1)	68	1(1-1)	2
<i>Pultenaea microphylla</i>	1(1-1)	21	1(1-1)	1
<i>Senecio prenanthoides</i>	1(1-1)	63	1(1-1)	8
<i>Stellaria pungens</i>	1(1-1)	32	1(1-1)	6
<i>Veronica plebeia</i>	1(1-1)	42	1(1-1)	10
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	26	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Bursaria spinosa</i>	1(1-1)	32	1(1-2)	14
<i>Cheilanthes sieberi</i>	1(1-1)	32	1(1-1)	14
<i>Eucalyptus globoidea</i>	2(1-2)	32	2(1-2)	12
<i>Hardenbergia violacea</i>	1(1-1)	37	1(1-1)	17
<i>Lomandra longifolia</i>	1(1-1)	47	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-2)	37	1(1-2)	36
<i>Persoonia linearis</i>	1(1-1)	32	1(1-1)	29
<i>Pomax umbellata</i>	1(1-1)	32	1(1-1)	14
<i>Wahlenbergia gracilis</i>	1(1-1)	32	1(1-1)	11

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	4(1-4)	11	2(1-3)	1
<i>Eucalyptus blaxlandii</i>	1(1-1)	5	1(1-3)	1
<i>Eucalyptus bridgesiana</i>	1(1-1)	11	1(1-3)	1
<i>Eucalyptus dives</i>	1(1-1)	16	2(1-3)	4
<i>Eucalyptus eugenioides</i>	1(1-1)	5	2(1-3)	4
<i>Eucalyptus imitans</i>	1(1-1)	5	1(1-3)	<1
<i>Eucalyptus moluccana</i>	1(1-1)	5	3(1-3)	2
<i>Eucalyptus rossii</i>	3(1-3)	11	3(1-3)	2
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-1)	5	1(1-2)	2
<i>Eucalyptus tereticornis</i>	2(1-2)	16	2(1-3)	7



Locations of survey sites allocated to DSF p27. Grey shading indicates extant native vegetation cover within the study area.

GW p28: Cumberland Shale Hills Woodland

Plate p28. Cumberland Shale Hills Woodland (Map Unit p28) with a canopy of *Eucalyptus crebra*, an understorey of *Acacia implexa*, *Myoporum montanum* and *Bursaria spinosa*, and a characteristically sparse groundcover.

Sample Sites: 44

Area Extant (ha): 4400

Estimated % remaining: 10-25%

Area in conservation reserves (ha): 210

Estimated % of pre-clearing area in conservation reserves: <2%

No. taxa (total / unique): 240 / 3

No. taxa per plot (\pm sd): 37.7 (8.7)

Class: Coastal Valley Grassy Woodlands

Related TECs: included within Cumberland Plain Woodland EEC (TSC) and Cumberland Plain Woodlands EEC (EPBC).

Cumberland Shale Hills Woodland (GW p28) is equivalent to GW 29 described by Tindall *et al.* (2004). This unit is a eucalypt woodland with an open shrub layer and grassy groundcover, restricted to clay-loam soils derived from Wianamatta Shale on the southern half of the Cumberland Plain, western Sydney. Cumberland Shale Hills Woodland is closely related to Cumberland Shale Plains Woodland (GW p29) but typically occurs on steeper and more undulating terrain. It is found from 50 – 350m ASL in areas receiving 750 – 900mm mean annual rainfall. In steep, sheltered locations Cumberland Shale Hills Woodland grades into Cumberland Moist Shale Woodland (GW p514) or Grey Myrtle Dry Rainforest (RF p38). Cumberland Shale Hills Woodland, also described by Tozer (2003), has been extensively cleared for agriculture and continues to be threatened by urban and industrial development, grazing, high frequency fire and weed invasion.

Floristic Summary:

Trees: *Acacia implexa*, *Eucalyptus moluccana*, *E. tereticornis*. **Shrubs:** *Bursaria spinosa*, *Rubus parvifolius*.

Climbers: *Clematis glycinoides*, *Glycine tabacina*. **Groundcover:** *Dichondra repens*, *Brunoniella australis*, *Desmodium gunnii*, *Aristida ramosa*, *Microlaena stipoides*, *Carex inversa*, *Themeda australis*, *Cyperus gracilis*, *Dichelachne micrantha*, *Asperula conferta*, *Oxalis perennans*, *Cheilanthes sieberi*, *Desmodium brachypodium*, *Sporobolus creber*, *Wahlenbergia gracilis*.

Vegetation structure:

Stratum	Frequency (n=44)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	2	18 (-)	2 (-)
Tree canopy	100	23.6 (6.2)	18.7 (9)
Small tree	89	8.6 (4.1)	22.8 (17.4)
Shrub	41	2.3 (0.7)	12.4 (12.3)
Ground cover	100	1 (0.1)	46.6 (24)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 20 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 31 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 20 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia implexa</i>	1(1-2)	66	1(1-1)	6
<i>Ajuga australis</i>	1(1-2)	30	1(1-1)	3
<i>Aristida ramosa</i>	2(1-3)	82	1(1-2)	5
<i>Arthropodium milleflorum</i>	1(1-2)	45	1(1-1)	5
<i>Asperula conferta</i>	1(1-1)	64	1(1-1)	3
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-2)	34	1(1-2)	6
<i>Austrodanthonia tenuior</i>	1(1-3)	20	1(1-2)	2
<i>Bothriochloa macra</i>	1(1-1)	30	1(1-2)	1
<i>Brunoniella australis</i>	2(1-2)	82	2(1-2)	3
<i>Brunoniella pumilio</i>	2(1-2)	20	1(1-1)	4
<i>Bursaria spinosa</i>	3(3-4)	86	1(1-2)	14
<i>Carex inversa</i>	1(1-2)	64	1(1-1)	3
<i>Cheilanthes distans</i>	1(1-1)	34	1(1-1)	2
<i>Cheilanthes sieberi</i>	1(1-1)	59	1(1-1)	14
<i>Chloris truncata</i>	1(1-1)	27	1(1-1)	<1
<i>Chloris ventricosa</i>	2(1-2)	50	1(1-1)	1
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	34	1(1-1)	10
<i>Commelina cyanea</i>	1(1-2)	20	1(1-1)	4
<i>Crassula sieberiana</i>	1(1-1)	20	1(1-1)	3
<i>Cymbopogon refractus</i>	1(1-2)	30	1(1-1)	4
<i>Cyperus gracilis</i>	2(1-2)	59	1(1-1)	2
<i>Desmodium brachypodum</i>	1(1-1)	52	1(1-1)	2
<i>Desmodium varians</i>	2(1-2)	82	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	27	1(1-1)	4
<i>Dichelachne micrantha</i>	1(1-2)	66	1(1-1)	9
<i>Dichondra</i> spp.	2(1-2)	98	1(1-2)	25
<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>	1(1-1)	20	1(1-1)	<1
<i>Echinopogon ovatus</i>	1(1-2)	50	1(1-1)	14
<i>Einadia hastata</i>	1(1-2)	20	1(1-1)	3
<i>Einadia nutans</i>	1(1-1)	36	1(1-1)	3
<i>Einadia trigonos</i>	1(1-1)	23	1(1-1)	1
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	23	1(1-1)	5
<i>Eragrostis leptostachya</i>	1(1-1)	30	1(1-1)	4
<i>Eremophila debilis</i>	1(1-2)	30	1(1-1)	1
<i>Eucalyptus crebra</i>	3(1-3)	30	2(1-3)	3
<i>Eucalyptus moluccana</i>	3(2-3)	77	3(1-3)	2
<i>Eucalyptus tereticornis</i>	3(2-3)	66	2(1-3)	7
<i>Euchiton sphaericus</i>	1(1-1)	50	1(1-1)	3
<i>Fimbristylis dichotoma</i>	1(1-1)	18	1(1-1)	1
<i>Galium propinquum</i>	1(1-1)	34	1(1-1)	7

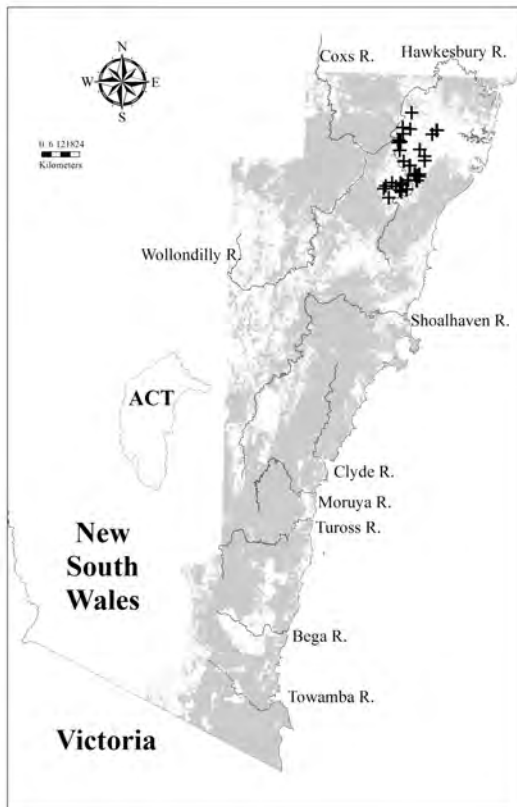
<i>Geranium homeanum</i>	1(1-2)	20	1(1-1)	3
<i>Glycine microphylla</i>	1(1-2)	34	1(1-1)	5
<i>Glycine tabacina</i>	1(1-2)	55	1(1-1)	7
<i>Hypericum gramineum</i>	1(1-1)	41	1(1-1)	16
<i>Hypoxis hygrometrica</i>	1(1-1)	23	1(1-1)	1
<i>Microlaena stipoides</i>	2(1-3)	75	1(1-2)	36
<i>Oplismenus aemulus</i>	2(1-3)	18	1(1-2)	5
<i>Oxalis perennans</i>	1(1-2)	59	1(1-1)	13
<i>Paspalidium distans</i>	1(1-1)	20	1(1-2)	3
<i>Phyllanthus virgatus</i>	1(1-1)	18	1(1-1)	1
<i>Plantago debilis</i>	1(1-2)	20	1(1-1)	7
<i>Plectranthus parviflorus</i>	1(1-2)	30	1(1-1)	8
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-3)	45	1(1-2)	12
<i>Rubus parvifolius</i>	1(1-1)	25	1(1-1)	9
<i>Rumex brownii</i>	1(1-1)	18	1(1-1)	5
<i>Scleria mackaviensis</i>	1(1-3)	30	1(1-2)	<1
<i>Scutellaria humilis</i>	1(1-1)	18	1(1-1)	1
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-1)	18	1(1-1)	3
<i>Sida corrugata</i>	1(1-1)	45	1(1-2)	<1
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	23	1(1-1)	7
<i>Solanum prinophyllum</i>	1(1-1)	32	1(1-1)	6
<i>Solanum pungetium</i>	1(1-1)	18	1(1-1)	6
<i>Sporobolus creber</i>	1(1-1)	52	1(1-1)	1
<i>Sporobolus elongatus</i>	1(1-1)	23	1(1-1)	1
<i>Themeda australis</i>	2(1-3)	70	1(1-3)	17
<i>Tricoryne elatior</i>	1(1-1)	20	1(1-1)	3
<i>Veronica plebeia</i>	1(1-1)	27	1(1-1)	10
<i>Wahlenbergia gracilis</i>	1(1-1)	48	1(1-1)	11

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Glycine clandestina</i>	1(1-2)	41	1(1-1)	26

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	2(2-2)	2	1(1-2)	9
<i>Corymbia maculata</i>	4(4-4)	2	2(1-3)	3
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	3(3-3)	2	2(1-3)	1
<i>Eucalyptus eugenioides</i>	1(1-2)	7	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	5	2(1-3)	3



Locations of survey sites allocated to GW p28. Grey shading indicates extant native vegetation cover within the study area.

