Appendix to *Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands*

Appendix 3: Descriptions of Map Units

All 191 Map Units identified by this project are described below. Each profile includes:
Sample Sites: no. of sites assigned to the Unit.
Area Extant: estimated current extant area.
Estimated % remaining: bounded estimate of what proportion of the Unit's original (pre-clearing) extent now remains extant.
Area in conservation reserves: estimated extant area within conservation reserves.
Estimated % of pre-clearing area in conservation reserves: bounded estimate of what proportion of the Unit's original pre-clearing extent now survives within conservation reserves.
No. Taxa (total / unique): no. of plant taxa recorded from sample sites assigned to this Unit, and no. of taxa recorded **only** from these sites.
No. Taxa per Plot (±sd): average (and standard deviation) no. of plant taxa recorded from sample sites assigned to this Map Unit.
Class: indicates which vegetation class the Map Unit is considered to be part of, within the statewide classification of Keith (2004).
Related TEC: Notes any relationship with an ecological community listed under the NSW *Threatened Species Conservation Act* (TSC) or the Commonwealth *Environment Protection & Biodiversity Conservation Act* (EPBC); also highlights 7 Units likely to be Protected Marine Vegetation under the *Fisheries Management Act.*

Each profile also includes notes on habitat and structural characteristics, a floristic summary, and tables of **positive diagnostic species**, constant species and other tree species. The positive diagnostic species table for each Map Unit lists all plant taxa that occur more frequently among the samples assigned to that unit than they do among all the remaining samples in the data set. Constant species occur frequently in the map unit but also occur frequently in other map units. The following data is given for each taxon:

- **C/A** - Cover/Abundance[1] within the map unit (50 percentile): the median cover/abundance score recorded for the species in sites representing the map unit (absences excluded);
- **Freq** - Frequency within the map unit: the number of samples of the map unit in which the species was recorded, divided by the total number of samples assigned to that map unit;
- **C/A O -** Cover/Abundance[1] in Other map units (50 percentile): the median cover/abundance score recorded for the species in samples of all other map units (absences excluded);
- **Freq O** - Frequency (%) within Other map units: the number of samples assigned to all other map units in which the species was recorded, divided by the total number of samples assigned to other map units;

[1]Cover/abundance scores:
1 = Rare, few individuals present AND cover < 5%
2 = Uncommon AND cover < 5%
3 = Common AND cover < 5%
4 = (Very Abundant AND cover < 5%) OR (5% ≤cover < 20%)
5 = (20% ≤ cover < 50%)
6 = (50% ≤ cover < 75%)
7 = (75% ≤ cover ≤ 100%)

Procedure for using positive diagnostic species for the identification of Map Units
This procedure is based on the probability of sampling positive diagnostic species that occur more frequently within the target unit than in all survey sites combined. The minimum expected number of positive diagnostic species was calculated for each map unit based on the available survey data. New plots may belong to any candidate map unit for which counts of diagnostic species exceed this minimum number, although these inferences are subject to 5% statistical error rate (i.e. one out of 20 inferences will be incorrect). Conversely, the presence of fewer than the minimum expected number of positive diagnostic species may be considered evidence that the sample plot does not belong to the map unit under consideration, subject to 5% statistical errors. If applied correctly, this procedure will narrow the identification of a stand of vegetation to a few plausible alternative units. If a sample plot contains the minimum expected number of positive diagnostic species for more than one map unit, the number of species by which the minimum was exceeded may be used to assess the closeness of the match to each of the possible candidates.

The map unit identification procedure assumes that all vascular plant species within the sample plots were recorded and correctly identified, that the list of positive diagnostic species is based on a comprehensive random sample of each map unit, and that the identification samples are randomly selected from within the same study area and use the same plot size (0.04 ha) as the original samples. Occurrences of droughts and the time since fire may influence whether all vascular species can be recorded in samples of particular communities. The procedure cannot be reliably applied to samples that do not contain more than a specified minimum number of species (species-poor sites can not be tested).

The following steps are required for sampling diagnostic species.

- Determine the location of test plots using a random selection procedure. For example: define a grid then consult a table of random numbers to obtain coordinates for the location of the plots.
- Mark out a search area of 0.04 ha (20 x 20 m is convenient) and record all vascular plant species with stems rooted within or overhanging the search area.
- Compile a shortlist of possible map unit types by comparing the vegetation structure and physical characteristics of the site with the descriptions contained in Appendix 3. The species composition of the test plot will be compared with each of these map unit types.
- Count the number of **native** species occurring within the test plot. A minimum species count has been specified for each map unit type and is given in the diagnostic species table caption. The test can not be applied unless the test plot contains the minimum number of species specified for the map unit under consideration.
- Considering each of the candidate map unit types in turn, consult the list of positive diagnostic species and count the number that were found in the test plot. The minimum expected number of positive diagnostic species has been specified for each map unit and is located in the diagnostic species table caption. If the test plot contains the minimum number of positive diagnostic species ('pass' result) then it is a plausible match for that map unit. A 'pass' result may be obtained for more than one of the candidate communities. In such cases the number of species by which the minimum was exceeded may be used to assess the closeness of the match to each of the possible candidates. A 'fail' result (the test plot contains fewer diagnostic species than the expected minimum) does not exclude the possibility that the test plot is a match, however the fewer positive species recorded, the less likely it is that the map unit is a match (see discussion).

Map unit area figures

Note that extant area and reserved area figures have been rounded (to nearest 10 or 100 ha, depending on map unit) to reflect that the map is not accurate to the hectare. Percentages of remaining and reserved vegetation are given as bounded estimates to recognise uncertainties in classification and mapping, particularly estimated extents based on reconstructed pre-clearing vegetation patterns.

Current boundaries of the following areas were used to calculate reservation figures; National Parks, Nature Reserves and State Conservation Areas under the NSW *National Parks and Wildlife Act* 1994, Flora Reserves under the *Forestry Act* 1912, and National Parks under the Commonwealth *National Parks and Wildlife Conservation Act* 1975.

Vegetation structure tables

Vegetation structure data has been summarised for each map unit from all classified sites. Sites came from a variety of sources, consequently:

- Not all classified sites in each map unit had structure data recorded;
- it was assumed that interpretation of strata was reasonably consistent between surveys/observers, and that all surveys recorded % cover in the same way.

For sites where multiple components were noted within a stratum (e.g. 2 groundcover layers, 2 shrub layers), the figures used for that stratum were maximum heights of the component layers, and summed % cover (as overlap could not be dealt with).

Vegetation structure tables contain the following:
n = total number of samples of this map unit with structure data recorded;
Frequency = the proportion of samples from which each stratum was recorded;
Height = mean recorded maximum height of each stratum (with standard deviation)
Cover = mean recorded % projected foliage cover of stratum (with standard deviation).

RF e1: Southeast Dry Rainforest

Plate e1. Southeast Dry Rainforest (Map Unit e1) occupying a steep rocky hillside on Warrigal range north of Brogo. *Eucalyptus bosistoana* rises above *Ficus rubiginosa* emerging from a rock face covered with *Pyrrosia rupestris*.

Sample Sites: 23
Area Extant (ha): 270
Estimated % remaining: 40-55%
Area in conservation reserves (ha): 100
Estimated % of pre-clearing area in conservation reserves: 15-30%
No. Taxa (total / unique): 173 / 0
No. Taxa per Plot (±sd): 27 (10.7)
Class: Dry Rainforests
Related TEC: Dry Rainforest of the South East Forests EEC (TSC)

Southeast Dry Rainforest is equivalent to Dry Rainforest (unit 1) described by Keith & Bedward (1999). It comprises a closed forest restricted to small patches generally less than 10 ha, usually on steep upper granite slopes or heads of gullies facing north at 200 - 400 m elevation. These patches occur between Cobargo and Bega, south of Candelo and in the upper Towamba valley. Generally these are fragmented landscapes on hilly fringes of grazing districts, although significant stands occur from Reedy Creek to Mt Pericoe in Coolangubra National Park. Dry Rainforest is likely to be highly sensitive to fire because some of the dominant trees may be killed when burnt. Re-establishment relies upon seed dispersed by birds from unburnt sites. The understorey may be adversely affected by grazing (cattle, sheep and rabbits) in rural districts. Some of these stands may also be affected by small-scale clearing. This assemblage appears to be unique to the region, since *F. rubiginosa* reaches its southern limit here (Keith *et al.* 1999) and similarly restricted dry rainforests further north differ compositionally, particularly in the dominance of *Backhousia myrtifolia* (Austin 1978, Helman 1983). In East Gippsland, Woodgate *et al.* (1994) described a dry rainforest assemblage (Ecological Vegetation Class 34) dominated by *P. undulatum* with *Acmena smithii* and similar understorey elements to those recorded in Eden. Only 11 ha of this unit were mapped in the East Gippsland region.

Floristic Summary:
Trees: *Brachychiton populneus* subsp. *populneus, Ficus rubiginosa, Pittosporum undulatum* **Shrubs:** *Beyeria lasiocarpa, Celastrus australis, Hymenanthera dentata* **Climbers:** *Clematis glycinoides* var. *glycinoides, Eustrephus latifolius, Geitonoplesium cymosum, Marsdenia rostrata* **Groundcover:** *Asplenium flabellifolium, Dichondra* spp., *Oplismenus imbecillis, Pellaea falcata, Urtica incisa*

Vegetation structure:

Stratum	Frequency (n=13)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	69	20 (10.1)	26.9 (36.6)
Small tree	85	11.5 (2.6)	59.3 (31.9)
Shrub	92	2.1 (1.2)	16.9 (14)
Ground cover	92	0.4 (0.2)	8.7 (4.9)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 9 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 18 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:

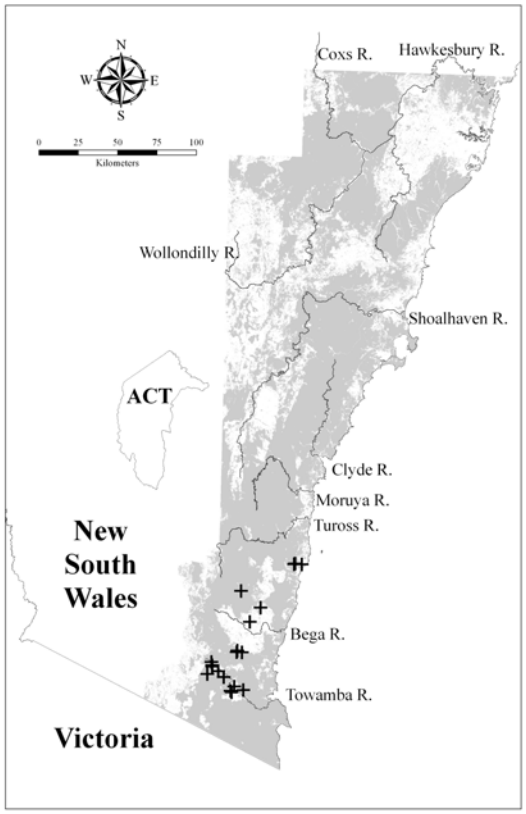
Species	C/A	Freq	C/A O	Freq O
Acacia maidenii	1(1-2)	30	1(1-1)	3
Acacia mearnsii	1(1-2)	35	1(1-2)	7
Alectryon subcinereus	1(1-1)	35	1(1-1)	2
Asplenium flabellifolium	1(1-1)	61	1(1-1)	11
Beyeria lasiocarpa	3(2-4)	43	1(1-2)	1
Brachychiton populneus subsp. *populneus*	1(1-2)	65	1(1-1)	3
Cassinia trinerva	1(1-2)	26	1(1-1)	3
Celastrus australis	1(1-2)	48	1(1-1)	2
Claoxylon australe	1(1-1)	22	1(1-2)	3
Clematis glycinoides var. *glycinoides*	1(1-1)	57	1(1-1)	10
Dendrobium speciosum	1(1-1)	26	1(1-1)	1
Dichondra spp.	1(1-1)	57	1(1-2)	25
Einadia nutans	1(1-2)	22	1(1-1)	3
Eucalyptus bosistoana	1(1-2)	30	1(1-2)	3
Eustrephus latifolius	1(1-1)	52	1(1-1)	19
Ficus rubiginosa	3(1-5)	70	1(1-1)	1
Geitonoplesium cymosum	1(1-1)	83	1(1-1)	16
Hymenanthera dentata	1(1-1)	83	1(1-1)	6
Marsdenia flavescens	1(1-1)	30	1(1-2)	2
Marsdenia rostrata	1(1-2)	52	1(1-2)	12
Notelaea venosa	1(1-2)	35	1(1-1)	12
Notodanthonia longifolia	1(1-1)	26	1(1-2)	5
Oplismenus imbecillis	1(1-1)	48	1(1-2)	14
Pellaea falcata	1(1-1)	91	1(1-2)	10
Pimelea axiflora	1(1-1)	22	1(1-1)	3
Pittosporum undulatum	1(1-2)	57	1(1-1)	14
Plectranthus graveolens	1(1-2)	22	1(1-1)	1
Plectranthus parviflorus	1(1-2)	39	1(1-1)	8
Pyrrosia rupestris	1(1-1)	26	1(1-2)	6
Sarcopetalum harveyanum	1(1-1)	39	1(1-1)	4
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	39	1(1-1)	7
Stephania japonica var. *discolor*	1(1-1)	39	1(1-1)	7
Urtica incisa	1(1-1)	61	1(1-1)	5

Constant Species:

Species	C/A	Freq	C/A O	Freq O
Pandorea pandorana	1(1-1)	39	1(1-1)	18

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus agglomerata	1(1-1)	4	2(1-3)	7
Eucalyptus cypellocarpa	1(1-1)	4	2(1-2)	10
Eucalyptus elata	2(2-2)	9	2(1-3)	5
Eucalyptus globoidea	1(1-1)	4	2(1-2)	12
Eucalyptus maidenii	2(1-2)	17	2(1-2)	2
Eucalyptus melliodora	2(2-2)	4	1(1-3)	2
Eucalyptus muelleriana	1(1-1)	4	2(1-2)	6
Eucalyptus obliqua	1(1-1)	4	2(1-3)	4
Eucalyptus polyanthemos subsp. *tarda*	2(2-2)	4	1(1-2)	<1
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	9	1(1-1)	<1
Eucalyptus saligna X botryoides	2(2-2)	4	2(1-3)	2
Eucalyptus sieberi	1(1-1)	4	2(1-3)	16
Eucalyptus smithii	1(1-1)	9	1(1-2)	2
Eucalyptus tereticornis	2(1-2)	17	2(1-3)	7



Locations of survey sites allocated to RF e1. Grey shading indicates extant native vegetation cover within the study area.