GW p29: Cumberland Shale Plains Woodland



Plate p29. Cumberland Shale Plains Woodland (Map Unit p29) with a canopy of *Eucalyptus tereticornis*, an understorey of *Acacia parramattensis* and *Bursaria spinosa* and a dense grassy groundcover including *Microlaena stipoides* var. *stipoides*, *Themeda australis* and *Aristida ramosa*.

Sample Sites: 150
 Area Extant (ha): 6800
 Estimated % remaining: 5-25%
 Area in conservation reserves (ha): 560
 Estimated % of pre-clearing area in conservation reserves: <2%
 No. taxa (total / unique): 364 / 3

No. taxa per plot (\pm sd): 39.3 (10.1)

Class: Coastal Valley Grassy Woodlands

Related TECs: included within Cumberland Plain Woodland EEC (TSC) and Cumberland Plain Woodlands EEC (EPBC).

Cumberland Shale Plains Woodland (GW p29) is equivalent to GW 29 described by Tindall *et al.* (2004), and is a eucalypt woodland with an open shrub layer and grassy groundcover. It occurs on clay-loam soils derived from Wianamatta shale and is restricted to the Cumberland Plain, western Sydney. Cumberland Shale Plains Woodland is primarily found below 150m ASL but may occur on flat terrain up to 300m ASL. It lies in a coastal rainshadow receiving 750 – 950 mm mean annual rainfall. Cumberland Shale Plains Woodland grades into Cumberland Shale Hills Woodland (GW p28) as elevation and topographic roughness increase in the southern half of the Cumberland Plain. Towards the margins of the plain Cumberland Shale Plains Woodland grades into Cumberland Shale Sandstone Transition Forest as the depth of the underlying sandstone strata decreases. Cumberland Shale Plains Woodland shares some species with Castlereagh Shale-Gravel Transition Forest (DSF p502), which occurs on shale soils with a high concentration of iron-indurated gravel or overlain by Tertiary alluvium. Cumberland Shale Plains Woodland, also described by Tozer (2003), was extensively cleared for the rural and urban development of western Sydney. The remaining stands are small fragments threatened by continued clearing, degradation, weed invasion and high fire frequency. A few occurrences are represented within conservation reserves, such as Scheyville National Park.

Floristic Summary:

Trees: *Eucalyptus moluccana*, *E. tereticornis*. **Shrubs:** *Bursaria spinosa*. **Climbers:** *Glycine tabacina*, *G. clandestina*.

Groundcover: *Dichondra repens*, *Cheilanthes sieberi*, *Aristida vagans*, *Microlaena stipoides*, *Themeda australis*, *Brunoniella australis*, *Desmodium gunnii*, *Opercularia diphylla*, *Wahlenbergia gracilis*, *Dichelachne micrantha*, *Paspalidium distans*, *Eragrostis leptostachya*, *Lomandra filiformis*, *L. multiflora*, *Dianella longifolia*, *Oxalis perennans*, *Euchiton sphaericus*, *Goodenia hederacea*, *Aristida ramosa*, *Arthropodium milleflorum*, *Austrodanthonia tenuior*, *Cymbopogon refractus*, *Echinopogon caespitosus*.

Vegetation structure:

Stratum	Frequency (n=136)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	2	24.7 (5)	3.7 (1.2)
Tree canopy	100	20.9 (5)	18.7 (9.9)
Small tree	75	9.4 (3.9)	18.2 (15.2)
Shrub	65	2.5 (0.6)	14.4 (12.2)
Ground cover	99	0.9 (0.2)	47.3 (22.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 26 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 31 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 26 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia decurrens</i>	1(1-2)	25	1(1-1)	2
<i>Acacia falcata</i>	1(1-1)	13	1(1-1)	1
<i>Acacia implexa</i>	1(1-2)	15	1(1-1)	6
<i>Acacia parramattensis</i>	1(1-2)	22	1(1-2)	4
<i>Ajuga australis</i>	1(1-1)	15	1(1-1)	3
<i>Amyema gaudichaudii</i>	1(1-2)	3	1(1-1)	<1
<i>Amyema miquelii</i>	1(1-1)	2	1(1-1)	<1
<i>Angophora subvelutina</i>	3(2-3)	5	2(1-3)	<1
<i>Aristida ramosa</i>	1(1-2)	51	1(1-2)	4
<i>Aristida vagans</i>	2(1-2)	80	1(1-1)	7
<i>Arthropodium milleflorum</i>	1(1-2)	33	1(1-1)	5
<i>Arthropodium minus</i>	1(1-1)	5	1(1-1)	1
<i>Asperula conferta</i>	1(1-1)	26	1(1-1)	3
<i>Astroloma humifusum</i>	1(1-1)	12	1(1-1)	4

<i>Austrodanthonia fulva</i>	2(1-2)	7	1(1-2)	2
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-2)	26	1(1-2)	5
<i>Austrodanthonia tenuior</i>	1(1-2)	32	1(1-1)	2
<i>Bossiaea prostrata</i>	1(1-1)	15	1(1-1)	2
<i>Bothriochloa decipiens</i>	1(1-2)	7	1(1-2)	<1
<i>Bothriochloa macra</i>	1(1-1)	12	1(1-2)	1
<i>Breynia oblongifolia</i>	1(1-1)	21	1(1-1)	12
<i>Brunoniella australis</i>	2(1-2)	81	1(1-2)	2
<i>Bursaria spinosa</i>	3(2-3)	93	1(1-2)	13
<i>Caesia parviflora</i>	1(1-2)	19	1(1-1)	2
<i>Calotis cuneifolia</i>	1(1-2)	5	1(1-2)	<1
<i>Calotis dentex</i>	2(1-3)	7	1(1-2)	1
<i>Carex inversa</i>	1(1-1)	20	1(1-1)	3
<i>Centella asiatica</i>	1(1-2)	21	1(1-1)	4
<i>Centaurium spicatum</i>	1(1-1)	4	1(1-1)	<1
<i>Cheilanthes distans</i>	1(1-1)	7	1(1-1)	2
<i>Cheilanthes sieberi</i>	2(1-2)	87	1(1-1)	13
<i>Chloris truncata</i>	1(1-2)	5	1(1-1)	<1
<i>Chloris ventricosa</i>	1(1-2)	17	1(1-2)	1
<i>Chorizema parviflorum</i>	1(1-1)	5	1(1-1)	<1
<i>Commelina cyanea</i>	1(1-1)	21	1(1-1)	4
<i>Cymbopogon refractus</i>	1(1-2)	41	1(1-1)	4
<i>Cynodon dactylon</i>	1(1-2)	10	1(1-2)	1
<i>Cyperus enervis</i>	1(1-2)	2	1(1-1)	<1
<i>Cyperus gracilis</i>	1(1-1)	15	1(1-2)	2
<i>Cyperus laevis</i>	1(1-1)	4	1(1-1)	1
<i>Daviesia ulicifolia</i>	1(1-2)	24	1(1-1)	6
<i>Desmodium brachypodium</i>	1(1-1)	18	1(1-1)	2
<i>Desmodium rhytidophyllum</i>	1(1-1)	9	1(1-1)	1
<i>Desmodium varians</i>	1(1-2)	79	1(1-1)	20
<i>Dianella longifolia</i>	1(1-1)	51	1(1-1)	4
<i>Dichelachne micrantha</i>	1(1-2)	65	1(1-1)	8
<i>Dichopogon fimbriatus</i>	1(1-2)	3	1(1-1)	<1
<i>Dichondra</i> spp.	2(2-2)	93	1(1-2)	24
<i>Dichelachne parva</i>	1(1-1)	12	1(1-1)	1
<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>	1(1-1)	3	1(1-1)	<1
<i>Dichopogon strictus</i>	1(1-1)	5	1(1-1)	<1
<i>Digitaria diffusa</i>	1(1-1)	5	1(1-1)	<1
<i>Digitaria parviflora</i>	1(1-1)	12	1(1-1)	2
<i>Digitaria ramularis</i>	1(1-1)	9	1(1-1)	1
<i>Dillwynia sieberi</i>	1(1-2)	23	1(1-1)	1
<i>Dodonaea viscosa</i> subsp. <i>cuneata</i>	1(1-1)	11	1(1-2)	<1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-2)	38	1(1-1)	6
<i>Echinopogon ovatus</i>	1(1-2)	38	1(1-1)	13
<i>Einadia hastata</i>	1(1-1)	27	1(1-1)	3
<i>Einadia nutans</i>	1(1-1)	9	1(1-1)	3

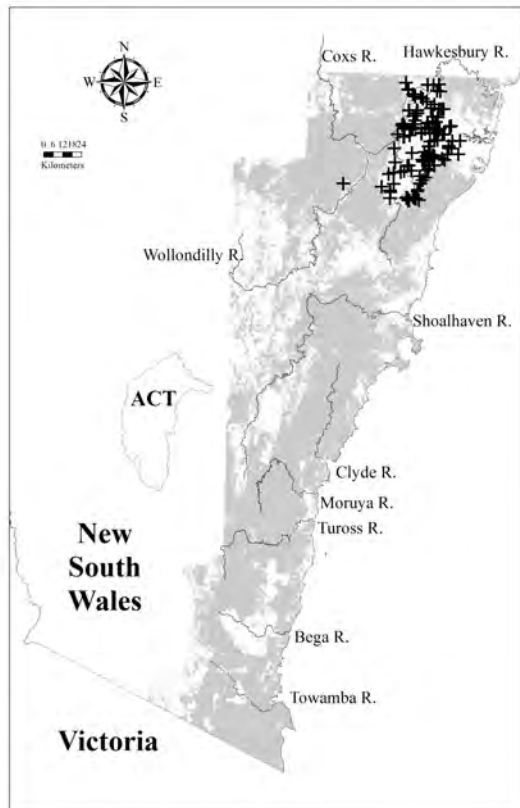
<i>Einadia polygonoides</i>	1(1-2)	4	1(1-2)	<1
<i>Einadia trigonos</i>	1(1-1)	12	1(1-1)	1
<i>Entolasia marginata</i>	1(1-1)	28	1(1-1)	11
<i>Eragrostis brownii</i>	1(1-2)	25	1(1-1)	3
<i>Eragrostis leptostachya</i>	1(1-1)	61	1(1-1)	3
<i>Eragrostis parviflora</i>	1(1-1)	2	1(1-1)	<1
<i>Eremophila debilis</i>	1(1-1)	27	1(1-1)	<1
<i>Eriochloa pseudoacrotricha</i>	1(1-1)	5	1(1-1)	<1
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	3(1-3)	4	2(1-3)	1
<i>Eucalyptus crebra</i>	3(1-3)	32	2(1-3)	3
<i>Eucalyptus eugenioides</i>	1(1-3)	25	2(1-3)	4
<i>Eucalyptus fibrosa</i>	2(1-3)	14	2(1-3)	3
<i>Eucalyptus moluccana</i>	3(1-3)	61	3(1-3)	1
<i>Eucalyptus tereticornis</i>	3(1-3)	71	2(1-3)	6
<i>Euchiton sphaericus</i>	1(1-1)	37	1(1-1)	3
<i>Exocarpos cupressiformis</i>	1(1-1)	20	1(1-1)	5
<i>Fimbristylis dichotoma</i>	1(1-1)	20	1(1-1)	<1
<i>Glossogyne tannensis</i>	1(1-1)	6	1(1-2)	<1
<i>Glycine clandestina</i>	1(1-2)	48	1(1-1)	26
<i>Glycine microphylla</i>	1(1-2)	37	1(1-1)	4
<i>Glycine tabacina</i>	1(1-2)	63	1(1-1)	6
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	41	1(1-2)	14
<i>Grevillea juniperina</i>	1(1-2)	3	2(1-2)	<1
<i>Hardenbergia violacea</i>	1(1-2)	37	1(1-1)	17
<i>Hibbertia diffusa</i>	1(1-2)	19	1(1-1)	3
<i>Hypericum gramineum</i>	1(1-1)	31	1(1-1)	16
<i>Hypoxis hygrometrica</i>	1(1-1)	28	1(1-1)	1
<i>Hypoxis pratensis</i> var. <i>pratensis</i>	1(1-1)	4	1(1-1)	<1
<i>Indigofera australis</i>	1(1-1)	17	1(1-1)	9
<i>Juncus usitatus</i>	1(1-1)	21	1(1-1)	2
<i>Lachnagrostis aemula</i>	1(1-2)	2	1(1-1)	<1
<i>Lachnagrostis filiformis</i>	1(1-1)	18	1(1-1)	3
<i>Lagenifera gracilis</i>	1(1-1)	13	1(1-1)	3
<i>Laxmannia gracilis</i>	1(1-1)	19	1(1-1)	3
<i>Leucopogon juniperinus</i>	1(1-2)	18	1(1-1)	5
<i>Linum marginale</i>	2(1-2)	3	1(1-1)	<1
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	2(1-2)	43	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	47	1(1-1)	24
<i>Maytenus silvestris</i>	1(1-2)	3	1(1-1)	1
<i>Melaleuca decora</i>	1(1-3)	15	3(1-3)	1
<i>Melaleuca styphelioides</i>	1(1-3)	5	2(1-3)	2
<i>Mentha diemenica</i>	1(1-2)	6	1(1-1)	1
<i>Microlaena stipoides</i>	3(2-3)	93	1(1-2)	35
<i>Murdannia graminea</i>	1(1-1)	3	1(1-1)	<1
<i>Opercularia diphylla</i>	1(1-2)	67	1(1-1)	6
<i>Oplismenus aemulus</i>	1(1-2)	21	1(1-2)	5

<i>Oxalis exilis</i>	1(1-1)	12	1(1-1)	3
<i>Oxalis perennans</i>	1(1-2)	52	1(1-1)	12
<i>Ozothamnus diosmifolius</i>	1(1-1)	33	1(1-1)	8
<i>Panicum effusum</i>	1(1-1)	17	1(1-1)	2
<i>Panicum simile</i>	1(1-1)	28	1(1-1)	6
<i>Paspalidium distans</i>	2(1-2)	67	1(1-2)	2
<i>Paspalidium albobillosum</i>	2(1-3)	2	2(1-3)	<1
<i>Paspalidium aversum</i>	1(1-1)	2	1(1-1)	<1
<i>Phyllanthus virgatus</i>	1(1-1)	26	1(1-1)	<1
<i>Pimelea curviflora</i> var. <i>subglabrata</i>	1(1-3)	3	2(1-3)	<1
<i>Pimelea spicata</i>	2(1-3)	2	1(1-1)	<1
<i>Plantago debilis</i>	1(1-2)	19	1(1-1)	7
<i>Plantago gaudichaudii</i>	1(1-2)	5	1(1-2)	1
<i>Polymeria calycina</i>	1(1-1)	10	1(1-1)	1
<i>Polygala japonica</i>	1(1-1)	5	1(1-1)	<1
<i>Poranthera microphylla</i>	1(1-1)	36	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	47	1(1-1)	17
<i>Pultenaea microphylla</i>	1(1-2)	7	1(1-1)	1
<i>Scaevola albida</i> var. <i>albida</i>	1(1-2)	3	1(1-2)	<1
<i>Scleria mackaviensis</i>	1(1-1)	4	1(1-2)	<1
<i>Scutellaria humilis</i>	1(1-2)	4	1(1-1)	1
<i>Senecio hispidulus</i> var. <i>dissectus</i>	1(1-1)	2	1(1-1)	<1
<i>Solanum prinophyllum</i>	1(1-1)	43	1(1-1)	6
<i>Solenogyne bellioides</i>	1(1-1)	3	1(1-1)	<1
<i>Sorghum leiocladum</i>	1(1-2)	4	1(1-1)	<1
<i>Sporobolus creber</i>	1(1-1)	15	1(1-1)	1
<i>Sporobolus elongatus</i>	1(1-1)	16	1(1-1)	<1
<i>Stackhousia muricata</i>	1(1-2)	3	1(1-1)	<1
<i>Stackhousia viminea</i>	1(1-1)	41	1(1-1)	2
<i>Themeda australis</i>	3(2-3)	85	1(1-2)	16
<i>Tricoryne elatior</i>	1(1-1)	40	1(1-1)	2
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-2)	35	1(1-1)	4
<i>Veronica plebeia</i>	1(1-1)	40	1(1-1)	10
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	1(1-1)	5	1(1-1)	1
<i>Vittadinia pustulata</i>	1(1-2)	3	1(1-1)	<1
<i>Wahlenbergia communis</i>	1(1-1)	7	1(1-1)	2
<i>Wahlenbergia gracilis</i>	1(1-1)	59	1(1-1)	10
<i>Wurmbea dioica</i> subsp. <i>dioica</i>	1(1-1)	8	1(1-1)	<1
<i>Zornia dyctiocarpa</i> var. <i>dyctiocarpa</i>	1(1-1)	6	1(1-1)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	3(1-3)	1	1(1-2)	2
<i>Angophora floribunda</i>	1(1-2)	11	1(1-2)	9
<i>Corymbia maculata</i>	3(2-4)	5	2(1-3)	3
<i>Eucalyptus acmenoides</i>	4(4-4)	1	2(1-2)	<1

<i>Eucalyptus baueriana</i>	3(1-3)	1	2(1-2)	1
<i>Eucalyptus bosistoana</i>	3(3-3)	1	1(1-2)	3
<i>Eucalyptus longifolia</i>	1(1-3)	2	1(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	1	1(1-2)	3
<i>Eucalyptus punctata</i>	2(1-3)	5	1(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	3(3-3)	1	1(1-2)	1



Locations of survey sites allocated to GW p29. Grey shading indicates extant native vegetation cover within the study area.

FoW p30: South Coast River Flat Forest

Plate p30. South Coast River Flat Forest (Map Unit p30) at Cullendulla Creek Nature Reserve, north Batemans Bay, with a canopy dominated by *Eucalyptus tereticornis* and scattered *Banksia integrifolia* and a dense groundcover dominated by *Lomandra longifolia*, *Carex longibrachiata* and *Oplismenus imbecillis*.

Sample Sites: 39

Area Extant (ha): 8400

Estimated % remaining: 50-65%

Area in conservation reserves (ha): 1600

Estimated % of pre-clearing area in conservation reserves: <15%

No. taxa (total / unique): 324 / 2

No. taxa per plot (\pm sd): 42.7 (16.1)

Class: transitional between Coastal Floodplain Wetland and Eastern Riverine Forest.

Related TEC: includes areas of River Flat Eucalypt Forest on Coastal Floodplains EEC (TSC).

South Coast River Flat Forest (FoW p30) represents a revision and extension of FoW 30 identified by Tindall *et al.* (2004), based on classification of a larger sample pool over a wider study area. The revised FoW p30 includes additional sites classified by Beukers (undated) as Riparian Eucalypt Forest and as Coastal Alluvial Flats Forest.

South Coast River Flat Forest is an open eucalypt forest with an open understorey of small trees, scattered shrubs and dense groundcover of grasses and forbs. It occurs from Wandandian south to the Bega River on sandy alluvial flats, on floodplain margins and in riverine corridors, most extensively below 100m ASL but also found up to 300m ASL. Annual average rainfall across the distribution typically ranges from 900 – 1200mm, and, less frequently, as low as 800mm. Examples occur on Calymea, Tomerong, Croobyar, Cullendulla, Billa Bilba, Dignams and Wapengo Creeks, along the Clyde, Deua/Moruya, Tomaga, Tuross and Murrah River systems, and on the margins of Longvale Swamp, Brunderee, Mummuga and Tilba Tilba Lakes and Nelson Lagoon. On floodplains and coastal flats with increasing soil moisture this unit may be replaced by South Coast Swamp Woodland (GW p3) or Southeast Floodplain Wetlands (FrW e60), or in slightly saline areas by Floodplain Swamp Forest (FoW p105). In riparian areas with coarser, more gravelly alluvium, often at higher elevations and subject to higher velocity flows, this unit tends to be replaced by Riverbank Forest (FoW p32).

South Coast River Flat Forest has been targeted by localised clearing for livestock grazing. Its riparian habitat is exposed to weed invasion where upstream pastures provide a source of propagules.

Floristic Summary:

Trees: *Eucalyptus elata*, *Angophora floribunda*. **Shrubs:** *Rubus parvifolius*, *Breynia oblongifolia*, *Hymenanthera dentata*, *Acacia mearnsii*. **Climbers:** *Glycine clandestina*, *Stephania japonica*. **Groundcover:** *Microlaena stipoides*, *Dichondra* spp., *Lomandra longifolia*, *Carex longibrachiata*, *Pteridium esculentum*, *Adiantum aethiopicum*, *Oplismenus aemulus*, *Pratia purpurascens*, *Echinopogon ovatus*, *Entolasia marginata*, *Stellaria flaccida*, *Desmodium varians*, *Hydrocotyle laxiflora*.

Vegetation structure:

Stratum	Frequency (n=25)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	88	26.7 (7)	22.7 (11.2)
Small tree	80	11.2 (3.5)	22.7 (18.7)
Shrub	20	2.8 (0.4)	7 (4.5)
Ground cover	100	1.2 (0.4)	73.1 (27.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 30 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 16 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1(1-2)	26	1(1-1)	2
<i>Acacia mearnsii</i>	1(1-2)	41	1(1-2)	7
<i>Adiantum aethiopicum</i>	1(1-1)	62	1(1-2)	9
<i>Angophora floribunda</i>	1(1-2)	28	1(1-2)	9
<i>Babingtonia pluriflora</i>	1(1-2)	23	1(1-1)	1
<i>Breynia oblongifolia</i>	1(1-1)	54	1(1-1)	12
<i>Carex appressa</i>	1(1-1)	21	1(1-1)	4
<i>Carex longebrachiata</i>	1(1-2)	79	1(1-2)	3
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	2(1-3)	21	3(1-3)	1
<i>Centella asiatica</i>	1(1-1)	36	1(1-1)	4
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	31	1(1-1)	10
<i>Cyathea australis</i>	1(1-1)	26	1(1-2)	8
<i>Desmodium varians</i>	1(1-1)	59	1(1-1)	21
<i>Dichondra</i> spp.	1(1-1)	85	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-1)	56	1(1-1)	14
<i>Entolasia marginata</i>	1(1-1)	59	1(1-1)	11
<i>Eucalyptus elata</i>	2(1-2)	28	2(1-3)	5
<i>Eucalyptus tereticornis</i>	2(1-3)	23	2(1-3)	7
<i>Eustrephus latifolius</i>	1(1-1)	46	1(1-1)	19
<i>Gahnia melanocarpa</i>	1(1-1)	38	1(1-1)	5
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	33	1(1-1)	8
<i>Glycine clandestina</i>	1(1-1)	82	1(1-1)	26
<i>Hibbertia scandens</i>	1(1-1)	26	1(1-1)	5
<i>Hydrocotyle laxiflora</i>	1(1-1)	51	1(1-1)	15
<i>Hymenanthera dentata</i>	1(1-1)	44	1(1-1)	6
<i>Hypolepis glandulifera</i>	1(1-2)	21	1(1-1)	1
<i>Hypolepis muelleri</i>	1(1-2)	31	1(1-2)	1
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-1)	44	1(1-2)	10
<i>Juncus usitatus</i>	1(1-1)	21	1(1-1)	2
<i>Lomandra longifolia</i>	1(1-2)	79	1(1-1)	44
<i>Microlaena stipoides</i>	2(1-2)	87	1(1-2)	36
<i>Morinda jasminoides</i>	1(1-1)	36	1(1-2)	9
<i>Oplismenus aemulus</i>	1(1-2)	51	1(1-2)	5