DSF e3: Rocky Tops Dry Scrub Forest

Plate e3. Rocky Tops Dry Scrub Forest (Map Unit e3) with *Eucalyptus elata* and *E. sieberi* over a prominent shrub stratum of *Eriostemon trachyphyllus, Dodonaea viscosa* and *Olearia iodochroa* on the eastern upper slope of Big Jack Mountain, Coolangubra section of South East Forests National Park.

Sample Sites: 18
Area Extant (ha): 1300
Estimated % remaining: >95%
Area in conservation reserves (ha): 1200
Estimated % of pre-clearing area in conservation reserves: 80-90%
No. Taxa (total / unique): 147 / 1
No. Taxa per Plot (±sd): 25.3 (9.0)
Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Rocky Tops Dry Scrub Forest is equivalent to a combination of two units described by Keith & Bedward (1999): Myanba Dry Scrub Forest (unit 2) and Rocky Tops Dry Scrub Forest (unit 3). It comprises an open *Eucalyptus* forest with a tall scrubby understorey and occasional rainforest elements. Groundcover is generally sparse, but large rocks may be covered with *Dendrobium* spp. Small trees and shrubs may be arranged in one or two strata accounting for more than 50% cover. Typical habitat includes rocky slopes and ridgelines on granitoids and metasediments at intermediate elevations. Certain disturbance regimes that include frequent fire and logging may reduce diversity of the understorey. Although this assemblage may be restricted locally, stands are scattered over a wide distribution from Burragate Peak to Mt Imlay with an outlying stand on the slopes of Big Jack Mountain. Its occurrence seems unique to the region, with no similar assemblages known from adjacent regions (Austin 1978, Woodgate *et al.* 1994). The most similar assemblage nearby appears to be a variant of Rocky Outcrop Scrub (Ecological Vegetation Class 27 described by Woodgate *et al.* 1994) in gorges of East Gippsland (e.g. Snowy River, Brodribb River). Although this vegetation is dominated by *E. smithii* with *E. elata*, it lacks most of the sub-dominant trees and understorey species, particularly the mesic elements, recorded in the Eden region.

Floristic Summary:
Trees: *Acacia falciformis, Eucalyptus smithii, Exocarpos cupressiformis, Pittosporum undulatum* **Shrubs:** *Beyeria lasiocarpa, Cassinia longifolia, Cassinia trinerva, Notelaea venosa, Pomaderris cinerea* **Climbers:** *Geitonoplesium cymosum* **Groundcover:** *Asplenium flabellifolium, Lepidosperma laterale, Notodanthonia longifolia*

Vegetation structure:

Stratum	Frequency (n=8)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	17.6 (5)	16 (9.5)
Small tree	75	9 (1.7)	26.7 (14.7)
Shrub	75	3 (0.6)	34.2 (23.8)
Ground cover	88	0.5 (0.2)	7.4 (6.5)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 6 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 18 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

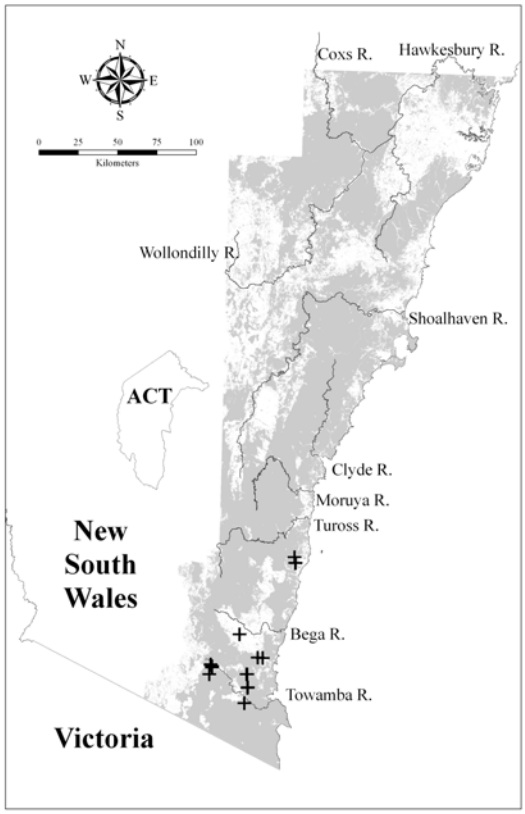
Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	1(1-2)	72	1(1-2)	10
Asplenium flabellifolium	1(1-1)	50	1(1-1)	12
Beyeria lasiocarpa	2(1-3)	94	1(1-2)	1
Cassinia longifolia	1(1-1)	56	1(1-2)	6
Cassinia trinerva	1(1-2)	61	1(1-1)	3
Commersonia fraseri	2(1-3)	22	1(1-1)	1
Correa reflexa	1(1-1)	28	1(1-1)	5
Dendrobium speciosum	1(1-1)	39	1(1-1)	1
Dendrobium striolatum	1(1-1)	28	1(1-1)	<1
Eucalyptus smithii	1(1-2)	72	1(1-2)	2
Exocarpos cupressiformis	1(1-2)	50	1(1-1)	5
Geitonoplesium cymosum	1(1-1)	56	1(1-1)	16
Hakea macraeana	1(1-2)	28	1(1-1)	1
Kunzea ambigua	2(1-3)	28	1(1-2)	4
Lepidosperma urophorum	1(1-1)	28	1(1-2)	7
Notelaea venosa	1(1-2)	89	1(1-1)	12
Notodanthonia longifolia	1(1-1)	50	1(1-2)	5
Philotheca trachyphylla	1(1-1)	33	1(1-1)	<1
Pittosporum undulatum	1(1-1)	67	1(1-1)	14
Plectranthus graveolens	1(1-2)	33	1(1-1)	1
Pomaderris cinerea	2(1-2)	44	1(1-2)	1
Prostanthera lasianthos	1(1-1)	28	1(1-1)	2

Constant Species:

Species	C/A	Freq	C/A O	Freq O
Lepidosperma laterale	1(1-1)	44	1(1-1)	29
Pandorea pandorana	1(1-1)	39	1(1-1)	18

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus agglomerata	2(1-2)	28	2(1-3)	7
Eucalyptus bosistoana	1(1-1)	11	1(1-2)	3
Eucalyptus cypellocarpa	1(1-1)	11	2(1-2)	10
Eucalyptus elata	1(1-2)	17	2(1-3)	5
Eucalyptus maidenii	2(2-2)	6	2(1-2)	2
Eucalyptus muelleriana	1(1-1)	11	2(1-2)	6
Eucalyptus polyanthemos subsp. *tarda*	1(1-1)	17	1(1-2)	<1
Eucalyptus sieberi	1(1-1)	11	2(1-3)	16



Locations of survey sites allocated to DSF e3. Grey shading indicates extant native vegetation cover within the study area.

DSF e4: Brogo Shrub Forest

Plate e4. Brogo Shrub Forest (Map Unit e4) dominated by *Acacia silvestris* with *Eriostemon trachyphyllus* and scant groundcover, off Bourkes Road, eastern Wadbilliga National Park.

Sample Sites: 14
Area Extant (ha): 5900
Estimated % remaining: >90%
Area in conservation reserves (ha): 4300
Estimated % of pre-clearing area in conservation reserves: 70-80%
No. Taxa (total / unique): 66 / 0
No. Taxa per Plot (±sd): 11.3 (7.7)
Class: Southern Wattle Dry Sclerophyll Forests
Related TEC: n/a

Brogo Shrub Forest is equivalent to Acacia Scrub (unit 4) described by Keith & Bedward (1999) and is dominated by a dense canopy of *Acacia silvestris,* rarely with *A. mearnsii,* ca. 15 m tall. The understorey is sparse and species-poor with minimal groundcover. This assemblage occurs in small to moderate-sized patches at moderate elevations in steep gorges on metasediments in the Brogo River and Desert Creek catchments, north to Wandella State Forest. Most stands are represented in Wadbilliga and Bemboka National Parks, although small stands occur on private and leasehold land at Brogo Pass and Alsops Creek gorge. Brogo Shrub Forest is likely to be eliminated under frequent fire regimes because the dominant species is killed by fire and re-establishment is dependent on a soil seed bank which may take some years for post-fire replenishment. However, Brogo Shrub Forest is unlikely to be readily flammable under moderate fire weather conditions. Long fire-free intervals may also be detrimental as standing plants and seed banks senesce. A large living individual of *A. silvestris* has been aged by ring counts in excess of 100 years (Clayton-Greene and Wimbush 1988). Regeneration of Brogo Shrub Forest is apparently dependent on occasional, high intensity fires. Related scrubs are found in the Snowy River gorge to the south west (Clayton-Greene and Wimbush 1988, Forbes *et al.* 1982, Woodgate *et al.* 1994, Ecological Vegetation Class 27). Although these assemblages share *A. silvestris* and *Philotheca trachyphylla* with Brogo Shrub Forest, they lack *Pomaderris brogoensis* and include several additional *Acacia* spp. and other minor shrub species.

Floristic Summary:
Trees: *Acacia silvestris, Eucalyptus smithii* **Shrubs:** *Beyeria lasiocarpa, Cassinia trinerva, Notelaea venosa, Philotheca trachyphylla* **Groundcover:** *Plectranthus parviflorus*

Vegetation structure:

Stratum	Frequency (n=3)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	15.3 (4.6)	65 (5)
Small tree	100	7 (1)	36.7 (5.8)
Shrub	67	1.3 (0.4)	21 (26.9)
Ground cover	33	0.5 (-)	1 (-)

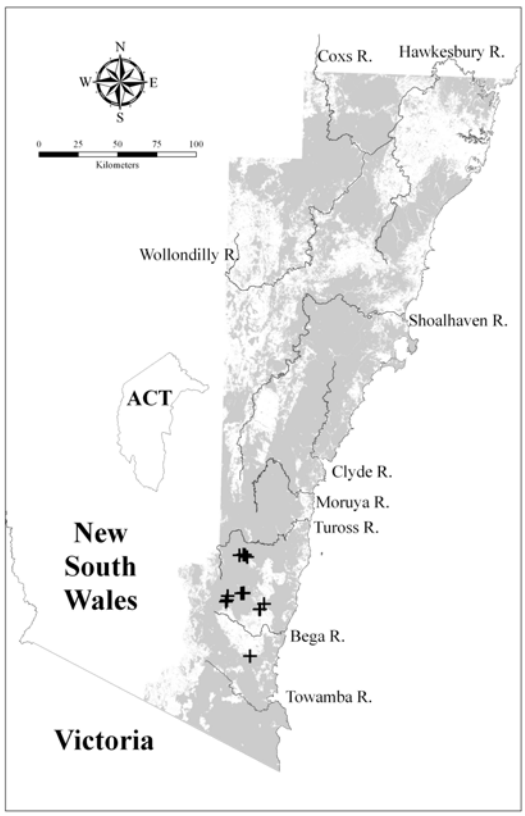
Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 2 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 5 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 2 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia silvestris	1(1-3)	93	1(1-2)	<1
Beyeria lasiocarpa	1(1-1)	71	1(1-2)	1
Cassinia trinerva	1(1-1)	43	1(1-1)	3
Eriostemon australasius	1(1-1)	21	1(1-1)	3
Eucalyptus smithii	1(1-1)	71	2(1-2)	2
Ficus rubiginosa	1(1-1)	29	1(1-2)	1
Notelaea venosa	1(1-1)	64	1(1-1)	12
Passiflora cinnabarina	1(1-1)	21	1(1-1)	1
Philotheca trachyphylla	1(1-2)	71	1(1-1)	<1
Plectranthus parviflorus	1(1-1)	43	1(1-1)	8
Pomaderris brogoensis	1(1-3)	36	1(1-1)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus muelleriana	1(1-1)	7	2(1-2)	6
Eucalyptus sieberi	1(1-1)	7	2(1-3)	16



Locations of survey sites allocated to DSF e4. Grey shading indicates extant native vegetation cover within the study area.

RF e6e7: Southeast Warm Temperate Rainforest

Plate e6e7. Southeast Warm Temperate Rainforest (Map Unit e6e7) at Mount Waalimma following a recent tree fall. The remnants of the canopy dominated by *Acmena smithii* and *Pittosporum undulatum* are visible in the background with abundant *Cyathea australis* in the foreground.

Sample Sites: 88
Area Extant (ha): 9500
Estimated % remaining: >90%
Area in conservation reserves (ha): 5200
Estimated % of pre-clearing area in conservation reserves: 50-60%
No. Taxa (total / unique): 229 / 0
No. Taxa per Plot (±sd): 35.0 (12.6)

Class: Southern Warm Temperate Rainforests
Related TEC: n/a

Southeast Warm Temperate Rainforest is equivalent to a combination of two units described by Keith & Bedward (1999): Coastal Warm Temperate Rainforest (unit 6) and Hinterland Warm Temperate Rainforest (unit 7). It is characterised by a dense canopy exceeding 15 m in height with emergent eucalypts over 20 m and numerous lianas and sporadic epiphytes. Shrub and tree fern species make up a prominent substratum 4 m tall, while the groundcover is more variable and dominated by ferns. The groundcover is often more developed in southern stands. Southeast Warm Temperate Rainforest is restricted to steep sheltered gullies on metasedimentary substrates of the coastal ranges usually below 700 m elevation. At higher elevations on the escarpment this unit grades into Southeast Cool Temperate Rainforest. A notable example occurs at Werrinook. Although small (usually <20 ha), the stands are numerous and almost all occur in conservation reserves or State Forests. The topographically restricted distribution of rainforest patches reflects their susceptibility to fires. Although *A. smithii* and some other species are capable of post-fire coppicing (Ashton and Frankenberg 1976), observations by Floyd (1990) indicate that post-fire recovery of both composition and structure is slow and that the resilience of these rainforests to repeated fires is likely to be poor. Diversity decreases with increasing latitude and altitude (Floyd 1990). Numerous species reach their southern limit within the region, particularly north of Bega (Keith 1990, Keith & Ashby 1992). To the south, similar forests are found at low elevations in East Gippsland (Ecological Vegetation Class 32, Woodgate *et al.* 1994) and Wilsons Promontory (Floyd 1990), as well as in gullies below Erinundra Plateau, the Howe and Murrungowar Ranges in East Gippsland, but these total less than 300 ha (Ecological Vegetation Class 33, Woodgate *et al.* 1994).

Floristic Summary:
Trees: *Acmena smithii, Cyathea australis, Dicksonia antarctica, Pittosporum undulatum* **Shrubs:** *Coprosma quadrifida, Eupomatia laurina, Notelaea venosa, Rapanea howittiana* **Climbers:** *Aphanopetalum resinosum, Cissus hypoglauca, Eustrephus latifolius, Marsdenia rostrata, Morinda jasminoides, Pandorea pandorana, Sarcopetalum harveyanum, Smilax australis* **Groundcover:** *Asplenium flabellifolium, Blechnum cartilagineum, Doodia aspera, Fieldia australis, Lastreopsis microsora* subsp. *Microsora, Microsorum scandens, Oplismenus imbecillis, Pellaea falcata, Polystichum proliferum, Pteris umbrosa, Pyrrosia rupestris, Stellaria flaccida, Urtica incisa*

Vegetation structure:

Stratum	Frequency (n=28)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	7	32.5 (3.5)	5.5 (2.1)
Tree canopy	46	24.6 (13.4)	38.7 (33.7)
Small tree	100	13.8 (7.2)	59.8 (27.7)
Shrub	71	3.9 (1.2)	30.2 (23.3)
Ground cover	96	0.8 (0.3)	56.7 (23.4)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 23 positive diagnostic species (95% confidence interval) provided 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 23 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia melanoxylon	1(1-2)	20	1(1-1)	6
Acacia silvestris	1(1-2)	6	1(1-2)	<1
Acacia subporosa	1(1-2)	7	1(1-2)	<1
Acmena smithii	3(3-3)	97	1(1-3)	8
Acronychia oblongifolia	1(1-3)	10	1(1-3)	1
Adiantum formosum	2(1-3)	25	2(1-3)	3
Adiantum hispidulum	1(1-1)	11	1(1-1)	2
Alectryon subdentatus forma subdentatus	1(1-2)	10	1(1-2)	1
Aphanopetalum resinosum	3(2-3)	47	1(1-3)	3
Arthropteris tenella	2(1-3)	15	1(1-2)	2
Asplenium australasicum forma australasicum	2(1-3)	25	1(1-2)	2
Asplenium flabellifolium	1(1-2)	70	1(1-1)	11
Australina pusilla	1(1-2)	32	1(1-2)	1

Austrocynoglossum latifolium	1(1-1)	9	1(1-1)	1
Backhousia myrtifolia	2(1-3)	17	2(1-3)	5
Bedfordia arborescens	1(1-1)	31	1(1-2)	3
Beyeria lasiocarpa	1(1-1)	9	1(1-2)	1
Blechnum cartilagineum	1(1-2)	50	1(1-2)	11
Blechnum patersonii subsp. *patersonii*	1(1-2)	27	1(1-2)	2
Blechnum wattsii	1(1-1)	9	1(1-2)	2
Breynia oblongifolia	1(1-2)	25	1(1-1)	12
Cassinia trinerva	1(1-1)	17	1(1-1)	3
Celastrus australis	1(1-2)	22	1(1-1)	2
Cissus hypoglauca	2(1-3)	67	1(1-2)	9
Claoxylon australe	2(1-3)	31	1(1-2)	3
Coprosma quadrifida	1(1-1)	64	1(1-1)	9
Cyathea australis	1(1-2)	81	1(1-1)	8
Dendrocnide excelsa	2(1-3)	15	2(1-3)	1
Dennstaedtia davallioides	1(1-2)	16	1(1-2)	1
Dicksonia antarctica	2(1-3)	60	1(1-3)	3
Diplazium australe	2(1-2)	35	1(1-2)	1
Doodia aspera	1(1-2)	57	1(1-2)	11
Doryphora sassafras	3(2-3)	25	3(1-3)	3
Ehretia acuminata var. *acuminata*	1(1-1)	8	1(1-1)	1
Elaeocarpus reticulatus	1(1-1)	27	1(1-1)	12
Eucryphia moorei	2(1-2)	10	3(2-3)	1
Eupomatia laurina	2(1-2)	50	1(1-2)	3
Eustrephus latifolius	1(1-1)	45	1(1-1)	19
Ficus coronata	1(1-2)	26	1(1-2)	3
Ficus rubiginosa	1(1-1)	8	1(1-2)	1
Fieldia australis	2(1-3)	45	1(1-3)	2
Gahnia melanocarpa	1(1-1)	17	1(1-1)	5
Geitonoplesium cymosum	1(1-1)	40	1(1-1)	16
Geranium homeanum	1(1-2)	15	1(1-1)	3
Hedycarya angustifolia	1(1-3)	30	1(1-2)	3
Hymenanthera dentata	1(1-2)	31	1(1-1)	6
Hymenophyllum cupressiforme	1(1-1)	11	1(1-1)	1
Hypolepis glandulifera	1(1-2)	10	1(1-1)	1
Lastreopsis acuminata	2(1-3)	19	1(1-2)	2
Lastreopsis decomposita	2(1-2)	28	2(1-3)	3
Lastreopsis microsora subsp. *microsora*	2(2-3)	70	2(1-3)	3
Marsdenia flavescens	2(1-3)	23	1(1-1)	2
Marsdenia rostrata	2(1-2)	92	1(1-2)	11
Microsorum pustulatum	1(1-1)	14	1(1-2)	1
Microsorum scandens	3(1-3)	75	2(1-3)	3
Morinda jasminoides	2(1-3)	70	1(1-2)	9
Notelaea venosa	1(1-1)	52	1(1-1)	11
Olearia argophylla	1(1-1)	40	1(1-2)	3
Omalanthus populifolius	1(1-1)	6	1(1-1)	1

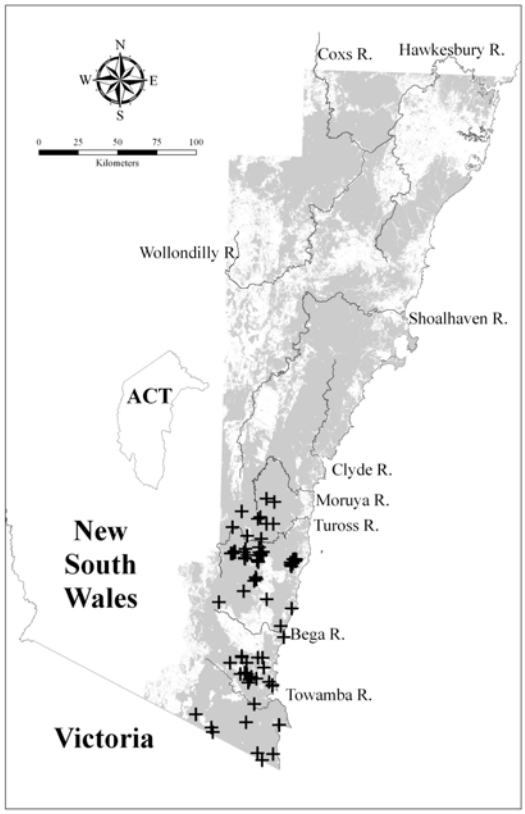
Oplismenus imbecillis	1(1-1)	52	1(1-2)	14
Pandorea pandorana	2(1-2)	88	1(1-1)	18
Parsonsia brownii	1(1-1)	10	1(1-2)	2
Pellaea falcata	1(1-2)	57	1(1-1)	10
Pellaea nana	1(1-1)	7	1(1-1)	2
Pittosporum undulatum	1(1-1)	65	1(1-1)	14
Plectorrhiza tridentata	1(1-1)	9	1(1-2)	1
Plectranthus parviflorus	2(1-2)	34	1(1-1)	7
Polyphlebium venosum	1(1-2)	16	2(1-3)	1
Polyscias murrayi	1(1-2)	19	1(1-1)	1
Polystichum proliferum	2(1-2)	42	1(1-2)	3
Pomaderris aspera	1(1-1)	33	1(1-2)	4
Pomaderris cinerea	1(1-2)	14	1(1-2)	1
Prostanthera lasianthos	1(1-1)	13	1(1-1)	2
Pteris tremula	1(1-1)	8	1(1-1)	1
Pteris umbrosa	3(1-3)	55	2(1-3)	1
Pyrrosia rupestris	2(1-3)	65	1(1-2)	6
Rapanea howittiana	1(1-1)	52	1(1-1)	5
Ripogonum album	1(1-2)	9	1(1-2)	1
Rubus moluccanus var. *trilobus*	1(1-1)	31	1(1-1)	2
Rubus rosifolius	1(1-1)	39	1(1-1)	2
Sambucus australasica	1(1-1)	17	1(1-1)	1
Sarcochilus falcatus	2(1-2)	9	1(1-1)	1
Sarcopetalum harveyanum	1(1-1)	47	1(1-1)	4
Sigesbeckia orientalis subsp. *orientalis*	1(1-2)	28	1(1-1)	7
Smilax australis	2(1-2)	89	1(1-1)	15
Solanum aviculare	1(1-1)	10	1(1-1)	1
Solanum pungetium	1(1-1)	28	1(1-1)	5
Stellaria flaccida	1(1-2)	49	1(1-1)	10
Stephania japonica var. *discolor*	1(1-1)	20	1(1-1)	7
Synoum glandulosum subsp. *glandulosum*	2(2-2)	28	1(1-2)	7
Tmesipteris parva	1(1-2)	18	1(1-1)	<1
Tylophora barbata	1(1-1)	32	1(1-1)	17
Urtica incisa	1(1-1)	47	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
Clematis aristata	1(1-2)	32	1(1-1)	20

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus bosistoana	1(1-1)	2	1(1-2)	3
Eucalyptus cypellocarpa	1(1-2)	7	2(1-2)	10
Eucalyptus elata	2(1-2)	2	2(1-3)	5
Eucalyptus fastigata	2(2-2)	7	2(1-3)	6
Eucalyptus longifolia	1(1-1)	1	1(1-2)	2
Eucalyptus maidenii	1(1-1)	1	2(1-2)	2
Eucalyptus muelleriana	1(1-2)	5	2(1-2)	6
Eucalyptus radiata subsp. *radiata*	1(1-1)	1	2(1-3)	6
Eucalyptus smithii	1(1-1)	2	1(1-2)	2



Locations of survey sites allocated to RF e6e7. Grey shading indicates extant native vegetation cover within the study area.

WSF e9: Southeast High Mountain Wet Layered Forest

Plate e9. Southeast High Mountain Wet Layered Forest (Map Unit e9) with *Eucalyptus nitens* emergent over a sub canopy of *Acacia dealbata* and *Prostanthera lasianthos* on Obliqua Road in Glenbog State Forest.

Sample Sites: 12
Area Extant (ha): 1800
Estimated % remaining: 75-85%
Area in conservation reserves (ha): 1600
Estimated % of pre-clearing area in conservation reserves: 65-75%
No. Taxa (total / unique): 76 / 0
No. Taxa per Plot (±sd): 21.0 (5.4)
Class: Southern Escarpment Wet Sclerophyll Forests
Related TEC: n/a

Southeast High Mountain Wet Layered Forest is equivalent to High Mountain Wet Layered Forest (Unit 9) described by Keith & Bedward (1999). This unit is characterised by a tall *Eucalyptus* dominated canopy typically over 40m in height and occasionally exceeding 60m. A distinctive dense subcanopy of small trees ca. 10m tall is also present with occasional vines and an understorey ca. 3m tall. The groundcover comprises scattered clumps of *Polystichum proliferum* and *Gahnia sieberiana* amongst typically dense leaf litter. These magnificent forests are scattered along the highest parts of the escarpment range above 850 m elevation, mainly on granitoid geology. Although the northern stands in the Brown Mountain - upper Tantawangalo area have been fragmented by recent logging, some of these are now reserved from further logging. In the south, a stand near the Victorian border was partially cleared for pine plantations in the 1970's (about one-fifth of the total area) and the remainder was burnt by an intense crown fire in 1983. Similar forests have been described on Erinundra Plateau in East Gippsland (Community 8.1, Forbes *et al.* 1982), but some differences are apparent including rainforest elements such as *Atherosperma moschatum* in the subcanopy and a greater frequency of shrubs (e.g. *Telopea oreades*) in the understorey. Although no detailed studies have been carried out on the dynamics of High Mountain Layered Wet Forest, it is likely that Ashton's (1981) stand-replacing fire model accurately describes vegetation change in relation to recurring disturbance (see also Noble and Slatyer 1981). The existence of stands dominated by *Acacia dealbata* south of Brown Mountain is consistent with the prior elimination of eucalypts as proposed in a pathway of Ashton's (1981) model that entails frequent fires. Although such fire regimes potentially threaten all reserved stands of Mountain Layered Wet Forest, these threats are likely to be amplified in stands that remain in production because they are subject to additional disturbances including tree-felling and management fires. Dense and rapid vegetative recovery of ferns that follows logging and regeneration burns may also suppress establishment of seedlings, reducing the diversity of woody species including trees.