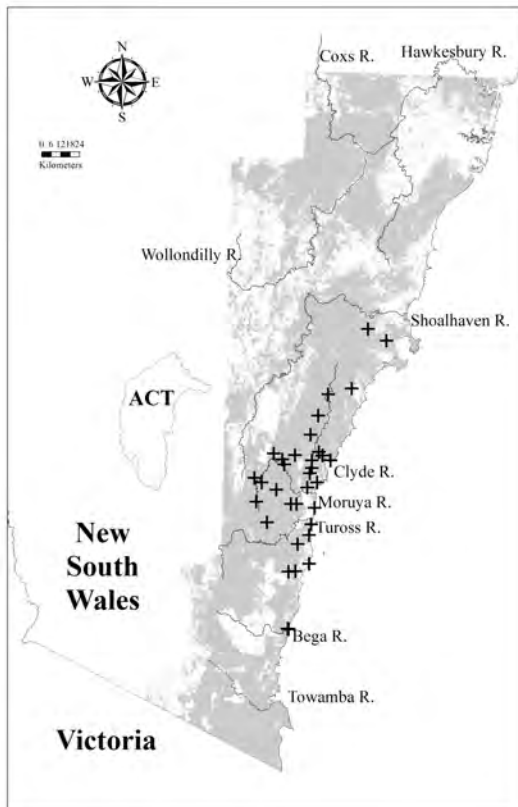
<i>Oplismenus imbecillis</i>	1(1-2)	59	1(1-2)	14
<i>Parsonsia straminea</i>	1(1-1)	33	1(1-1)	7
<i>Pellaea falcata</i>	1(1-1)	44	1(1-2)	10
<i>Pittosporum revolutum</i>	1(1-1)	26	1(1-1)	8
<i>Plectranthus parviflorus</i>	1(1-1)	23	1(1-1)	8
<i>Pratia purpurascens</i>	1(1-1)	72	1(1-1)	17
<i>Prostanthera lasianthos</i>	1(1-1)	21	1(1-1)	2
<i>Pseuderanthemum variabile</i>	1(1-1)	41	1(1-2)	9
<i>Pteridium esculentum</i>	2(1-2)	74	1(1-2)	37
<i>Rapanea howittiana</i>	1(1-1)	44	1(1-1)	5
<i>Rubus parvifolius</i>	1(1-1)	62	1(1-1)	9
<i>Schelhammera undulata</i>	1(1-1)	23	1(1-1)	7
<i>Senecio linearifolius</i>	1(1-1)	26	1(1-1)	8
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	26	1(1-1)	7
<i>Solanum pungetium</i>	1(1-1)	41	1(1-1)	5
<i>Stellaria flaccida</i>	1(1-1)	54	1(1-1)	10
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	46	1(1-1)	7
<i>Tylophora barbata</i>	1(1-1)	38	1(1-1)	17
<i>Veronica plebeia</i>	1(1-1)	28	1(1-1)	10
<i>Viola hederacea</i>	1(1-2)	44	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	2(1-2)	46	1(1-2)	34
<i>Geitonoplesium cymosum</i>	1(1-1)	31	1(1-1)	16

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia maculata</i>	1(1-2)	13	2(1-3)	3
<i>Eucalyptus angophoroides</i>	2(1-2)	5	1(1-2)	1
<i>Eucalyptus baueriana</i>	2(2-2)	3	2(1-2)	1
<i>Eucalyptus bosistoana</i>	1(1-1)	3	1(1-2)	3
<i>Eucalyptus botryoides</i>	3(1-3)	10	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	1(1-1)	8	2(1-2)	10
<i>Eucalyptus globoidea</i>	1(1-2)	10	2(1-2)	12
<i>Eucalyptus longifolia</i>	2(1-2)	8	1(1-2)	2
<i>Eucalyptus muelleriana</i>	1(1-1)	3	2(1-2)	6
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-2)	10	1(1-2)	3
<i>Eucalyptus piperita</i>	2(2-2)	5	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	3	2(1-3)	6
<i>Eucalyptus robusta</i>	2(2-2)	3	3(1-3)	<1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	2(2-4)	13	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	2(2-2)	3	1(1-2)	1
<i>Eucalyptus smithii</i>	3(3-3)	3	1(1-2)	2
<i>Eucalyptus viminalis</i>	2(2-2)	5	2(1-3)	5
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	3	2(1-3)	8



Locations of survey sites allocated to FoW p30. Grey shading indicates extant native vegetation cover within the study area.

FoW p31: Burragorang River Flat Forest



Plate p31. Burragorang River Flat Forest (Map Unit p31) on Orange tree Flat on Little River at Nattai. *Eucalyptus deanei* and *E. tereticornis* grow above a sub canopy of *Acacia maidenii*, *Lomatia myricoides* and *Cassinia cunninghamii*, and a diverse groundcover dominated by *Lomandra longifolia* and *Pteridium esculentum*.

Sample Sites: 16
 Area Extant (ha): 1900
 Estimated % remaining: >95%
 Area in conservation reserves (ha): 1800
 Estimated % of pre-clearing area in conservation reserves: >90%
 No. taxa (total / unique): 239 / 0
 No. taxa per plot (\pm sd): 42.6 (10.1)

Class: Eastern Riverine Forests

Related TEC: includes areas of River Flat Eucalypt Forest on Coastal Floodplains EEC (TSC); may include Sun Valley Cabbage Gum Forest EEC (TSC).

Burratorang River Flat Forest (FoW p31) is equivalent to FoW 31 identified by Tindall *et al.* (2004). This unit is a tall eucalypt forest with an open shrub layer and dense groundcover of grasses and forbs, occurring on sheltered valley flats along major streams emptying into Lake Burratorang, including the Wollondilly, Nattai and Kedumba rivers. This unit occupies sandy alluvium derived from surrounding Permian Shoalhaven Group sediments and Triassic Narrabeen and Hawkesbury sandstones, on sites between 100m and 200m ASL where mean annual rainfall is 800-950mm. Low-elevation stands were drowned during the flooding of Lake Burratorang, but the remaining unflooded area is largely intact.

Floristic Summary:

Trees: *Eucalyptus deanei*, *E. eugenioides*. **Shrubs:** *Rubus parvifolius*, *Leptospermum polygalifolium*, *Acacia* spp., *Breynia oblongifolia*. **Climbers:** *Glycine clandestina*, *Clematis aristata*. **Groundcover:** *Lomandra longifolia*, *Pratia purpurascens*, *Pteridium esculentum*, *Adiantum aethiopicum*, *Gahnia aspera*, *Imperata cylindrica*, *Cheilanthes sieberi*, *Dichondra* spp., *Veronica plebeia*, *Entolasia marginata*, *Oplismenus aemulus*, *Poranthera microphylla*.

Vegetation structure:

Stratum	Frequency (n=14)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	7	22 (-)	5 (-)
Tree canopy	100	31.1 (7.9)	33.9 (12.1)
Small tree	93	11.5 (4.3)	26.5 (16.6)
Shrub	36	2.5 (0.9)	24 (12.4)
Ground cover	100	0.9 (0.2)	75.4 (14.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 12 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 35 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 12 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia filicifolia</i>	3(3-3)	44	1(1-2)	<1
<i>Acacia parramattensis</i>	1(1-3)	44	1(1-2)	4
<i>Adiantum aethiopicum</i>	1(1-2)	75	1(1-1)	9
<i>Breynia oblongifolia</i>	1(1-1)	44	1(1-1)	12
<i>Calochlaena dubia</i>	1(1-3)	38	1(1-3)	9
<i>Carex breviculmis</i>	1(1-1)	44	1(1-1)	4
<i>Carex longebrachiata</i>	3(3-4)	25	1(1-2)	4
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	3(1-3)	38	3(1-3)	1
<i>Centella asiatica</i>	1(1-3)	31	1(1-1)	4
<i>Cheilanthes sieberi</i>	1(1-1)	63	1(1-1)	14
<i>Dichondra</i> spp.	2(1-3)	63	1(1-2)	25
<i>Entolasia marginata</i>	2(1-3)	56	1(1-1)	11
<i>Eucalyptus benthamii</i>	3(3-3)	38	2(1-3)	<1
<i>Eucalyptus deanei</i>	3(1-4)	50	3(1-3)	1
<i>Eucalyptus eugenioides</i>	3(1-3)	50	2(1-3)	4
<i>Eucalyptus tereticornis</i>	3(3-4)	31	2(1-3)	7
<i>Gahnia aspera</i>	1(1-3)	69	1(1-1)	4
<i>Gahnia melanocarpa</i>	1(1-3)	31	1(1-1)	5
<i>Galium propinquum</i>	1(1-2)	31	1(1-1)	7
<i>Glycine clandestina</i>	1(1-1)	75	1(1-1)	26

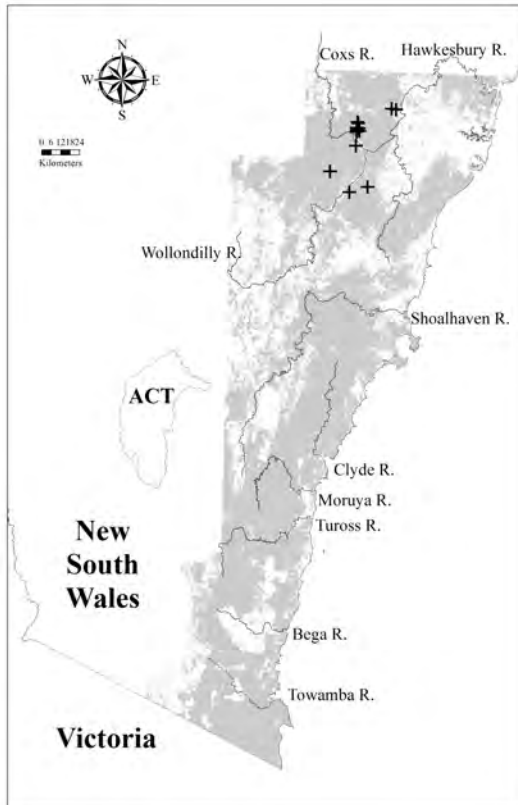
<i>Hydrocotyle peduncularis</i>	1(1-3)	44	1(1-1)	9
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-3)	69	1(1-2)	10
<i>Leptospermum polygalifolium</i>	2(1-3)	50	1(1-2)	8
<i>Lomandra longifolia</i>	2(1-3)	100	1(1-1)	44
<i>Melaleuca linariifolia</i>	1(1-3)	38	1(1-2)	1
<i>Melaleuca styphelioides</i>	3(3-3)	38	2(1-3)	2
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	31	1(1-1)	8
<i>Oplismenus aemulus</i>	3(1-3)	50	1(1-2)	5
<i>Oxalis exilis</i>	1(1-1)	44	1(1-1)	3
<i>Poranthera microphylla</i>	1(1-2)	50	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	88	1(1-1)	17
<i>Pteridium esculentum</i>	3(1-3)	81	1(1-2)	37
<i>Rubus parvifolius</i>	1(1-1)	75	1(1-1)	9
<i>Veronica plebeia</i>	1(1-1)	63	1(1-1)	10

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-3)	31	1(1-2)	9
<i>Billardiera scandens</i>	1(1-1)	50	1(1-1)	28
<i>Clematis aristata</i>	1(1-1)	50	1(1-1)	20
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-3)	31	1(1-1)	10
<i>Dianella caerulea</i>	1(1-1)	38	1(1-1)	28
<i>Echinopogon ovatus</i>	1(1-1)	31	1(1-1)	14
<i>Entolasia stricta</i>	1(1-2)	56	1(1-2)	34
<i>Geitonoplesium cymosum</i>	1(1-1)	31	1(1-1)	16
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	31	1(1-1)	10
<i>Hydrocotyle laxiflora</i>	1(1-3)	38	1(1-1)	16
<i>Lepidosperma laterale</i>	1(1-3)	50	1(1-1)	29
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	44	1(1-1)	25
<i>Microlaena stipoides</i>	4(3-5)	31	1(1-2)	36
<i>Persoonia linearis</i>	1(1-1)	50	1(1-1)	29
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	31	1(1-1)	13
<i>Tylophora barbata</i>	1(1-3)	31	1(1-1)	17

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	3(1-3)	13	1(1-2)	2
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	4(4-4)	6	2(1-3)	1
<i>Eucalyptus crebra</i>	3(1-3)	13	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	3(3-3)	6	2(1-2)	10
<i>Eucalyptus elata</i>	4(4-4)	6	2(1-3)	5
<i>Eucalyptus fibrosa</i>	1(1-1)	19	2(1-3)	3
<i>Eucalyptus piperita</i>	3(3-3)	6	2(1-3)	9
<i>Eucalyptus punctata</i>	1(1-1)	13	2(1-3)	9
<i>Eucalyptus sclerophylla</i>	1(1-1)	6	2(1-3)	4



Locations of survey sites allocated to FoW p31. Grey shading indicates extant native vegetation cover within the study area.