Floristic Summary:
Trees: *Acacia dealbata, Bedfordia arborescens, Dicksonia antarctica, Eucalyptus fastigata, Eucalyptus nitens* **Shrubs:** *Coprosma quadrifida, Gahnia sieberiana, Olearia argophylla, Prostanthera lasianthos, Tasmannia lanceolata* **Climbers:** *Clematis aristata, Parsonsia brownii* **Groundcover:** *Australina pusilla, Blechnum wattsii, Histiopteris incisa, Hydrocotyle peduncularis, Poa ensiformis, Polystichum proliferum, Pteridium esculentum, Stellaria flaccida, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=10)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	43 (10.9)	45 (13.9)
Small tree	100	9.8 (5.7)	45.5 (25.5)
Shrub	80	2.7 (1.2)	25.4 (16.9)
Ground cover	100	0.8 (0.5)	35.1 (27.8)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 9 positive diagnostic species (95% confidence interval) provided 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 9 positive diagnostic species.

Positive Diagnostic Species:

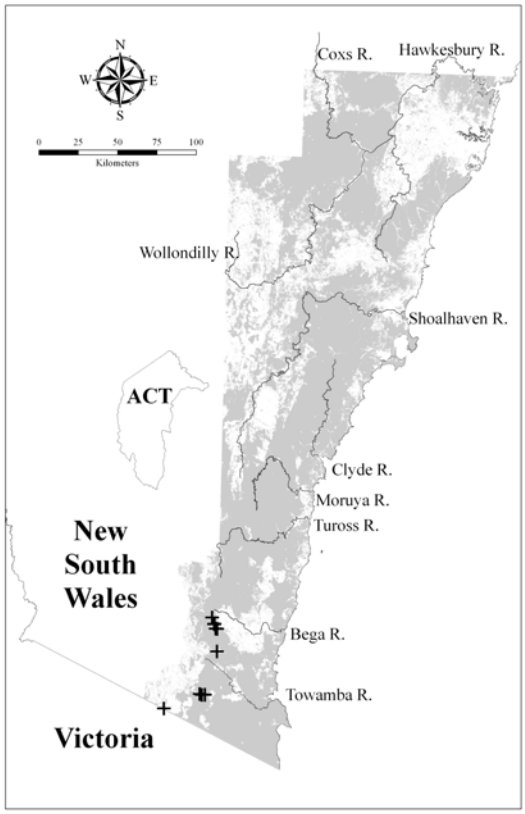
Species	C/A	Freq	C/A O	Freq O
Acacia dealbata	2(2-3)	92	1(1-2)	5
Australina pusilla	1(1-2)	42	1(1-2)	2
Bedfordia arborescens	1(1-1)	50	1(1-2)	3
Blechnum nudum	1(1-2)	25	1(1-2)	3
Blechnum wattsii	3(2-3)	42	1(1-2)	2
Clematis aristata	1(1-1)	75	1(1-1)	20
Coprosma quadrifida	1(1-2)	58	1(1-1)	10
Dicksonia antarctica	2(1-3)	92	1(1-3)	4
Eucalyptus fastigata	2(2-4)	58	2(1-3)	6
Eucalyptus nitens	3(2-3)	67	2(1-3)	<1
Gahnia sieberiana	1(1-2)	75	1(1-1)	4
Histiopteris incisa	1(1-1)	50	1(1-1)	1
Hydrocotyle peduncularis	1(1-1)	42	1(1-1)	9
Olearia argophylla	3(2-3)	92	1(1-2)	3
Olearia phlogopappa	1(1-2)	25	1(1-1)	<1
Olearia stellulata	2(1-2)	25	1(1-1)	1
Parsonsia brownii	1(1-2)	58	1(1-2)	2
Persoonia silvatica	2(1-2)	33	1(1-1)	2
Pittosporum bicolor	1(1-1)	33	1(1-1)	<1
Poa ensiformis	1(1-2)	42	1(1-2)	2
Polystichum proliferum	2(1-3)	83	1(1-2)	4
Pomaderris aspera	1(1-2)	33	1(1-2)	5
Prostanthera lasianthos	2(1-2)	67	1(1-1)	2
Stellaria flaccida	1(1-1)	50	1(1-1)	11
Tasmannia lanceolata	2(1-2)	50	1(1-2)	1

Constant:

Species	C/A	Freq	C/A O	Freq O
Microlaena stipoides	1(1-1)	33	1(1-2)	36
Pteridium esculentum	1(1-1)	42	1(1-2)	37
Smilax australis	1(1-1)	33	1(1-1)	16
Viola hederacea	1(1-1)	42	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus badjensis	2(2-2)	17	2(1-3)	<1
Eucalyptus elata	2(2-2)	8	2(1-3)	5
Eucalyptus fraxinoides	3(3-3)	8	2(1-3)	1
Eucalyptus obliqua	1(1-1)	8	2(1-3)	4



Locations of survey sites allocated to WSF e9. Grey shading indicates extant native vegetation cover within the study area.

WSF e10: Southeast Mountain Wet Layered Forest

Plate e10. Southeast Mountain Wet Layered Forest (Map Unit e10) dominated by *Eucalyptus fastigata* with a sub canopy of *Bedfordia arborescens* on the watershed between Wog Wog River and Basin Creek, Coolangubra section, South East Forests National Park.

Sample Sites: 100
Area Extant (ha): 17500
Estimated % remaining: 85-95%
Area in conservation reserves (ha): 9900
Estimated % of pre-clearing area in conservation reserves: 45-55%
No. Taxa (total / unique): 290 / 1
No. Taxa per Plot (±sd): 30.3 (13.8)
Class: Southern Escarpment Wet Sclerophyll Forests
Related TEC: n/a

Southeast Mountain Wet Layered Forest is equivalent to Mountain Wet Layered Forest (unit 10) described by Keith & Bedward (1999). Although it is structurally similar to the preceding assemblage (Map Unit WSF e9), these forests exceeding 35 m in height are usually dominated by pure stands of *Eucalyptus fastigata* or may have a minor component of *E. cypellocarpa*. Subcanopy species typically reach a height of 10 m in high densities. The understorey is dominated by *Dicksonia antarctica* with *Coprosma quadrifida* while the groundcover comprises ferns and scattered herbs. A variety of climbing species are also common. Southeast Mountain Wet Layered Forest typically occurs in large stands on moist granitoid slopes at 600-1000 m elevation (generally lower than Map Unit 9), although small unusual stands occur on metasediments and at lower elevation in sheltered gullies. The major stands occur on the escarpment range between Brown Mountain and the upper Tantawangalo Creek area, at Mt Darragh, in the upper Wog Wog River and on Egan Peaks. Scattered occurrences occur along the Kybean Range and as far north as Clyde Mountain. A similar model of vegetation dynamics is likely to apply to Mountain Wet Layered Forests as described previously for layered forests at higher elevation (Map Unit WSF e9). Frequent disturbance regimes are therefore likely to entail similar adverse ecological consequences. Similar assemblages have not been explicitly described in adjacent regions. However, such vegetation may exist within wet sclerophyll complexes on Erinundra and Nunniong Plateaux in East Gippsland (Woodgate *et al.* 1994). For example, Southeast Mountain Wet Layered Forest in Eden shares some features of East Gippsland Community 8.1 and other features of 8.2 described by Forbes *et al.* (1982).

Floristic Summary:
Trees: *Acacia dealbata, Bedfordia arborescens, Cyathea australis, Dicksonia antarctica, Eucalyptus fastigata* **Shrubs:** *Coprosma quadrifida, Olearia argophylla, Pomaderris aspera* **Climbers:** *Clematis aristata, Smilax australis* **Groundcover:** *Blechnum nudum, Dianella tasmanica, Geranium potentilloides, Polystichum proliferum, Pteridium esculentum, Stellaria flaccida, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=49)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	96	34.5 (7.8)	37 (18.7)
Small tree	98	10.8 (4.4)	52.6 (27.8)
Shrub	67	2.6 (1.5)	25.8 (21.7)
Ground cover	100	0.7 (0.3)	41.5 (23.1)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 14 positive diagnostic species (95% confidence interval) provided 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 14 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia dealbata	2(1-3)	41	1(1-2)	5
Acacia melanoxylon	1(1-2)	39	1(1-1)	6
Acaena novae-zelandiae	1(1-1)	23	1(1-1)	7
Australina pusilla	1(1-1)	13	1(1-2)	1
Bedfordia arborescens	2(2-3)	73	1(1-2)	3
Blechnum nudum	2(1-3)	50	1(1-2)	3
Blechnum wattsii	1(1-2)	24	1(1-2)	2
Carex appressa	1(1-1)	12	1(1-1)	4
Clematis aristata	1(1-1)	72	1(1-1)	19
Coprosma quadrifida	1(1-1)	82	1(1-1)	9
Cyathea australis	1(1-2)	45	1(1-1)	8
Deyeuxia gunniana	1(1-1)	4	1(1-1)	<1
Deyeuxia monticola	1(1-1)	6	1(1-1)	1
Dianella tasmanica	1(1-1)	43	1(1-1)	7
Dicksonia antarctica	1(1-2)	52	1(1-3)	3
Drymophila cyanocarpa	1(1-1)	8	1(1-1)	<1
Elaeocarpus holopetalus	1(1-2)	11	1(1-1)	<1
Eucalyptus badjensis	2(1-3)	5	2(1-2)	<1
Eucalyptus cypellocarpa	2(1-2)	39	2(1-2)	10
Eucalyptus fastigata	3(2-3)	93	2(1-3)	5
Eucalyptus fraxinoides	2(1-2)	8	2(1-3)	1
Eucalyptus nitens	2(2-3)	5	2(1-3)	<1
Fieldia australis	1(1-1)	16	2(1-3)	2
Gahnia sieberiana	1(1-2)	16	1(1-1)	4
Galium propinquum	1(1-1)	20	1(1-1)	7
Geranium homeanum	1(1-1)	15	1(1-1)	3
Geranium potentilloides	1(1-1)	50	1(1-1)	5
Goodia lotifolia	1(1-1)	10	1(1-1)	2
Hakea eriantha	1(1-1)	9	1(1-1)	2
Hedycarya angustifolia	1(1-1)	24	1(1-3)	4
Hierochloe rariflora	1(1-1)	14	1(1-2)	4
Histiopteris incisa	1(1-1)	12	1(1-1)	1
Hydrocotyle peduncularis	1(1-1)	39	1(1-1)	8

Hymenophyllum cupressiforme	1(1-1)	7	1(1-1)	1
Isolepis inundata	1(1-1)	8	1(1-1)	1
Juncus thompsonianus	1(1-1)	4	1(1-1)	<1
Lagenifera stipitata	1(1-1)	37	1(1-1)	14
Leptinella filicula	1(1-1)	17	1(1-1)	<1
Lomatia fraseri	1(1-2)	12	1(1-1)	1
Lomatia myricoides	1(1-1)	17	1(1-1)	4
Luzula flaccida	1(1-1)	17	1(1-1)	4
Microsorum pustulatum	1(1-1)	9	1(1-2)	1
Olearia argophylla	2(1-2)	80	1(1-1)	2
Olearia megalophylla	1(1-1)	4	1(1-1)	<1
Olearia phlogopappa	1(1-2)	8	1(1-1)	<1
Olearia stellulata	1(1-1)	20	1(1-1)	1
Parsonsia brownii	1(1-1)	17	1(1-2)	1
Pimelea axiflora	1(1-1)	28	1(1-1)	3
Pimelea ligustrina	1(1-1)	21	1(1-1)	1
Pittosporum bicolor	1(1-1)	7	1(1-1)	<1
Poa ensiformis	1(1-1)	27	1(1-2)	2
Poa meionectes	1(1-1)	31	1(1-2)	16
Polystichum proliferum	1(1-2)	74	1(1-2)	3
Pomaderris aspera	2(1-2)	83	1(1-1)	4
Prostanthera lasianthos	1(1-1)	25	1(1-1)	2
Pteridium esculentum	1(1-2)	71	1(1-2)	37
Ranunculus plebeius	1(1-1)	18	1(1-1)	1
Sambucus australasica	1(1-1)	8	1(1-1)	1
Sambucus gaudichaudiana	1(1-1)	6	1(1-1)	<1
Senecio linearifolius	1(1-1)	30	1(1-1)	8
Smilax australis	1(1-1)	72	1(1-1)	16
Stellaria flaccida	1(1-1)	69	1(1-1)	10
Tasmannia lanceolata	1(1-2)	32	1(1-1)	1
Tetrarrhena juncea	1(1-1)	17	1(1-2)	5
Tylophora barbata	1(1-1)	39	1(1-1)	16
Urtica incisa	1(1-1)	31	1(1-1)	5
Veronica calycina	1(1-1)	26	1(1-1)	6
Veronica notabilis	1(1-1)	22	1(1-1)	<1
Viola hederacea	1(1-1)	74	1(1-1)	21
Xerochrysum bracteatum	1(1-1)	13	1(1-1)	2

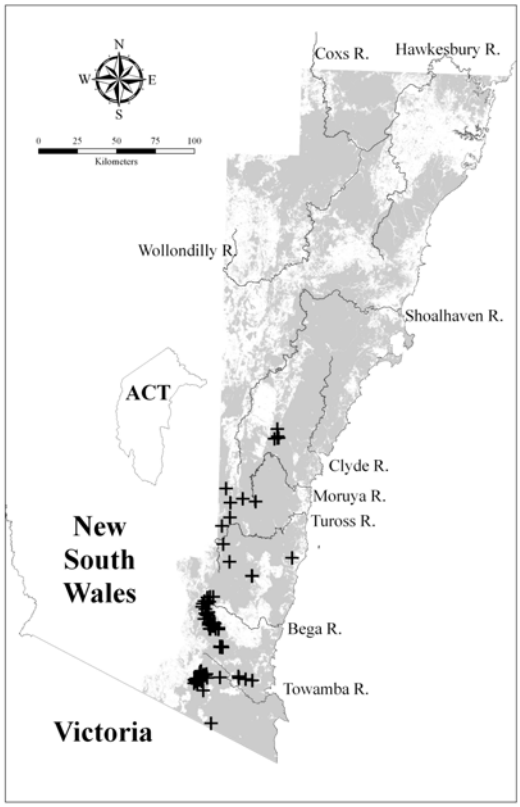
Constant:

Species	C/A	Freq	C/A O	Freq O
Microlaena stipoides	1(1-1)	39	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-1)	1	1(1-2)	9
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-1)	1	1(1-2)	3
Eucalyptus elata	1(1-1)	4	2(1-3)	5

Eucalyptus maidenii	1(1-1)	1	2(1-2)	2
Eucalyptus obliqua	1(1-1)	10	2(1-3)	4
Eucalyptus radiata subsp. *radiata*	2(1-2)	5	2(1-3)	6
Eucalyptus smithii	1(1-1)	2	1(1-2)	2
Eucalyptus viminalis	2(1-3)	4	2(1-3)	5



Locations of survey sites allocated to WSF e10. Grey shading indicates extant native vegetation cover within the study area.

WSF e11: Tantawangalo Wet Shrub Forest

Plate e11. Tantawangalo Wet Shrub Forest (Map Unit e11) dominated by *Eucalyptus cypellocarpa* with *E. fastigata* over an open stratum of *Bedfordia arborescens, Exocarpos strictus* and *Olearia argophylla* on Robinsons Road in the upper Tantawangalo Creek catchment, Tantawangalo section of South East Forests National Park.

Sample Sites: 23
Area Extant (ha): 800
Estimated % remaining: >95%
Area in conservation reserves (ha): 740
Estimated % of pre-clearing area in conservation reserves: >90%
No. Taxa (total / unique): 110 / 0
No. Taxa per Plot (±sd): 29.4 (5.7)
Class: Southern Escarpment Wet Sclerophyll Forests
Related TEC: n/a

Tantawangalo Wet Shrub Forest is equivalent to unit 11 of the same name described by Keith & Bedward (1999). This tall forest is characterised by a prominent and diverse shrub stratum that distinguishes it from other wet eucalypt forest assemblages. The understorey is dominated by tree ferns and shrubs, often tangled with a variety of climbing species. The groundcover is dominated by graminoids and lilioids. This distinctive forest assemblage is restricted to the upper Tantawangalo Creek area on moderate granitoid slopes at 800 - 1000 m elevation. Almost all occurrences are represented within Southeast Forests National Park. While there are no immediate threats, diversity of the shrubby understorey may be reduced if fire frequency increases significantly in future. There are apparently no similar forest assemblages outside the Eden region (Costin 1954, Austin 1978, Forbes *et al.* 1982, Woodgate *et al.* 1994).

Floristic Summary:
Trees: *Acacia melanoxylon, Bedfordia arborescens, Elaeocarpus holopetalus, Eucalyptus cypellocarpa, Eucalyptus fastigata, Eucalyptus obliqua, Exocarpos strictus* **Shrubs:** *Bursaria spinosa, Coprosma quadrifida, Gahnia sieberiana, Hakea eriantha, Leucopogon lanceolatus* var. *lanceolatus, Olearia argophylla, Pomaderris aspera, Tasmannia lanceolata* **Climbers:** *Billardiera scandens, Clematis aristata, Smilax australis, Tylophora barbata* **Groundcover:** *Dianella tasmanica, Gonocarpus teucrioides, Goodenia ovata, Hierochloe rariflora, Hydrocotyle laxiflora, Lepidosperma laterale, Lomandra longifolia, Poa meionectes, Pteridium esculentum, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=19)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	19 (-)	37.7 (9.8)
Small tree	89	4 (-)	18.1 (10.7)
Shrub	95	- (-)	32.7 (13)
Ground cover	100	1 (-)	24.9 (7)

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 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 19 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia dealbata	1(1-1)	26	1(1-2)	5
Acacia melanoxylon	3(2-3)	61	1(1-1)	6
Bedfordia arborescens	2(1-3)	52	1(1-2)	3
Billardiera scandens	1(1-1)	70	1(1-1)	27
Blechnum wattsii	1(1-2)	22	1(1-2)	2
Bursaria spinosa	1(1-2)	43	1(1-2)	14
Clematis aristata	1(1-1)	87	1(1-1)	20
Comesperma volubile	1(1-1)	26	1(1-1)	2
Coprosma quadrifida	1(1-1)	78	1(1-1)	9
Cyathea australis	1(1-1)	35	1(1-2)	8
Dianella tasmanica	1(1-1)	74	1(1-1)	7
Drymophila cyanocarpa	1(1-1)	39	1(1-1)	<1
Elaeocarpus holopetalus	1(1-1)	43	1(1-2)	<1
Eucalyptus cypellocarpa	2(2-3)	91	2(1-2)	10

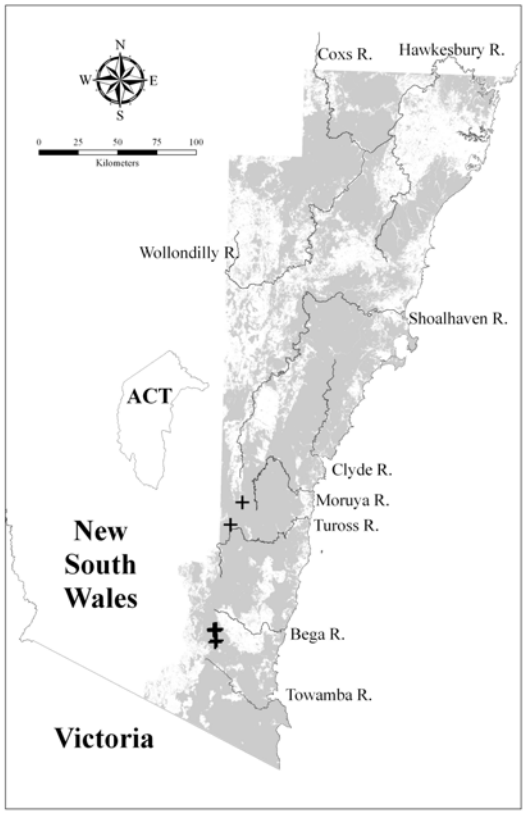
Eucalyptus elata	2(1-2)	26	2(1-3)	5
Eucalyptus fastigata	3(2-3)	87	2(1-3)	6
Eucalyptus obliqua	3(2-3)	83	2(1-3)	4
Eucalyptus radiata subsp. *radiata*	2(1-2)	26	2(1-3)	6
Exocarpos strictus	1(1-1)	57	1(1-1)	9
Gahnia sieberiana	2(1-2)	61	1(1-1)	4
Galium propinquum	1(1-1)	39	1(1-1)	7
Geranium homeanum	1(1-1)	39	1(1-1)	3
Gonocarpus teucrioides	1(1-1)	65	1(1-1)	17
Goodenia ovata	1(1-2)	61	1(1-1)	7
Hakea eriantha	1(1-2)	70	1(1-1)	2
Hierochloe rariflora	1(1-1)	43	1(1-2)	4
Hydrocotyle laxiflora	1(1-1)	48	1(1-1)	15
Lagenifera stipitata	1(1-1)	39	1(1-1)	14
Lepidosperma laterale	1(1-2)	70	1(1-1)	28
Lepidosperma urophorum	1(1-1)	26	1(1-2)	7
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	65	1(1-1)	23
Lomandra longifolia	1(1-1)	87	1(1-1)	44
Olearia argophylla	1(1-1)	61	1(1-2)	3
Persoonia silvatica	1(1-1)	22	1(1-1)	2
Pimelea ligustrina	1(1-1)	26	1(1-1)	1
Poa meionectes	1(1-1)	57	1(1-2)	16
Pomaderris aspera	2(1-2)	57	1(1-2)	5
Prostanthera lasianthos	1(1-1)	26	1(1-1)	2
Pteridium esculentum	1(1-1)	100	1(1-2)	37
Smilax australis	1(1-1)	83	1(1-1)	16
Tasmannia lanceolata	2(1-2)	83	1(1-1)	1
Tylophora barbata	1(1-1)	65	1(1-1)	17
Veronica calycina	1(1-1)	35	1(1-1)	6
Viola hederacea	1(1-1)	91	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
Poranthera microphylla	1(1-1)	35	1(1-1)	15

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus sieberi	2(2-4)	13	2(1-3)	16



Locations of survey sites allocated to WSF e11. Grey shading indicates extant native vegetation cover within the study area.

WSF e12: Mountain Wet Fern Forest

Plate e12. Mountain Wet Fern Forest (Map Unit e12) dominated by *Eucalyptus fastigata* with a dense groundcover of *Blechnum nudum* near Mt Darragh, Tantawangalo section of South East Forests National Park.

Sample Sites: 95
Area Extant (ha): 48300
Estimated % remaining: >95%

Area in conservation reserves (ha): 36300
Estimated % of pre-clearing area in conservation reserves: 70-80%
No. Taxa (total / unique): 316 / 1
No. Taxa per Plot (±sd): 32.4 (11.1)
Class: Southern Escarpment Wet Sclerophyll Forests
Related TEC: n/a

Mountain Wet Fern Forest is equivalent to unit 12 of the same name described by Keith & Bedward (1999) and WSF70 (Southern Ranges Wet Forest) described by Tindall *et al.* (2004). This tall *Eucalyptus* forest typically exceeds 32 m in height and has an understorey of scattered shrubs and groundcover dominated by ferns. Tree ferns and tall mesic shrubs sometimes form an open stratum ca. 10 m tall while a variety of herb and vine species are also found amongst the groundcover of ferns. Mountain Wet Fern Forest occurs south of Clyde Mountain on steep sheltered granitoid slopes at 450 - 1200 m elevation on the escarpment range and outlying mountains such as Egan Peaks, Mt Poole and Deua National Park. Mountain Wet Fern Forest is most similar to Southeast Mountain Wet Layered Forest (Map Unit WSFe10), but differs in the presence of minor tree species and greater abundance of *E. cypellocarpa*, its more open subcanopy and in the composition and greater diversity of its understorey. The diversity of this assemblage may be affected by regimes of frequent and/or intense disturbances (i.e. fires and logging). Dense and rapid vegetative recovery of ferns that follows logging and regeneration burns may suppress establishment of seedlings, reducing the diversity of woody species including trees. Frequent burning is likely to exacerbate this effect, although these threats are not ubiquitous in Mountain Wet Fern Forest, since about two-thirds of its extent is represented within conservation reserves. Similar assemblages may exist in the wet forest complex of East Gippsland (Ecological Vegetation Class 30, Woodgate *et al.* 1994), but this needs further investigation.