FoW p32: Riverbank Forest



Plate p32. Riverbank Forest (Map Unit p32) on gravely alluvium along the Abercrombie River, in Abercrombie National Park. The canopy and understorey are dominated by *Casuarina cunninghamiana* while the patchy groundcover includes a variety of aquatic and semi-aquatic plants.

Sample Sites: 44
 Area Extant (ha): 9400
 Estimated % remaining: 60-85%
 Area in conservation reserves (ha): 3900
 Estimated % of pre-clearing area in conservation reserves: 25-45%
 No. taxa (total / unique): 331 / 0
 No. taxa per plot (\pm sd): 28.6 (12.6)

Class: Eastern Riverine Forests
Related TEC: n/a

Riverbank Forest (FoW p32) represents a revision and extension of FoW 32 identified by Tindall *et al.* (2004), based on classification of a larger sample pool over a larger study area. The revised unit includes additional sites classified by Keith & Bedward (1999) as Riverine Forest (unit 40) and by Beukers (undated) as Riparian She-Oak Forest.

Riverbank Forest is a distinctive tall River Oak forest with an open shrub layer and a dense or patchy groundcover of grasses and forbs. It is found on sand/gravel alluvium strewn with cobbles along swift-flowing reaches of streams, at elevations from 20-800m ASL. Riverbank Forest occurs widely across the study area along major streams including the Coss, Abercrombie, Wollondilly, Shoalhaven, Deua and Brogo River systems, and Araluen and Wandella Creeks. This Map Unit occurs on a range of substrates, however none of the sites assigned to this unit were located on Hawkesbury or Narrabeen Sandstones, where similar habitat is occupied by Sandstone Riparian Scrub (FoW p58). On less gravelly alluvium on the South Coast, FrW p32 may grade into South Coast River Flat Forest (FoW p30).

Some areas of Riverbank Forest have been cleared, although some regrowth has occurred. Its riparian habitat is susceptible to weed invasion and degradation where livestock are unconstrained. Significant examples are represented within the Warragamba Special Area along the Wollondilly and Kowmung Rivers, and in Abercrombie River, Tarlo River and Morton National Parks.

Floristic Summary:

Trees: *Casuarina cunninghamiana*. **Shrubs:** *Hymenanchera dentata*, *Urtica incisa*. **Climbers:** *Stephania japonica*, *Pandorea pandorana*. **Groundcover:** *Microlaena stipoides*, *Lomandra longifolia*, *Oplismenus aemulus*, *Dichondra repens*.

Vegetation structure:

Stratum	Frequency (n=33)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	6	21 (5.7)	2 (-)
Tree canopy	100	27 (7.3)	35.5 (17.4)
Small tree	67	7.6 (3.7)	19.1 (16.2)
Shrub	45	2.5 (0.6)	15.1 (13)
Ground cover	94	0.8 (0.4)	56.4 (30.9)

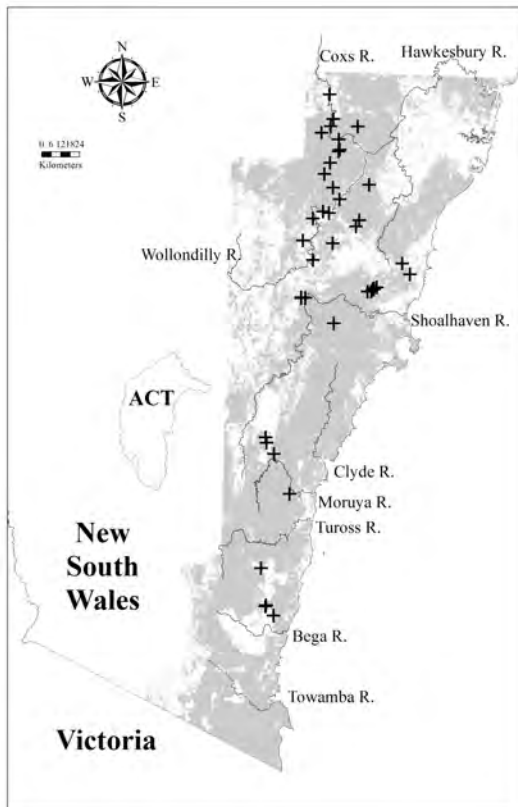
Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 7 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 19 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 7 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia floribunda</i>	1(1-2)	25	1(1-2)	2
<i>Acacia mearnsii</i>	2(1-2)	20	1(1-2)	7
<i>Adiantum aethiopicum</i>	1(1-2)	25	1(1-1)	9
<i>Austrocynoglossum latifolium</i>	1(1-2)	18	1(1-1)	1
<i>Backhousia myrtifolia</i>	1(1-2)	20	2(1-3)	5
<i>Cardamine paucijuga</i>	1(1-2)	18	1(1-1)	<1
<i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	3(3-4)	95	2(1-3)	1
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-2)	32	1(1-1)	10
<i>Commelina cyanea</i>	1(1-2)	27	1(1-1)	4
<i>Cynodon dactylon</i>	1(1-1)	25	1(1-2)	1
<i>Dichondra</i> spp.	1(1-2)	48	1(1-2)	25
<i>Entolasia marginata</i>	1(1-1)	34	1(1-1)	11
<i>Ficus coronata</i>	1(1-1)	36	1(1-2)	4
<i>Geranium homeanum</i>	1(1-1)	20	1(1-1)	3
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	32	1(1-1)	8
<i>Hymenanchera dentata</i>	2(1-2)	64	1(1-1)	6
<i>Juncus usitatus</i>	1(1-1)	18	1(1-1)	2
<i>Lomandra longifolia</i>	1(1-2)	68	1(1-1)	44

<i>Microlaena stipoides</i>	2(1-3)	86	1(1-2)	36
<i>Oplismenus aemulus</i>	1(1-2)	50	1(1-2)	5
<i>Oplismenus imbecillis</i>	1(1-1)	34	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	45	1(1-1)	18
<i>Pellaea falcata</i>	1(1-2)	36	1(1-1)	10
<i>Persicaria decipiens</i>	1(1-1)	23	1(1-1)	1
<i>Rumex brownii</i>	1(1-1)	32	1(1-1)	5
<i>Senecio linearifolius</i>	1(1-2)	30	1(1-1)	8
<i>Senecio minimus</i>	1(1-1)	18	1(1-1)	1
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	36	1(1-1)	7
<i>Stellaria flaccida</i>	1(1-3)	27	1(1-1)	10
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	57	1(1-1)	6
<i>Tristaniopsis laurina</i>	1(1-2)	23	1(1-3)	1
<i>Urtica incisa</i>	1(1-2)	41	1(1-1)	5
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Pteridium esculentum</i>	1(1-1)	39	1(1-2)	37
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-2)	11	1(1-2)	9
<i>Eucalyptus crebra</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus deanei</i>	5(5-5)	2	3(1-3)	1
<i>Eucalyptus elata</i>	1(1-1)	5	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	2	2(1-3)	4
<i>Eucalyptus maidenii</i>	2(2-2)	2	2(1-2)	2
<i>Eucalyptus melliodora</i>	1(1-1)	2	1(1-3)	2
<i>Eucalyptus quadrangulata</i>	2(2-2)	2	3(1-3)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-2)	9	2(1-3)	2
<i>Eucalyptus tereticornis</i>	2(1-2)	9	2(1-3)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	2	2(1-3)	8



Locations of survey sites allocated to FoW p32. Grey shading indicates extant native vegetation cover within the study area.

FoW p33: Cumberland River Flat Forest



Plate p33. Cumberland River Flat Forest (Map Unit p33) on a tributary of South Creek at Windsor Downs Nature Reserve. The canopy is dominated by *Eucalyptus tereticornis* and *Melaleuca styphelioides*, with a diverse groundcover including *Juncus* spp., *Cyperus* spp., *Eleocharis* spp. and *Carex* spp..

Sample Sites: 74

Area Extant (ha): 5300

Estimated % remaining: 5-20%

Area in conservation reserves (ha): 150

Estimated % of pre-clearing area in conservation reserves: <2%

No. taxa (total / unique): 356 / 2

No. taxa per plot (\pm sd): 34.9 (10.8)

Class: Coastal Floodplain Wetlands

Related TEC: River Flat Eucalypt Forest on Coastal Floodplains EEC (TSC).

Cumberland River Flat Forest (FoW p33) is equivalent to FoW 33 identified by Tindall *et al.* (2004), and is a woodland to open forest with open shrub layer and continuous groundcover of grasses and forbs. Its distribution is restricted to the Hawkesbury-Nepean and Georges River systems on the Cumberland Plain, on streambanks and alluvial flats draining soils derived from Wianamatta Shale. It occurs at altitudes from 1m to 160m ASL, where mean annual rainfall is in the range 750-900mm.

Cumberland River Flat Forest combines three units described by Tozer (2003) from the Cumberland Plain: 11 Alluvial Woodland; 5 Riparian Woodland; and 12 Riparian Forest. The original extent of Cumberland River Flat Forest has been greatly reduced by land clearing, and the remnants are small and threatened by weed invasion, rubbish dumping and other processes of degradation.

Floristic Summary:

Trees: *Eucalyptus tereticornis*, *Angophora floribunda*, *E. amplifolia*. **Shrubs:** *Acacia parramattensis*, *Bursaria spinosa*, *Sigesbeckia orientalis*. **Groundcover:** *Microlaena stipoides*, *Oplismenus aemulus*, *Dichondra* spp., *Entolasia marginata*, *Solanum prinophyllum*, *Pratia purpurascens*, *Echinopogon ovatus*, *Desmodium gunnii*, *Commelina cyanea*, *Veronica plebeia*.