Floristic Summary:
Trees: *Bedfordia arborescens, Cyathea australis, Eucalyptus cypellocarpa, Eucalyptus fastigata* **Shrubs:** *Coprosma quadrifida, Leucopogon lanceolatus* var. *lanceolatus* **Climbers:** *Clematis aristata, Smilax australis, Tylophora barbata* **Groundcover:** *Blechnum cartilagineum, Calochlaena dubia, Geranium potentilloides, Goodenia ovata, Hierochloe rariflora, Lagenifera stipitata, Pteridium esculentum, Stellaria flaccida, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=61)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	32.8 (6.4)	37.8 (16.7)
Small tree	85	10.3 (6.9)	29.4 (23.8)
Shrub	62	2.8 (1.5)	21.8 (18.9)
Ground cover	100	1 (0.3)	52.1 (30.4)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 14 positive diagnostic species (95% confidence interval) provided 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 14 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	1(1-1)	29	1(1-2)	10
Acacia melanoxylon	1(1-2)	23	1(1-1)	6
Bedfordia arborescens	1(1-3)	43	1(1-2)	3
Blechnum cartilagineum	2(1-3)	48	1(1-2)	11
Blechnum nudum	2(2-4)	37	1(1-2)	3
Blechnum wattsii	1(1-2)	7	1(1-2)	2
Calochlaena dubia	1(1-3)	43	1(1-3)	9
Carex appressa	1(1-1)	15	1(1-1)	4
Clematis aristata	1(1-1)	73	1(1-1)	19
Coprosma quadrifida	1(1-1)	68	1(1-1)	9
Cyathea australis	1(1-2)	67	1(1-1)	8
Dianella tasmanica	1(1-1)	36	1(1-1)	7
Dichelachne rara	1(1-1)	15	1(1-1)	4
Dicksonia antarctica	1(1-2)	24	2(1-3)	4

Eucalyptus cypellocarpa	2(2-2)	86	2(1-2)	9
Eucalyptus elata	1(1-2)	28	2(1-3)	5
Eucalyptus fastigata	2(2-3)	79	2(1-3)	5
Eucalyptus obliqua	1(1-2)	35	2(1-3)	4
Eustrephus latifolius	1(1-1)	37	1(1-1)	19
Galium binifolium	1(1-1)	11	1(1-1)	3
Geranium potentilloides	1(1-1)	45	1(1-1)	5
Goodenia ovata	1(1-1)	41	1(1-1)	7
Goodia lotifolia	1(1-1)	34	1(1-1)	2
Hakea eriantha	1(1-2)	14	1(1-1)	2
Hedycarya angustifolia	1(1-1)	24	1(1-3)	4
Helichrysum elatum	1(1-1)	12	1(1-1)	2
Hierochloe rariflora	1(1-2)	44	1(1-2)	3
Hydrocotyle geraniifolia	1(1-2)	17	1(1-1)	2
Hydrocotyle peduncularis	1(1-1)	29	1(1-1)	8
Isolepis inundata	1(1-1)	8	1(1-1)	1
Lagenifera stipitata	1(1-1)	47	1(1-1)	14
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	58	1(1-1)	23
Luzula flaccida	1(1-1)	12	1(1-1)	4
Olearia argophylla	1(1-2)	22	1(1-2)	3
Oxalis chnoodes	1(1-1)	7	1(1-1)	1
Pimelea axiflora	1(1-1)	37	1(1-1)	3
Pimelea ligustrina	1(1-1)	11	1(1-1)	1
Poa ensiformis	1(1-1)	17	1(1-2)	2
Poa meionectes	1(1-2)	39	1(1-2)	16
Poa tenera	1(1-1)	5	1(1-2)	<1
Polystichum proliferum	1(1-1)	21	1(1-2)	3
Pomaderris aspera	1(1-1)	35	1(1-2)	4
Poranthera microphylla	1(1-1)	37	1(1-1)	15
Prostanthera lasianthos	1(1-1)	11	1(1-1)	2
Pteridium esculentum	1(1-2)	97	1(1-2)	36
Rubus rosifolius	1(1-1)	12	1(1-1)	3
Schelhammera undulata	1(1-1)	32	1(1-1)	7
Senecio linearifolius	1(1-1)	37	1(1-1)	8
Smilax australis	1(1-1)	86	1(1-1)	15
Stellaria flaccida	1(1-1)	77	1(1-1)	10
Sticherus lobatus	1(1-2)	9	1(1-3)	1
Tasmannia lanceolata	1(1-1)	8	1(1-2)	1
Tetrarrhena juncea	1(1-2)	26	1(1-2)	5
Tylophora barbata	1(1-1)	83	1(1-1)	16
Veronica calycina	1(1-1)	19	1(1-1)	6
Veronica notabilis	1(1-1)	11	1(1-1)	1
Viola hederacea	1(1-1)	84	1(1-1)	21

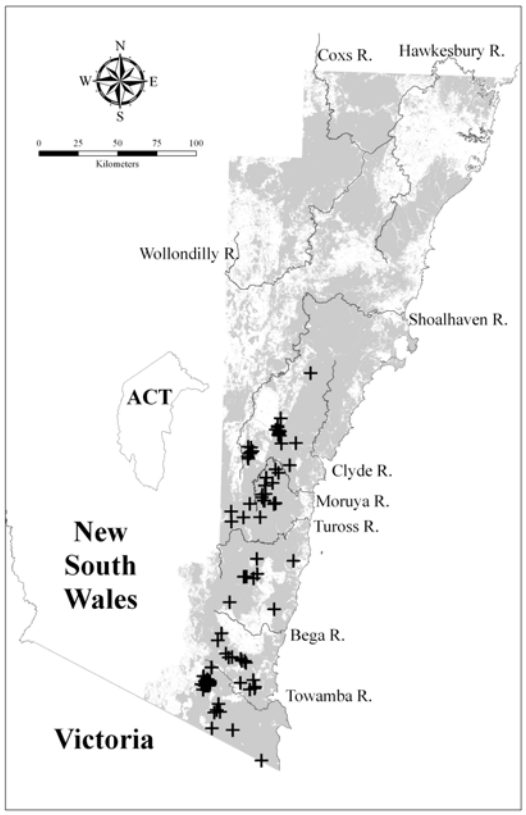
Constant:

Species	C/A	Freq	C/A O	Freq O

Billardiera scandens	1(1-1)	37	1(1-1)	27
Desmodium varians	1(1-1)	31	1(1-1)	21
Glycine clandestina	1(1-1)	38	1(1-1)	26
Lomandra longifolia	1(1-1)	37	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-1)	1	1(1-2)	9
Eucalyptus agglomerata	1(1-1)	2	2(1-3)	8
Eucalyptus angophoroides	1(1-1)	1	1(1-2)	1
Eucalyptus croajingolensis	1(1-1)	1	2(1-3)	<1
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-1)	1	1(1-2)	3
Eucalyptus fraxinoides	2(1-2)	4	2(1-3)	1
Eucalyptus globoidea	1(1-1)	8	2(1-2)	12
Eucalyptus maidenii	1(1-1)	2	2(1-2)	2
Eucalyptus muelleriana	1(1-3)	9	2(1-2)	6
Eucalyptus radiata subsp. *radiata*	2(1-2)	8	2(1-3)	6
Eucalyptus sieberi	1(1-1)	13	2(1-3)	16
Eucalyptus smithii	1(1-1)	4	1(1-2)	2
Eucalyptus viminalis	2(1-2)	3	2(1-3)	5



Locations of survey sites allocated to WSF e12. Grey shading indicates extant native vegetation cover within the study area.

WSF e13: Southeast Hinterland Wet Fern Forest

Plate e13. Southeast Hinterland Wet Fern Forest (Map Unit e13) dominated by *Eucalyptus cypellocarpa* with a dense groundcover of *Calochlaena dubia* in the upper New England Creek catchment, Murrabrine section of Wadbilliga National Park.

Sample Sites: 65
Area Extant (ha): 26900
Estimated % remaining: >90%
Area in conservation reserves (ha): 14600
Estimated % of pre-clearing area in conservation reserves: 45-55%
No. Taxa (total / unique): 303 / 0
No. Taxa per Plot (±sd): 38.4 (12.1)
Class: South Coast Wet Sclerophyll Forests
Related TEC: n/a

Southeast Hinterland Wet Fern Forest is equivalent to Hinterland Wet Fern Forest (unit 13) described by Keith & Bedward (1999) and comprises a diverse mesic assemblage dominated by *Eucalyptus* species over 30 m tall. One or two open strata of shrubs *ca*. 2 - 9 m tall may be present and the dense groundcover is dominated by ferns. A variety of herbs and vines are also commonly found growing amongst the large clumps of ferns. Hinterland Wet Fern Forest is widespread in gullies and moist sheltered slopes in relatively large stands below 800 m elevation. In the higher part of its altitudinal range it is replaced by Mountain Wet Fern Forest (Map Unit WSFe12) or Southeast Mountain Wet Herb Forest (Map Unit WSFe15) which differ in their understorey composition and greater abundance of *E. fastigata*. Although most extensive on granitoid substrates of the escarpment and hinterland, it is also common on metasediments, particularly on central parts of the coastal range west of Merimbula. Restricted stands occur in coastal gullies in the Nadgee area. Clearing is a potential threat over the 8 000 ha of Hinterland Wet Fern Forest that occur on private land. Logging may also threaten the diversity of woody species including trees where dense and rapid vegetative recovery of ferns after regeneration burns suppresses establishment of seedlings. Frequent burning is likely to exacerbate pressure on populations of woody species, especially in combination with logging or partial clearing activities. However, the threats posed by clearing, logging and frequent burning are not ubiquitous in Southeast Hinterland Wet Fern Forest, since about half of its extent is represented within conservation reserves. A similar assemblage has been described in East Gippsland (Community 13.2, Forbes *et al.* 1982) within the extensive damp forest complex (Ecological vegetation Class 29, Woodgate *et al.* 1994).

Floristic Summary:
Trees: *Acacia falciformis, Eucalyptus cypellocarpa, Eucalyptus muelleriana* **Shrubs:** *Coprosma quadrifida, Indigofera australis, Pimelea axiflora, Pomaderris aspera, Senecio linearifolius* **Climbers:** *Eustrephus latifolius, Rubus parvifolius, Smilax australis, Tylophora barbata* **Groundcover:** *Adiantum aethiopicum, Blechnum cartilagineum, Calochlaena dubia, Desmodium varians, Doodia aspera, Echinopogon ovatus, Geranium potentilloides, Glycine clandestina, Hydrocotyle peduncularis, Lagenifera stipitata, Lomandra longifolia, Oplismenus imbecillis, Poa meionectes, Pteridium esculentum, Schelhammera undulata, Stellaria flaccida, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=37)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	32.3 (6.5)	34.3 (14.4)
Small tree	84	10.2 (5.9)	28.9 (16.3)
Shrub	86	2.3 (1.6)	21.1 (18.1)
Ground cover	100	0.8 (0.4)	61.1 (28.6)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 18 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 29 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 18 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia cognata	2(1-2)	17	1(1-2)	1
Acacia falciformis	1(1-2)	43	1(1-2)	10
Acacia mearnsii	1(1-2)	22	1(1-2)	7
Acacia melanoxylon	1(1-2)	29	1(1-1)	6
Adiantum aethiopicum	1(1-1)	42	1(1-2)	9
Babingtonia pluriflora	1(1-2)	17	1(1-1)	1
Bedfordia arborescens	1(1-2)	23	1(1-2)	3
Blechnum cartilagineum	1(1-2)	68	1(1-2)	11
Blechnum nudum	1(1-2)	12	1(1-2)	3
Calochlaena dubia	3(1-4)	69	1(1-3)	9
Carex appressa	1(1-1)	18	1(1-1)	4
Cassinia aculeata	1(1-1)	34	1(1-1)	6
Cassinia longifolia	1(1-2)	18	1(1-2)	6
Clematis aristata	1(1-1)	37	1(1-1)	20
Clematis glycinoides var. *glycinoides*	1(1-1)	32	1(1-1)	10
Coprosma quadrifida	1(1-1)	42	1(1-1)	9
Cyathea australis	1(1-1)	25	1(1-2)	8
Desmodium varians	1(1-1)	65	1(1-1)	21
Dianella tasmanica	1(1-1)	22	1(1-1)	7
Doodia aspera	1(1-2)	75	1(1-2)	11
Echinopogon ovatus	1(1-1)	46	1(1-1)	14
Elaeocarpus reticulatus	1(1-1)	28	1(1-1)	12
Eucalyptus cypellocarpa	2(2-2)	86	2(1-2)	9
Eucalyptus elata	2(1-2)	38	2(1-3)	5
Eucalyptus muelleriana	2(1-2)	46	2(1-2)	6
Euchiton gymnocephalus	1(1-1)	22	1(1-1)	7
Eustrephus latifolius	1(1-1)	55	1(1-1)	19
Exocarpos strictus	1(1-1)	29	1(1-1)	9
Gahnia melanocarpa	1(1-1)	25	1(1-1)	5
Geitonoplesium cymosum	1(1-1)	35	1(1-1)	16
Geranium potentilloides	1(1-1)	51	1(1-1)	5
Glycine clandestina	1(1-1)	66	1(1-1)	26
Goodenia ovata	1(1-1)	32	1(1-1)	7

Goodia lotifolia	1(1-1)	29	1(1-1)	2
Helichrysum elatum	1(1-1)	12	1(1-1)	2
Hibbertia dentata	1(1-1)	37	1(1-1)	6
Hierochloe rariflora	1(1-2)	15	1(1-2)	4
Hydrocotyle peduncularis	1(1-1)	40	1(1-1)	8
Indigofera australis	1(1-2)	63	1(1-1)	9
Lagenifera stipitata	1(1-1)	40	1(1-1)	14
Libertia paniculata	1(1-1)	23	1(1-1)	2
Luzula flaccida	1(1-1)	12	1(1-1)	4
Marsdenia rostrata	1(1-1)	26	1(1-2)	12
Notelaea venosa	1(1-1)	26	1(1-1)	12
Oplismenus imbecillis	1(1-2)	45	1(1-2)	14
Phyllanthus gunnii	1(1-1)	9	1(1-1)	2
Pimelea axiflora	1(1-1)	42	1(1-1)	3
Plantago debilis	1(1-1)	28	1(1-1)	7
Poa ensiformis	1(1-2)	12	1(1-2)	2
Poa meionectes	1(1-2)	63	1(1-2)	16
Pomaderris aspera	2(1-2)	49	1(1-2)	4
Prostanthera lasianthos	1(1-2)	26	1(1-1)	2
Pteridium esculentum	1(1-2)	78	1(1-2)	37
Ranunculus plebeius	1(1-1)	9	1(1-1)	1
Rapanea howittiana	1(1-1)	15	1(1-1)	5
Rubus parvifolius	1(1-1)	62	1(1-1)	9
Schelhammera undulata	1(1-1)	49	1(1-1)	7
Senecio linearifolius	1(1-1)	55	1(1-1)	8
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	25	1(1-1)	7
Smilax australis	1(1-1)	57	1(1-1)	16
Stellaria flaccida	1(1-1)	58	1(1-1)	10
Tetrarrhena juncea	2(1-2)	17	1(1-2)	5
Tylophora barbata	1(1-1)	86	1(1-1)	16
Veronica calycina	1(1-1)	17	1(1-1)	6
Viola hederacea	1(1-1)	75	1(1-1)	21

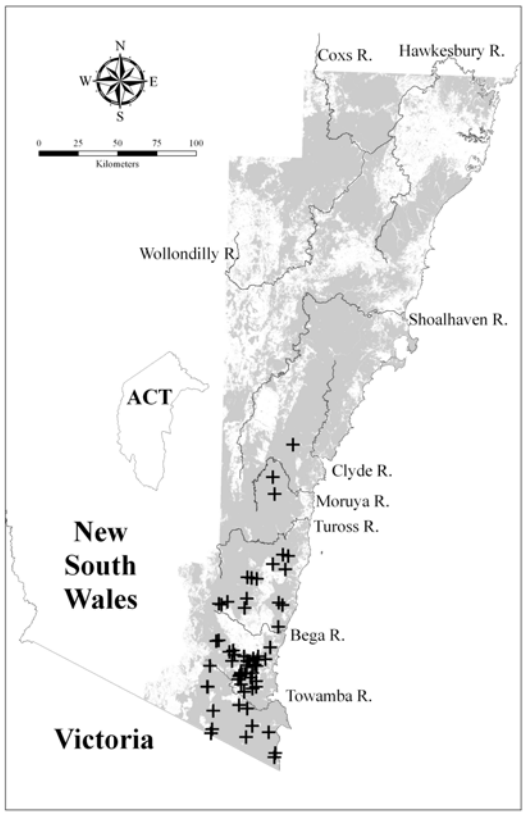
Constant:

Species	C/A	Freq	C/A O	Freq O
Dichondra spp.	1(1-1)	34	1(1-2)	25
Lomandra longifolia	1(1-1)	49	1(1-1)	44
Microlaena stipoides	1(1-1)	31	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-2)	17	1(1-2)	9
Corymbia gummifera	2(1-2)	6	2(1-2)	16
Eucalyptus agglomerata	2(1-2)	5	2(1-3)	7
Eucalyptus angophoroides	2(1-2)	3	1(1-2)	1
Eucalyptus baueriana	2(2-2)	2	2(1-2)	1
Eucalyptus bosistoana	1(1-1)	6	1(1-2)	3

Eucalyptus botryoides	2(1-2)	3	2(1-3)	3
Eucalyptus fastigata	2(1-3)	9	2(1-3)	6
Eucalyptus fraxinoides	2(2-2)	2	2(1-3)	1
Eucalyptus globoidea	1(1-2)	17	2(1-2)	12
Eucalyptus maidenii	1(1-2)	5	2(1-2)	2
Eucalyptus obliqua	2(1-3)	12	2(1-3)	4
Eucalyptus sieberi	2(1-3)	9	2(1-3)	16
Eucalyptus smithii	2(2-2)	2	1(1-2)	2
Eucalyptus viminalis	1(1-3)	6	2(1-3)	5



Locations of survey sites allocated to WSF e13. Grey shading indicates extant native vegetation cover within the study area.

WSF e14: Southeast Hinterland Wet Shrub Forest

Plate e14. Southeast Hinterland Wet Shrub Forest (Map Unit e14) dominated by *Eucalyptus muelleriana, E. cypellocarpa* and *E. elata* with *Acacia falciformis, A. mearnsii* and *Elaeocarpus reticulatus* at Sugarloaf Road, Yowaka_NPAGEt.

Sample Sites: 46
Area Extant (ha): 25500
Estimated % remaining: >90%
Area in conservation reserves (ha): 9600
Estimated % of pre-clearing area in conservation reserves: 30-40%
No. Taxa (total / unique): 237 / 0
No. Taxa per Plot (±sd): 34.0 (9.8)
Class: South Coast Wet Sclerophyll Forests
Related TEC: n/a

Southeast Hinterland Wet Shrub Forest is equivalent to Hinterland Wet Shrub Forest (unit 14) described by Keith & Bedward (1999). This unit comprises a tall *Eucalyptus* forest frequently exceeding 30 m in height. The understorey includes prominent strata of small trees and shrubs ca. 3 - 9 m tall and the groundcover is dominated by forbs and grasses. Vines are also present growing amongst the groundcover and shrubs. Hinterland Wet Shrub Forest is widespread in gullies and steep moist sheltered slopes below 500 m elevation predominantly on metasediments of the coastal ranges. Outlying stands occur on granitoid substrates in the south-west hinterland near Mt Waalimma and Mt Poole and at Mount Dromedary on volcanic substrates in the north. Where Southeast Hinterland Wet Shrub Forest co-occurs with Southeast Hinterland Wet Fern Forest (Map Unit WSFe13), the latter generally occupies more mesic sites. Distinguishing features include the dominance of *E. muelleriana*, a more diverse tall shrub stratum and lack of fern swards in the understorey of Southeast Hinterland Wet Shrub Forest. Clearing is a potential threat over the 3 800 ha of this unit that occurs on private land. Outside reserves, logging in combination with frequent burning may threaten the diversity of the understorey by interrupting life-history processes of woody species. In the most similar assemblage described in East Gippsland (Community 13.1, Forbes *et al.* 1982), *E. obliqua* is equally as frequent as *E. muelleriana* and neither are as frequent as *E. cypellocarpa*. As well, some understorey differences exist. For example elements common in the Eden assemblage such as *Acacia cognata* are infrequent in the East Gippsland community.

Floristic Summary:
Trees: *Acacia cognata, Elaeocarpus reticulatus, Eucalyptus cypellocarpa, Eucalyptus muelleriana* **Shrubs:** *Goodia lotifolia, Leucopogon lanceolatus* var. *lanceolatus, Notelaea venosa* **Climbers:** *Billardiera scandens, Clematis aristata, Eustrephus latifolius, Hibbertia dentata, Pandorea pandorana, Smilax australis, Tylophora barbata* **Groundcover:** *Dianella caerulea, Gonocarpus teucrioides, Goodenia ovata, Hierochloe rariflora, Lomandra longifolia, Poa meionectes, Pteridium esculentum, Schelhammera undulata, Senecio velleioides, Tetrarrhena juncea, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=24)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	31.2 (6.9)	37.4 (11.2)
Small tree	71	9.5 (3.1)	27.6 (20.3)
Shrub	88	2.8 (1.8)	29.4 (16)
Ground cover	100	0.8 (0.4)	53 (26.6)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided 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
Acacia cognata	3(2-3)	50	1(1-2)	1
Acacia falciformis	1(1-2)	33	1(1-2)	10
Acacia longifolia	2(1-3)	39	1(1-2)	9
Babingtonia pluriflora	1(1-1)	17	1(1-2)	1
Bedfordia arborescens	1(1-1)	28	1(1-2)	3
Billardiera scandens	1(1-1)	65	1(1-1)	27
Blechnum cartilagineum	1(1-2)	39	1(1-2)	11
Calochlaena dubia	3(2-3)	37	1(1-3)	9
Cassinia longifolia	1(1-2)	30	1(1-2)	6
Clematis aristata	1(1-1)	65	1(1-1)	20
Comesperma volubile	1(1-1)	26	1(1-1)	2
Coprosma quadrifida	1(1-1)	33	1(1-1)	9
Cyathea australis	1(1-1)	35	1(1-2)	8
Dianella caerulea	1(1-1)	54	1(1-1)	28
Dianella tasmanica	1(1-1)	33	1(1-1)	7
Elaeocarpus reticulatus	1(1-1)	54	1(1-1)	12
Eucalyptus cypellocarpa	2(1-2)	93	2(1-2)	10
Eucalyptus elata	1(1-2)	30	2(1-3)	5
Eucalyptus muelleriana	2(2-3)	89	2(1-2)	6
Eucalyptus obliqua	2(1-3)	26	2(1-3)	4
Eucalyptus sieberi	1(1-2)	39	2(1-3)	16
Eustrephus latifolius	1(1-1)	46	1(1-1)	19
Exocarpos strictus	1(1-1)	35	1(1-1)	9
Gonocarpus teucrioides	1(1-1)	65	1(1-1)	17
Goodenia ovata	1(1-1)	70	1(1-1)	7
Goodia lotifolia	1(1-2)	43	1(1-1)	2
Hibbertia dentata	1(1-1)	54	1(1-1)	6
Hierochloe rariflora	2(1-3)	48	1(1-2)	4
Hydrocotyle geraniifolia	1(1-1)	20	1(1-1)	2
Hydrocotyle peduncularis	1(1-1)	24	1(1-1)	9
Kennedia rubicunda	1(1-1)	20	1(1-1)	6
Lagenifera stipitata	1(1-1)	35	1(1-1)	14
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	83	1(1-1)	23

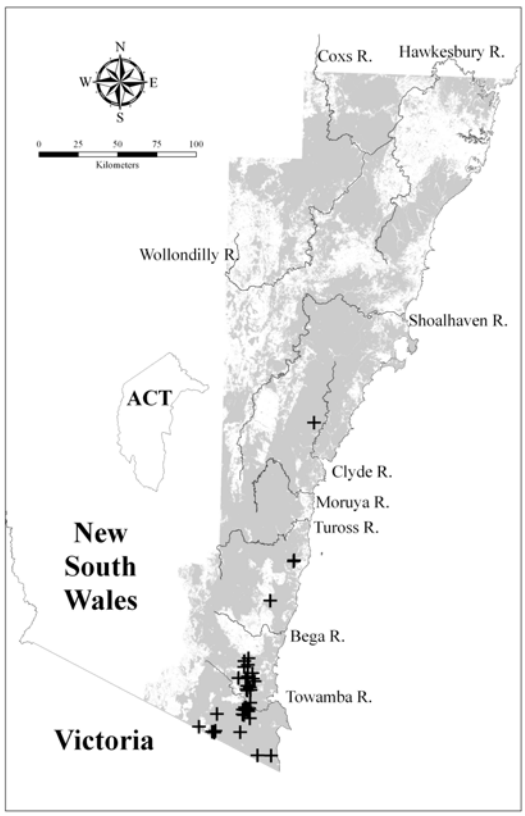
Notelaea venosa	1(1-1)	57	1(1-1)	12
Ozothamnus cuneifolius	1(1-1)	39	1(1-1)	1
Pandorea pandorana	1(1-1)	43	1(1-1)	18
Pimelea axiflora	1(1-2)	24	1(1-1)	3
Poa meionectes	1(1-1)	83	1(1-2)	16
Pteridium esculentum	1(1-2)	89	1(1-2)	37
Pultenaea daphnoides	1(1-2)	20	1(1-1)	4
Schelhammera undulata	1(1-1)	46	1(1-1)	7
Senecio linearifolius	1(1-1)	37	1(1-1)	8
Senecio velleioides	1(1-1)	41	1(1-1)	1
Smilax australis	1(1-1)	52	1(1-1)	16
Tetrarrhena juncea	2(1-2)	65	1(1-2)	5
Tylophora barbata	1(1-1)	78	1(1-1)	16
Viola hederacea	1(1-1)	83	1(1-1)	21

Constant:

Species	C/A	Freq	C/A O	Freq O
Lepidosperma laterale	1(1-1)	39	1(1-1)	29
Lomandra longifolia	1(1-1)	57	1(1-1)	44
Persoonia linearis	1(1-1)	37	1(1-1)	29

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	2(2-2)	7	1(1-2)	9
Eucalyptus agglomerata	2(2-2)	2	2(1-3)	7
Eucalyptus baueriana	2(2-2)	2	2(1-2)	1
Eucalyptus fastigata	1(1-1)	4	2(1-3)	6
Eucalyptus fraxinoides	2(2-2)	2	2(1-3)	1
Eucalyptus globoidea	2(1-2)	11	2(1-2)	12
Eucalyptus maidenii	1(1-1)	2	2(1-2)	2
Eucalyptus radiata subsp. *radiata*	2(1-2)	9	2(1-3)	6
Eucalyptus smithii	2(1-2)	7	1(1-2)	2



Locations of survey sites allocated to WSF e14. Grey shading indicates extant native vegetation cover within the study area.

WSF e15: Southeast Mountain Wet Herb Forest

Plate e15. Southeast Mountain Wet Herb Forest (Map Unit e15) dominated by *Eucalyptus obliqua* and *E. cypellocarpa* with scattered *Calochlaena dubia, Doodia aspera* and forbs on the watershed between Wog Wog River and Basin Creek, Coolangubra section of South East Forests National Park.

Sample Sites: 139
Area Extant (ha): 29800
Estimated % remaining: 70-80%
Area in conservation reserves (ha): 15900
Estimated % of pre-clearing area in conservation reserves: 35-45%
No. Taxa (total / unique): 327 / 1
No. Taxa per Plot (±sd): 33.8 (10.9)

Class: Southern Escarpment Wet Sclerophyll Forests
Related TEC: n/a

Southeast Mountain Wet Herb Forest is equivalent to Mountain Wet Herb Forest (unit 15) described by Keith & Bedward (1999), and comprises a tall *Eucalyptus* forest approximately 32 m in height. The diverse understorey comprises an open stratum of shrubs up to 2.5 m tall and a well developed groundcover of forbs, grasses and graminoids with scattered ferns and vines. Southeast Mountain Wet Herb Forest is widespread in large stands on moist sheltered granitoid slopes above 500 m elevation on the tableland range south from the upper Tantawangalo Creek catchment. The abundance of *E. obliqua* and prevalence of herbs in a mixed understorey with ferns and shrubs distinguish Southeast Mountain Wet Herb Forest from other wet forest assemblages. Approximately one-quarter of this extensive unit has been cleared for pine plantations in the upper Genoa River area and a further 3 800 ha are potentially threatened by clearing on private land. Outside reserves, logging in combination with frequent burning may threaten the diversity of the understorey by interrupting life-history processes of woody species. Nevertheless, large stands of Mountain Wet Herb Forest are protected from these disturbance regimes in reserves. Although unlikely to extend further north of the Eden region, a similar assemblage which has a greater abundance of tall shrubs has been described in East Gippsland (Community 8.2, Forbes *et al.* 1982) within the extensive wet forest complex (Ecological vegetation Class 30, Woodgate *et al.* 1994).