Vegetation structure:

Stratum	Frequency (n=70)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	3	26 (5.7)	6.5 (4.9)
Tree canopy	100	23.2 (5.2)	23.3 (10.7)
Small tree	91	10.5 (4.4)	24.7 (18.2)
Shrub	49	2.6 (0.7)	10.9 (11)
Ground cover	99	1 (0.2)	62.4 (26.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 26 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 16 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia decurrens</i>	1(1-3)	18	1(1-1)	2
<i>Acacia floribunda</i>	1(1-2)	31	1(1-2)	2
<i>Acacia parramattensis</i>	2(1-3)	65	1(1-1)	4
<i>Adiantum aethiopicum</i>	2(1-2)	39	1(1-1)	9
<i>Alternanthera denticulata</i>	1(1-1)	11	1(1-1)	<1
<i>Angophora floribunda</i>	1(1-3)	41	1(1-2)	9
<i>Angophora subvelutina</i>	3(1-3)	11	2(1-3)	<1
<i>Arthropodium milleflorum</i>	1(1-1)	19	1(1-1)	5
<i>Austrostipa ramosissima</i>	2(1-2)	24	1(1-2)	1
<i>Breynia oblongifolia</i>	1(1-1)	38	1(1-1)	12
<i>Brunoniella australis</i>	2(1-2)	32	2(1-2)	4
<i>Bursaria spinosa</i>	2(1-3)	78	1(1-2)	14
<i>Caesia parviflora</i>	1(1-2)	9	1(1-1)	2
<i>Carex longibrachiata</i>	1(1-3)	12	1(1-2)	3
<i>Casuarina glauca</i>	3(1-4)	15	2(1-3)	1
<i>Cayratia clematidea</i>	1(1-2)	22	1(1-1)	2
<i>Centella asiatica</i>	1(1-2)	34	1(1-1)	4
<i>Cheilanthes sieberi</i>	1(1-1)	43	1(1-1)	14
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-2)	47	1(1-1)	9

<i>Commelina cyanea</i>	1(1-2)	46	1(1-1)	4
<i>Cynodon dactylon</i>	1(1-2)	14	1(1-2)	1
<i>Cyperus gracilis</i>	1(1-1)	18	1(1-2)	2
<i>Desmodium brachypodum</i>	1(1-2)	11	1(1-1)	3
<i>Desmodium varians</i>	1(1-1)	47	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	19	1(1-1)	4
<i>Dichondra spp.</i>	2(2-2)	85	1(1-2)	25
<i>Digitaria parviflora</i>	1(1-1)	12	1(1-1)	2
<i>Doodia caudata</i>	1(1-1)	11	1(1-1)	1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-2)	28	1(1-1)	6
<i>Echinopogon ovatus</i>	1(1-2)	59	1(1-1)	13
<i>Einadia hastata</i>	1(1-1)	30	1(1-1)	3
<i>Einadia trigonos</i>	1(1-2)	20	1(1-1)	1
<i>Entolasia marginata</i>	2(1-3)	82	1(1-1)	11
<i>Eragrostis leptostachya</i>	1(1-1)	35	1(1-1)	4
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	3(1-4)	31	1(1-3)	<1
<i>Eucalyptus eugenioides</i>	1(1-1)	19	2(1-3)	4
<i>Eucalyptus tereticornis</i>	3(1-3)	42	2(1-3)	7
<i>Euchiton sphaericus</i>	1(1-1)	11	1(1-1)	3
<i>Gahnia aspera</i>	1(1-2)	16	1(1-1)	4
<i>Galium propinquum</i>	1(1-1)	30	1(1-1)	7
<i>Glycine clandestina</i>	1(1-2)	45	1(1-1)	26
<i>Glycine microphylla</i>	1(1-2)	36	1(1-1)	5
<i>Glycine tabacina</i>	1(1-2)	41	1(1-1)	6
<i>Hibbertia diffusa</i>	1(1-2)	15	1(1-1)	3
<i>Hymenanthera dentata</i>	2(1-2)	18	1(1-1)	6
<i>Juncus usitatus</i>	1(1-1)	20	1(1-1)	2
<i>Lachnagrostis filiformis</i>	1(1-1)	14	1(1-1)	3
<i>Leucopogon juniperinus</i>	1(1-2)	18	1(1-1)	5
<i>Melaleuca linariifolia</i>	1(1-1)	14	1(1-2)	1
<i>Melaleuca styphelioides</i>	2(1-3)	9	2(1-3)	2
<i>Microlaena stipoides</i>	3(3-4)	99	1(1-2)	36
<i>Olearia viscidula</i>	1(1-1)	19	1(1-2)	5
<i>Oplismenus aemulus</i>	2(1-3)	89	1(1-2)	4
<i>Oxalis perennans</i>	2(1-2)	42	1(1-1)	13
<i>Ozothamnus diosmifolius</i>	1(1-2)	35	1(1-1)	8
<i>Paspalidium distans</i>	1(1-1)	15	1(1-2)	3
<i>Persicaria decipiens</i>	1(1-1)	8	1(1-1)	1
<i>Phyllanthus gunnii</i>	2(1-3)	14	1(1-1)	2
<i>Phyllanthus similis</i>	2(1-2)	16	1(1-1)	<1
<i>Plectranthus parviflorus</i>	1(1-2)	26	1(1-1)	7
<i>Poa affinis</i>	2(1-3)	11	1(1-2)	2
<i>Polymeria calycina</i>	1(1-1)	15	1(1-1)	1
<i>Poranthera microphylla</i>	1(1-2)	39	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	62	1(1-1)	17
<i>Rubus parvifolius</i>	1(1-1)	30	1(1-1)	9

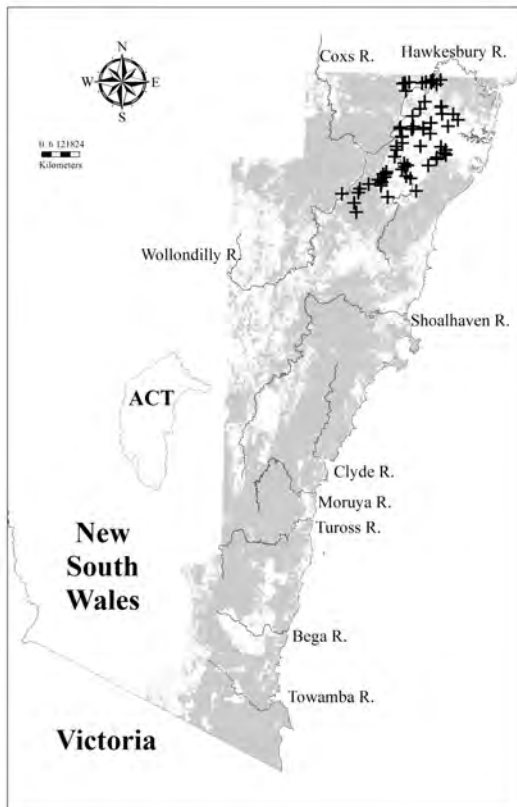
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-1)	12	1(1-1)	3
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-2)	49	1(1-1)	7
<i>Solanum prinophyllum</i>	1(1-1)	69	1(1-1)	6
<i>Trema tomentosa</i> var. <i>viridis</i>	1(1-2)	12	1(1-1)	1
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-1)	16	1(1-1)	4
<i>Veronica plebeia</i>	1(1-2)	49	1(1-1)	10
<i>Wahlenbergia gracilis</i>	1(1-1)	35	1(1-1)	10

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-2)	45	1(1-1)	44
<i>Pteridium esculentum</i>	2(1-3)	32	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	1(1-1)	1	1(1-2)	2
<i>Corymbia maculata</i>	3(3-3)	1	2(1-3)	3
<i>Eucalyptus baueriana</i>	3(2-4)	7	2(1-2)	1
<i>Eucalyptus benthamii</i>	2(1-3)	5	3(1-3)	<1
<i>Eucalyptus botryoides</i>	4(3-4)	4	2(1-3)	3
<i>Eucalyptus crebra</i>	1(1-3)	8	2(1-3)	3
<i>Eucalyptus deanei</i>	3(1-3)	5	3(1-3)	1
<i>Eucalyptus elata</i>	1(1-4)	12	2(1-2)	5
<i>Eucalyptus globoidea</i>	1(1-1)	5	2(1-2)	12
<i>Eucalyptus longifolia</i>	3(3-3)	1	1(1-2)	2
<i>Eucalyptus moluccana</i>	1(1-1)	5	3(1-3)	2
<i>Eucalyptus pilularis</i>	3(3-3)	3	2(1-3)	5
<i>Eucalyptus piperita</i>	1(1-1)	1	2(1-3)	9
<i>Eucalyptus punctata</i>	1(1-1)	9	2(1-3)	9
<i>Eucalyptus quadrangulata</i>	1(1-1)	1	3(1-3)	1
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(3-4)	7	2(1-3)	2
<i>Eucalyptus sclerophylla</i>	1(1-1)	3	2(1-3)	4
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(3-3)	1	2(1-3)	8



Locations of survey sites allocated to FoW p33. Grey shading indicates extant native vegetation cover within the study area.

GW p34: South Coast Grassy Woodland



Plate p34. South Coast Grassy Woodland (Map Unit p34) at Wisemans Park in Gwynneville, with *Eucalyptus tereticornis* and *Syncarpia glomulifera* subsp. *glomulifera* in the canopy, a sub canopy dominated by *Melaleuca stiphelioides*, *M. decora* and *Pittosporum undulatum*, and grassy groundcover dominated by *Themeda australis*, *Microlaena stipoides* var. *stipoides* and *Echinopogon caespitosus* var. *caespitosus*.

Sample Sites: 39

Area Extant (ha): 3100

Estimated % remaining: 15-30%

Area in conservation reserves (ha): 180

Estimated % of pre-clearing area in conservation reserves: <2%

No. taxa (total / unique): 290 / 2

No. taxa per plot (\pm sd): 39 (10.2)

Class: Coastal Valley Grassy Woodlands

Related TEC: Illawarra Lowlands Grassy Woodland EEC (TSC).

South Coast Grassy Woodland represents a modification and contraction of GW 34 identified by Tindall *et al.* (2004), based on a revised classification of a larger sample pool over a larger study area.

The revised GW p34 is a eucalypt woodland or open forest with an open shrub layer and a continuous grassy groundcover, found on lower slopes in coastal rainshadow valleys below 350m ASL, from Wollongong to Milton and west to Yalwal. These areas receive mean annual rainfall of 850-1500mm, and have loamy soils derived from a variety of substrates. South of Milton this unit is replaced in similar habitats by the closely-related Southeast Lowland Grassy Woodland (GW e20p229).

South Coast Grassy Woodland shares a number of species with grassy woodlands of the Cumberland Plain (GW p28 and GW p29) and far South Coast (GW e20p229), and with grassy forests of river flats (FrW p30-33) and gorges (Map Units DSF p35-37).

South Coast Grassy Woodland has been depleted throughout its range by land clearing. Remnants are generally small, located largely on freehold lands, and exposed to continuing attrition by overgrazing, frequent fire and small-scale clearing.

Floristic Summary:

Trees: *Eucalyptus tereticornis*, *E. eugenioides*. **Shrubs:** *Pittosporum undulatum*, *Breynia oblongifolia*, *Rapanea variabilis*. **Climbers:** *Geitonoplesium cymosum*, *Eustrephus latifolius*, *Glycine clandestina*, *Pandorea pandorana*.

Groundcover: *Dichondra* spp., *Desmodium gunnii*, *Microlaena stipoides*, *Oplismenus imbecillis*, *Carex longebrachiata*, *Poa labillardierei*, *Commelina cyanea*, *Pratia purpurascens*, *Themeda australis*.

Vegetation structure:

Stratum	Frequency (n=36)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	3	18 (-)	5 (-)
Tree canopy	100	20.8 (3.7)	33.5 (8.3)
Small tree	78	9 (3.5)	32.6 (22.3)
Shrub	50	2.3 (0.5)	19.8 (19.9)
Ground cover	100	0.8 (0.3)	63.8 (28.2)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 17 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 31 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

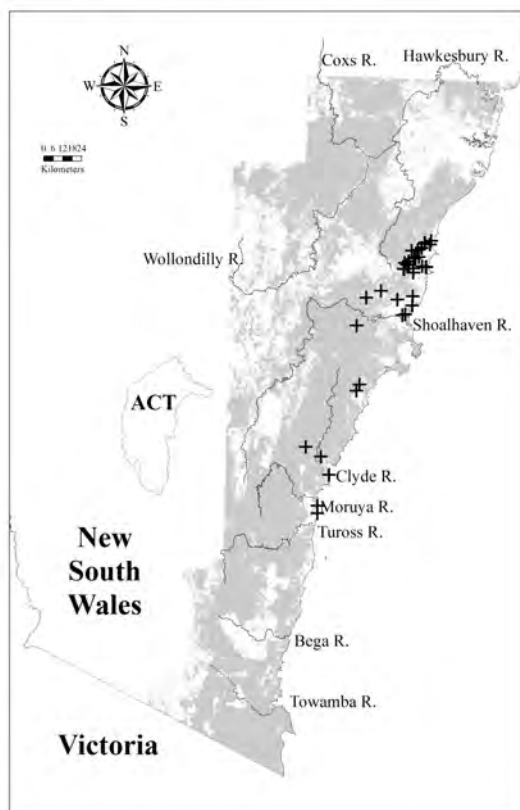
Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia implexa</i>	1(1-1)	28	1(1-1)	6
<i>Acacia maidenii</i>	1(1-1)	46	1(1-1)	2
<i>Angophora floribunda</i>	3(1-3)	26	1(1-2)	9
<i>Breynia oblongifolia</i>	1(1-1)	67	1(1-1)	12
<i>Carex longebrachiata</i>	2(2-3)	64	1(1-2)	3
<i>Cassine australis</i> var. <i>australis</i>	1(1-2)	21	1(1-3)	2
<i>Cayratia clematidea</i>	1(1-1)	21	1(1-1)	2
<i>Clerodendrum tomentosum</i>	1(1-1)	26	1(1-1)	5
<i>Commelina cyanea</i>	1(1-2)	62	1(1-1)	4
<i>Cymbopogon refractus</i>	1(1-1)	26	1(1-1)	4
<i>Cyperus imbecillis</i>	1(1-2)	23	1(1-1)	<1
<i>Cyperus laevis</i>	1(1-2)	31	1(1-1)	1
<i>Desmodium varians</i>	2(1-2)	72	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	21	1(1-1)	4
<i>Dichondra</i> spp.	2(1-2)	85	1(1-2)	25
<i>Diospyros australis</i>	1(1-1)	26	1(1-2)	3

<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	2(1-2)	21	1(1-1)	6
<i>Echinopogon ovatus</i>	2(1-2)	46	1(1-1)	14
<i>Entolasia marginata</i>	1(1-2)	46	1(1-1)	11
<i>Eragrostis leptostachya</i>	2(1-3)	33	1(1-1)	4
<i>Eucalyptus eugenioides</i>	3(1-3)	41	2(1-3)	4
<i>Eucalyptus tereticornis</i>	3(2-3)	90	2(1-3)	7
<i>Eustrephus latifolius</i>	1(1-1)	72	1(1-1)	19
<i>Galium propinquum</i>	1(1-1)	26	1(1-1)	7
<i>Geitonoplesium cymosum</i>	1(1-1)	87	1(1-1)	16
<i>Geranium homeanum</i>	1(1-1)	26	1(1-1)	3
<i>Glycine clandestina</i>	1(1-2)	59	1(1-1)	26
<i>Glycine microphylla</i>	1(1-2)	23	1(1-1)	5
<i>Glycine tabacina</i>	1(1-2)	33	1(1-1)	7
<i>Hibbertia scandens</i>	1(1-2)	38	1(1-1)	5
<i>Imperata cylindrica</i> var. <i>major</i>	2(1-2)	38	1(1-2)	10
<i>Indigofera australis</i>	1(1-1)	26	1(1-1)	9
<i>Leucopogon juniperinus</i>	1(1-2)	23	1(1-1)	5
<i>Maclura cochinchinensis</i>	1(1-1)	26	1(1-2)	1
<i>Marsdenia rostrata</i>	1(1-1)	41	1(1-2)	12
<i>Microlaena stipoides</i>	2(1-2)	79	1(1-2)	36
<i>Notelaea venosa</i>	1(1-2)	38	1(1-1)	12
<i>Oplismenus aemulus</i>	2(1-2)	41	1(1-2)	5
<i>Oplismenus imbecillis</i>	2(1-3)	77	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	74	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	33	1(1-1)	7
<i>Pittosporum multiflorum</i>	1(1-3)	23	1(1-2)	4
<i>Pittosporum revolutum</i>	1(1-1)	33	1(1-1)	8
<i>Pittosporum undulatum</i>	2(1-3)	67	1(1-1)	14
<i>Plectranthus parviflorus</i>	1(1-1)	28	1(1-1)	8
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(2-3)	64	1(1-2)	12
<i>Pratia purpurascens</i>	1(1-1)	49	1(1-1)	17
<i>Pseuderanthemum variabile</i>	2(1-2)	38	1(1-2)	9
<i>Rapanea variabilis</i>	1(1-2)	54	1(1-1)	3
<i>Rubus parvifolius</i>	1(1-1)	38	1(1-1)	9
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	33	1(1-1)	7
<i>Solanum prinophyllum</i>	1(1-1)	21	1(1-1)	6
<i>Streblus brunonianus</i>	1(1-1)	26	1(1-3)	1
<i>Themeda australis</i>	2(1-3)	49	1(1-3)	17
<i>Tylophora barbata</i>	1(1-2)	44	1(1-1)	17
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Lepidosperma laterale</i>	1(1-1)	31	1(1-1)	29
<i>Lomandra longifolia</i>	1(1-1)	49	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia maculata</i>	3(3-4)	10	2(1-3)	3
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	3	2(1-3)	1
<i>Eucalyptus bosistoana</i>	3(1-3)	10	1(1-2)	3
<i>Eucalyptus elata</i>	1(1-1)	3	2(1-3)	5
<i>Eucalyptus globoidea</i>	1(1-3)	8	2(1-2)	12
<i>Eucalyptus longifolia</i>	3(1-3)	5	1(1-2)	2
<i>Eucalyptus muelleriana</i>	3(3-3)	3	2(1-2)	6
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	4(1-4)	5	1(1-2)	3
<i>Eucalyptus pilularis</i>	4(1-4)	8	2(1-3)	5
<i>Eucalyptus punctata</i>	3(3-3)	5	1(1-3)	9
<i>Eucalyptus quadrangulata</i>	3(1-4)	13	3(1-3)	1
<i>Eucalyptus robusta</i>	3(3-3)	3	2(1-3)	<1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(3-3)	10	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-1)	5	1(1-2)	1
<i>Eucalyptus sparsifolia</i>	1(1-1)	3	2(1-3)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	4(3-4)	5	2(1-3)	8



Locations of survey sites allocated to GW p34. Grey shading indicates extant native vegetation cover within the study area.

DSF p35: Wollondilly-Cox-Shoalhaven Gorge Woodland

Plate p35. Wollondilly-Cox-Shoalhaven Gorge Woodland (Map Unit p35) on the Wollondilly Gorge, midway between Barrallier and Scabby Flat. The open tree canopy contains *Eucalyptus albens* and *E. tereticornis*, with dense shrub patches of *Olearia viscidula* and patchy grassy groundcover dominated by *Poa sieberiana* var. *sieberiana*.

Sample Sites: 99

Area Extant (ha): 41800

Estimated % remaining: 50-65%

Area in conservation reserves (ha): 14100

Estimated % of pre-clearing area in conservation reserves: 20-30%

No. taxa (total / unique): 422 / 3

No. taxa per plot (\pm sd): 44.9 (11.5)

Class: Central Gorge Dry Sclerophyll Forests.

Related TEC: may include areas matching White Box Yellow Box Blakely's Red Gum Woodland EEC (TSC).

Wollondilly-Cox-Shoalhaven Gorge Woodland (DSF p35) is equivalent to DSF 35 identified by Tindall *et al.* (2004). This unit is a dry eucalypt woodland with a mixed understorey of shrubs, forbs and grasses, found on loam and sandy loam soils on dry slopes within rocky gorges 150-700m ASL receiving 700-850mm annual rainfall. It is distributed around the Bannaby-Hanworth-Tomat area in dissected granite country, and in the lower Wollondilly River gorge where it is strongly associated with soils derived from Bindook Porphyry. It also extends to the Jenolan River (Hellgate Gorge) and Coxs River valleys on soils derived from Carboniferous granitic rocks, and in the Shoalhaven River gorge between Timberlight Creek and Greys Point, on Ordovician sediments.

Wollondilly-Cox-Shoalhaven Gorge Woodland intergrades extensively with DSF p36 and DSF p37 on granite and porphyry substrates to the northwest and southwest of Lake Burragorang. On these substrates Wollondilly-Cox-Shoalhaven Gorge Woodland occupies the driest parts of the landscape, but is replaced by DSF p37 in higher, moister areas, while DSF p36 is found at intermediate elevations and rainfall levels, generally associated with more exposed north- and west-facing footslopes and gullies.

Extensive areas of Wollondilly-Cox-Shoalhaven Gorge Woodland have been cleared for farms in the Coxs and Wollondilly River valleys, though examples remain on steeper terrain in Blue Mountains National Park.

Floristic Summary:

Trees: *Eucalyptus tereticornis*, *Brachychiton populneus*, *E. melliodora*. **Shrubs:** *Olearia viscidula*, *Bursaria spinosa*, *Lissanthe strigosa*. **Climbers:** *Glycine clandestina*, *Clematis aristata*. **Groundcover:** *Dichondra* spp., *Cheilanthes sieberi*, *Desmodium varians*, *Lomandra multiflora*, *L. longifolia*, *Aristida ramosa*, *Cheilanthes distans*, *Dichelachne micrantha*, *Microlaena stipoides*, *Desmodium brachypodum*, *Hypericum gramineum*, *Veronica plebeia*, *Wahlenbergia gracilis*.

Vegetation structure:

Stratum	Frequency (n=90)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	18.8 (4.4)	20.6 (10.6)
Small tree	60	8 (3.2)	12.2 (12.4)
Shrub	74	2.2 (0.6)	18 (14.2)
Ground cover	99	0.6 (0.3)	28.8 (20.9)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 26 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 36 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 26 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Abutilon oxycarpum</i> var. <i>oxycarpum</i>	1(1-2)	4	1(1-1)	<1
<i>Acacia falciformis</i>	1(1-1)	20	1(1-2)	10
<i>Acacia fimbriata</i>	1(1-3)	8	1(1-2)	<1
<i>Acacia implexa</i>	1(1-1)	38	1(1-1)	6
<i>Acacia parramattensis</i>	1(1-2)	19	1(1-2)	4
<i>Acacia penninervis</i> var. <i>penninervis</i>	1(1-2)	4	1(1-2)	<1
<i>Acaena echinata</i>	1(1-2)	9	1(1-1)	2
<i>Acaena ovina</i>	1(1-1)	8	1(1-1)	1
<i>Ajuga australis</i>	1(1-1)	13	1(1-1)	3
<i>Allocasuarina verticillata</i>	1(1-1)	19	1(1-2)	<1
<i>Aristida ramosa</i>	2(1-2)	59	1(1-2)	4
<i>Aristida vagans</i>	1(1-2)	23	1(1-2)	8
<i>Arthropodium milleflorum</i>	1(1-1)	40	1(1-1)	5
<i>Arthropodium minus</i>	1(1-2)	11	1(1-1)	1
<i>Asplenium flabellifolium</i>	1(1-2)	28	1(1-1)	11
<i>Astroloma humifusum</i>	1(1-1)	12	1(1-1)	4
<i>Austrodanthonia caespitosa</i>	1(1-2)	7	1(1-2)	1
<i>Austrodanthonia fulva</i>	2(1-2)	16	1(1-2)	2
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-2)	35	1(1-2)	5
<i>Austrostipa ramosissima</i>	1(1-2)	9	1(1-2)	1
<i>Austrostipa rudis</i>	1(1-2)	17	1(1-2)	6
<i>Austrostipa scabra</i>	1(1-2)	29	1(1-2)	1
<i>Austrostipa verticillata</i>	1(1-2)	12	1(1-1)	<1
<i>Bothriochloa macra</i>	2(1-2)	10	1(1-2)	1
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	1(1-1)	48	1(1-1)	2
<i>Brachyscome angustifolia</i>	1(1-2)	28	1(1-1)	2
<i>Brachyscome graminea</i>	1(1-1)	7	1(1-1)	<1
<i>Bursaria longisepala</i>	1(1-1)	11	1(1-1)	1
<i>Bursaria spinosa</i>	1(1-2)	63	1(1-2)	14
<i>Calotis lappulacea</i>	1(1-2)	37	1(1-1)	<1
<i>Carex breviculmis</i>	1(1-1)	19	1(1-1)	4
<i>Carex incomitata</i>	1(1-1)	4	1(1-1)	<1
<i>Cassinia aculeata</i>	2(1-3)	18	1(1-1)	6

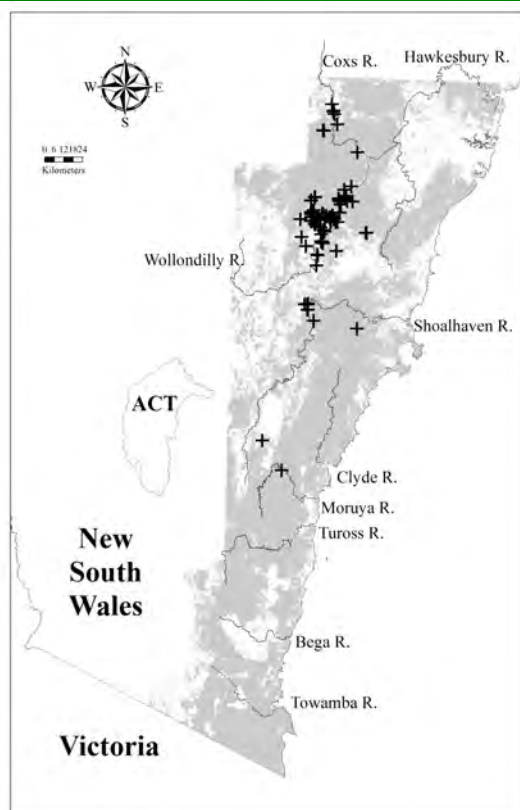
<i>Cassinia laevis</i>	1(1-2)	37	1(1-1)	1
<i>Cayratia clematidea</i>	1(1-2)	14	1(1-1)	2
<i>Cenchrus caliculatus</i>	1(1-1)	23	1(1-1)	1
<i>Centaureum spicatum</i>	1(1-2)	4	1(1-1)	<1
<i>Cheilanthes austrotenuifolia</i>	1(1-1)	9	1(1-1)	1
<i>Cheilanthes distans</i>	1(1-2)	58	1(1-1)	1
<i>Cheilanthes sieberi</i>	1(1-2)	86	1(1-1)	13
<i>Chloris ventricosa</i>	1(1-2)	16	1(1-2)	1
<i>Cissus opaca</i>	1(1-2)	9	1(1-1)	<1
<i>Clematis aristata</i>	1(1-1)	44	1(1-1)	20
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	29	1(1-1)	10
<i>Clematis microphylla</i> var. <i>leptophylla</i>	1(1-1)	4	1(1-1)	<1
<i>Commelina cyanea</i>	1(1-1)	15	1(1-1)	4
<i>Convolvulus erubescens</i>	1(1-1)	10	1(1-1)	1
<i>Crassula sieberiana</i>	1(1-1)	39	1(1-1)	2
<i>Cymbonotus lawsonianus</i>	1(1-1)	7	1(1-1)	1
<i>Cymbopogon refractus</i>	1(1-2)	40	1(1-1)	4
<i>Cynoglossum australe</i>	1(1-1)	7	1(1-1)	2
<i>Cynoglossum suaveolens</i>	1(1-1)	5	1(1-1)	1
<i>Cyperus gracilis</i>	1(1-1)	18	1(1-1)	2
<i>Daucus glochidiatus</i>	1(1-1)	24	1(1-1)	2
<i>Dendrophthoe vitellina</i>	1(1-1)	5	1(1-1)	<1
<i>Desmodium brachypodium</i>	1(1-2)	53	1(1-1)	2
<i>Desmodium varians</i>	1(1-2)	77	1(1-1)	21
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	38	1(1-1)	15
<i>Dichelachne micrantha</i>	1(1-1)	57	1(1-1)	8
<i>Dichondra</i> spp.	2(1-2)	89	1(1-2)	25
<i>Dichanthium sericeum</i> subsp. <i>sericeum</i>	2(1-2)	6	1(1-1)	<1
<i>Digitaria brownii</i>	2(1-2)	6	1(1-1)	<1
<i>Digitaria diffusa</i>	1(1-1)	11	1(1-1)	<1
<i>Dodonaea viscosa</i> subsp. <i>angustifolia</i>	1(1-1)	9	1(1-1)	1
<i>Echinopogon ovatus</i>	1(1-1)	28	1(1-1)	14
<i>Einadia hastata</i>	1(1-1)	33	1(1-1)	3
<i>Einadia nutans</i>	1(1-1)	26	1(1-1)	2
<i>Einadia trigonos</i>	1(1-1)	8	1(1-1)	1
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	37	1(1-1)	4
<i>Eragrostis leptostachya</i>	2(1-2)	17	1(1-1)	4
<i>Eucalyptus albens</i>	3(3-3)	6	3(1-3)	<1
<i>Eucalyptus eugenioides</i>	3(3-3)	27	2(1-3)	4
<i>Eucalyptus macrorhyncha</i>	2(1-3)	10	2(1-3)	3
<i>Eucalyptus melliodora</i>	3(1-3)	46	1(1-3)	2
<i>Eucalyptus moluccana</i>	3(1-3)	17	3(1-3)	2
<i>Eucalyptus tereticornis</i>	3(1-3)	67	2(1-3)	6
<i>Euchiton sphaericus</i>	1(1-1)	27	1(1-1)	3
<i>Exocarpos strictus</i>	1(1-1)	24	1(1-1)	9
<i>Ficus rubiginosa</i>	1(1-1)	7	1(1-3)	1

<i>Gahnia aspera</i>	1(1-2)	39	1(1-1)	3
<i>Galium gaudichaudii</i>	1(1-2)	14	1(1-1)	3
<i>Galium migrans</i>	1(1-1)	8	1(1-1)	1
<i>Geitonoplesium cymosum</i>	1(1-1)	39	1(1-1)	16
<i>Geranium homeanum</i>	1(1-2)	15	1(1-1)	3
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-2)	38	1(1-1)	7
<i>Glossogyne tannensis</i>	1(1-2)	8	1(1-1)	<1
<i>Glycine clandestina</i>	1(1-1)	51	1(1-1)	26
<i>Glycine microphylla</i>	1(1-1)	27	1(1-2)	5
<i>Glycine tabacina</i>	1(1-2)	41	1(1-1)	6
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	25	1(1-2)	14
<i>Hydrocotyle geraniifolia</i>	1(1-2)	10	1(1-1)	2
<i>Hydrocotyle laxiflora</i>	1(1-2)	41	1(1-1)	15
<i>Hymenanthera dentata</i>	1(1-1)	19	1(1-1)	6
<i>Hypericum gramineum</i>	1(1-2)	54	1(1-1)	16
<i>Indigofera australis</i>	1(1-1)	36	1(1-1)	9
<i>Lissanthe strigosa</i>	1(1-2)	57	1(1-1)	7
<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	2(1-2)	12	1(1-2)	1
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	34	1(1-2)	10
<i>Lomandra longifolia</i>	1(1-2)	65	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	65	1(1-1)	24
<i>Luzula flaccida</i>	1(1-1)	13	1(1-1)	4
<i>Mentha diemenica</i>	1(1-1)	8	1(1-1)	1
<i>Microlaena stipoides</i>	2(1-2)	58	1(1-2)	36
<i>Myoporum montanum</i>	1(1-1)	18	1(1-1)	<1
<i>Notelaea neglecta</i>	1(1-1)	8	1(1-1)	<1
<i>Notodanthonia longifolia</i>	2(1-2)	21	1(1-2)	5
<i>Olearia viscidula</i>	2(1-3)	87	1(1-2)	5
<i>Opercularia hispida</i>	1(1-2)	11	1(1-1)	3
<i>Oxalis perennans</i>	1(1-1)	36	1(1-1)	12
<i>Pandorea pandorana</i>	1(1-2)	38	1(1-1)	18
<i>Panicum effusum</i>	1(1-1)	16	1(1-1)	2
<i>Paspalidium criniforme</i>	1(1-1)	4	1(1-2)	<1
<i>Pellaea falcata</i>	1(1-1)	23	1(1-2)	10
<i>Plantago debilis</i>	1(1-2)	34	1(1-1)	7
<i>Plectranthus parviflorus</i>	1(1-2)	29	1(1-1)	7
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-2)	35	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-2)	34	1(1-2)	12
<i>Rumex brownii</i>	1(1-1)	23	1(1-1)	5
<i>Scleria mackaviensis</i>	1(1-2)	8	1(1-2)	<1
<i>Scutellaria humilis</i>	1(1-1)	11	1(1-1)	1
<i>Senecio diaschides</i>	1(1-2)	8	1(1-1)	1
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-2)	9	1(1-1)	3
<i>Senecio quadridentatus</i>	1(1-1)	19	1(1-1)	1
<i>Senecio tenuiflorus</i>	1(1-1)	5	1(1-1)	1
<i>Sida corrugata</i>	1(1-2)	13	1(1-1)	<1

<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	17	1(1-1)	7
<i>Solanum cinereum</i>	1(1-1)	5	1(1-1)	<1
<i>Solanum prinophyllum</i>	1(1-1)	27	1(1-1)	6
<i>Stellaria pungens</i>	1(1-1)	18	1(1-1)	6
<i>Veronica plebeia</i>	1(1-1)	47	1(1-1)	10
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	1(1-1)	36	1(1-1)	1
<i>Vittadinia sulcata</i>	1(1-2)	14	1(1-2)	<1
<i>Wahlenbergia communis</i>	1(1-2)	25	1(1-1)	2
<i>Wahlenbergia gracilis</i>	1(1-2)	45	1(1-1)	10
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	1(1-1)	27	1(1-1)	5

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-3)	13	1(1-2)	9
<i>Eucalyptus agglomerata</i>	3(1-3)	2	2(1-3)	8
<i>Eucalyptus blakelyi</i>	3(1-3)	3	1(1-3)	<1
<i>Eucalyptus bosistoana</i>	2(1-3)	3	1(1-2)	3
<i>Eucalyptus bridgesiana</i>	3(1-3)	3	1(1-3)	1
<i>Eucalyptus crebra</i>	1(1-3)	3	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	1(1-1)	2	2(1-2)	10
<i>Eucalyptus dives</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus globoidea</i>	3(1-3)	3	2(1-2)	12
<i>Eucalyptus mannifera</i>	3(3-3)	1	2(1-3)	4
<i>Eucalyptus punctata</i>	3(1-3)	15	1(1-3)	9



Locations of survey sites allocated to DSF p35. Grey shading indicates extant native vegetation cover within the study area.