Floristic Summary:
Trees: *Acacia dealbata, Eucalyptus cypellocarpa, Eucalyptus obliqua* **Shrubs:** *Coprosma quadrifida, Exocarpos strictus, Leucopogon lanceolatus* var. *lanceolatus* **Climbers:** *Billardiera scandens, Clematis aristata, Tylophora barbata* **Groundcover:** *Dianella tasmanica, Geranium potentilloides, Gonocarpus teucrioides, Helichrysum scorpioides, Hierochloe rariflora, Lagenifera stipitata, Lomandra longifolia, Poa meionectes, Poranthera microphylla, Pteridium esculentum, Senecio prenanthoides, Veronica calycina, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=98)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	32.4 (6.2)	42.4 (13.1)
Small tree	45	8.3 (4.7)	20 (15.6)
Shrub	99	2.4 (1.3)	23 (19)
Ground cover	100	0.7 (0.3)	46 (25.8)

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 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 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia cognata	1(1-2)	7	2(1-2)	1
Acacia dealbata	1(1-2)	43	1(1-2)	5
Acacia longifolia	1(1-2)	27	1(1-2)	9
Acacia mucronata subsp. *longifolia*	1(1-1)	14	1(1-2)	1
Acrotriche leucocarpa	1(1-1)	2	1(1-1)	<1
Asperula gunnii	1(1-1)	8	1(1-1)	<1
Asperula scoparia	1(1-1)	24	1(1-1)	2
Bedfordia arborescens	2(1-2)	33	1(1-2)	3
Billardiera scandens	1(1-1)	53	1(1-1)	27
Blechnum nudum	1(1-4)	9	1(1-2)	3
Blechnum wattsii	1(1-2)	6	1(1-2)	2
Calochlaena dubia	2(1-3)	17	1(1-3)	9
Carex breviculmis	1(1-1)	20	1(1-1)	4
Cassinia aculeata	1(1-1)	14	1(1-1)	6
Clematis aristata	1(1-1)	71	1(1-1)	19
Comesperma volubile	1(1-1)	12	1(1-1)	2

Coprosma hirtella	1(1-1)	9	1(1-1)	1
Coprosma quadrifida	1(1-1)	63	1(1-1)	9
Cyathea australis	1(1-1)	20	1(1-2)	8
Deyeuxia monticola	1(1-1)	4	1(1-1)	1
Dianella tasmanica	1(1-1)	69	1(1-1)	7
Dichelachne rara	1(1-1)	12	1(1-1)	4
Diplarrena moraea	1(1-1)	4	1(1-1)	<1
Drymophila cyanocarpa	1(1-1)	4	1(1-1)	<1
Epacris impressa	1(1-1)	27	1(1-1)	4
Eucalyptus cypellocarpa	2(2-2)	83	2(1-2)	9
Eucalyptus elata	2(1-2)	14	2(1-3)	5
Eucalyptus fastigata	2(1-2)	20	2(2-3)	6
Eucalyptus globoidea	1(1-2)	30	2(1-2)	11
Eucalyptus obliqua	2(2-3)	89	2(1-2)	3
Eucalyptus radiata subsp. *radiata*	2(1-2)	17	2(1-3)	6
Eucalyptus sieberi	1(1-2)	32	2(1-3)	16
Euchiton involucratus	1(1-1)	6	1(1-1)	1
Exocarpos strictus	1(1-1)	49	1(1-1)	9
Geranium potentilloides	1(1-1)	55	1(1-1)	5
Gonocarpus tetragynus	1(1-1)	33	1(1-1)	20
Gonocarpus teucrioides	1(1-1)	45	1(1-1)	17
Goodenia ovata	1(1-2)	16	1(1-1)	7
Goodia lotifolia	1(1-1)	36	1(1-1)	2
Grevillea victoriae subsp. *nivalis*	2(1-4)	2	1(1-2)	<1
Hakea eriantha	1(1-1)	20	1(1-1)	2
Helichrysum scorpioides	1(1-1)	42	1(1-1)	7
Hierochloe rariflora	2(1-2)	57	1(1-2)	3
Hydrocotyle peduncularis	1(1-1)	40	1(1-1)	8
Hypericum gramineum	1(1-1)	27	1(1-1)	16
Lagenifera stipitata	1(1-1)	72	1(1-1)	13
Leptostigma reptans	1(1-1)	4	1(1-1)	<1
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	89	1(1-1)	23
Lomandra longifolia	1(1-1)	81	1(1-1)	43
Lomatia fraseri	1(1-1)	6	1(1-1)	1
Lomatia myricoides	1(1-1)	27	1(1-1)	4
Luzula flaccida	1(1-1)	26	1(1-1)	3
Myosotis australis	1(1-1)	2	1(1-1)	<1
Olearia erubescens	1(1-1)	17	1(1-1)	2
Olearia megalophylla	1(1-1)	8	1(1-1)	<1
Olearia stellulata	1(1-1)	14	1(1-1)	1
Oxalis perennans	1(1-1)	25	1(1-1)	13
Oxylobium arborescens	1(1-3)	2	1(1-2)	<1
Ozothamnus cuneifolius	1(1-2)	14	1(1-1)	1
Pelargonium inodorum	1(1-1)	3	1(1-1)	1
Persoonia brevifolia	1(1-1)	2	1(1-1)	<1
Persoonia confertiflora	1(1-1)	2	1(1-1)	<1

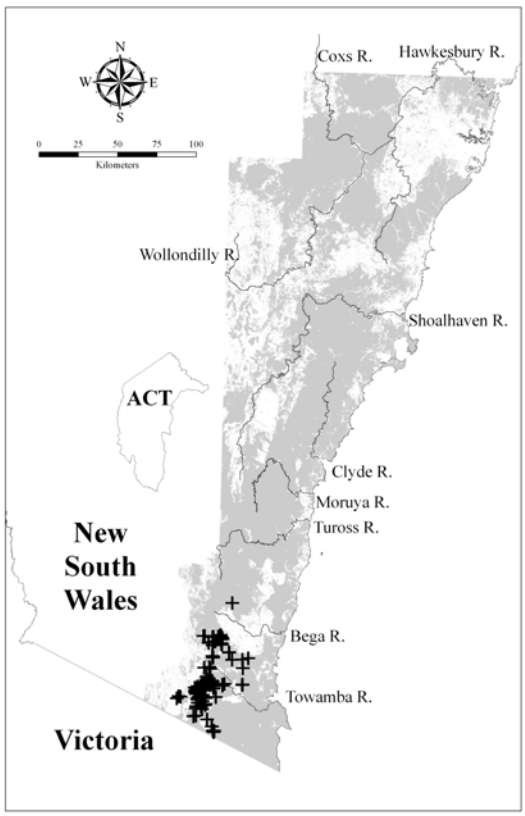
Persoonia silvatica	2(1-2)	7	1(1-1)	2
Pimelea axiflora	1(1-1)	17	1(1-1)	3
Poa ensiformis	1(1-1)	15	1(1-2)	2
Poa meionectes	2(1-2)	92	1(1-2)	15
Polystichum proliferum	1(1-1)	12	1(1-2)	4
Pomaderris aspera	1(1-1)	14	1(1-2)	5
Poranthera microphylla	1(1-1)	53	1(1-1)	15
Pteridium esculentum	2(1-2)	94	1(1-2)	36
Ranunculus plebeius	1(1-1)	11	1(1-1)	1
Senecio linearifolius	1(1-1)	33	1(1-1)	8
Senecio prenanthoides	1(1-1)	43	1(1-1)	8
Smilax australis	1(1-1)	32	1(1-1)	16
Stellaria flaccida	1(1-1)	37	1(1-1)	10
Stellaria pungens	1(1-1)	19	1(1-2)	6
Telopea oreades	1(1-2)	5	1(1-2)	<1
Tetrarrhena juncea	1(1-1)	31	1(1-2)	4
Tylophora barbata	1(1-1)	48	1(1-1)	16
Veronica calycina	1(1-1)	42	1(1-1)	5
Viola hederacea	1(1-1)	96	1(1-1)	21

Constant:

Species	C/A	Freq	C/A O	Freq O
Dianella caerulea	1(1-1)	32	1(1-1)	28
Lepidosperma laterale	1(1-1)	35	1(1-1)	28
Microlaena stipoides	1(1-1)	34	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus angophoroides	1(1-1)	1	1(1-2)	1
Eucalyptus dalrympleana subsp. *dalrympleana*	2(2-2)	1	1(1-2)	3
Eucalyptus dives	1(1-1)	1	2(1-3)	4
Eucalyptus fraxinoides	2(2-3)	4	2(1-3)	1
Eucalyptus maidenii	2(2-2)	1	2(1-2)	2
Eucalyptus muelleriana	2(1-2)	5	2(1-2)	6
Eucalyptus nitens	3(3-3)	1	2(1-3)	<1
Eucalyptus smithii	3(2-3)	1	1(1-2)	2
Eucalyptus viminalis	1(1-2)	2	2(1-3)	5



Locations of survey sites allocated to WSF e15. Grey shading indicates extant native vegetation cover within the study area.

FoW e17: Southeast Flats Swamp Forest

Plate e17. Southeast Flats Swamp Forest (Map Unit e17) dominated by *Eucalyptus viminalis* with a continuous groundcover of *Pteridium esculentum, Poa labillardieri* and *Gahnia sieberi* near Waratah Creek, Coolangubra section of South East Forests National Park.

Sample Sites: 28
Area Extant (ha): 3900
Estimated % remaining: 80-90%
Area in conservation reserves (ha): 1500
Estimated % of pre-clearing area in conservation reserves: 20-35%
No. Taxa (total / unique): 255 / 2
No. Taxa per Plot (±sd): 38.6 (11.5)

Class: Temperate Swamp Forests
Related TEC: n/a

Southeast Flats Swamp Forest relates most closely to Eden Hinterland Swamp Forest (unit 17) described by Keith & Bedward (1999), however the original description has been revised following the inclusion of samples formerly assigned to unit 58 (Swamp Forest). This tall *Eucalyptus* forest frequently exceeds 30 m in height. Scattered small trees or shrubs 3 -17 m tall overtop a continuous and diverse groundcover comprising forbs, ferns, grasses and graminoids. Southeast Flats Swamp Forest occupies gentle granitoid slopes (typically <5°) in open valleys, usually around low-order drainage lines. Individual stands are comparatively small because of their topographically restricted habitat, and occur in dry, low-relief, low-rainfall areas to the east and west of the escarpment range south of the Bega Valley. Approximately one-fifth of its extent has been cleared for pastoralism and more than half of the remainder occurs on private land or State Forest under grazing lease. Their gentle topography and comparatively rich deep soils predispose these stands to clearing and/or loss of groundcover diversity through grazing and weed invasion. Sedimentation associated with logging and feral pig rooting also pose threats to soils and the rich ground flora. While analogous habitats exist in East Gippsland, the majority of these apparently do not support similar species assemblages. Forbes *et al.* (1982) described a potentially similar stand beside the Genoa River at Wangarabell (part of Community 13.3). However, dry fertile colluvial flats in East Gippsland typically support herb-rich forest dominated by *E. melliodora, E. angophoroides, E. bosistoana* and *E. pseudoglobulus* in various combinations with qualitatively different shrub and groundcover species (Ecological Vegetation Class 23, Woodgate *et al.* 1994).

Floristic Summary:
Trees: *Acacia melanoxylon, Eucalyptus ovata, Eucalyptus viminalis* **Shrubs:** *Leptospermum continentale* **Climbers:** **Groundcover:** *Acaena novae-zelandiae, Asperula scoparia, Blechnum nudum, Carex appressa, Dichondra* spp., *Euchiton gymnocephalus, Geranium potentilloides, Glycine clandestina, Gratiola peruviana, Hydrocotyle peduncularis, Lagenifera stipitata, Lomandra longifolia, Microlaena stipoides, Poa meionectes, Poa labillardierei* var. *labillardierei, Pteridium esculentum, Ranunculus plebeius, Senecio prenanthoides, Stellaria pungens, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=13)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	27.2 (8.6)	22.3 (14.7)
Small tree	54	9.7 (3.5)	8.4 (4.9)
Shrub	85	2.6 (1.1)	17.9 (12)
Ground cover	100	0.7 (0.4)	81.2 (16.5)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 15 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 29 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 15 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia dealbata	1(1-1)	36	1(1-2)	5
Acacia mearnsii	1(1-2)	25	1(1-2)	7
Acacia melanoxylon	1(1-1)	54	1(1-1)	6
Acacia mucronata subsp. *longifolia*	1(1-1)	25	1(1-2)	1
Acaena novae-zelandiae	1(1-1)	71	1(1-1)	7
Asperula gunnii	1(1-1)	21	1(1-1)	<1
Asperula scoparia	1(1-1)	50	1(1-1)	2
Banksia marginata	1(1-1)	29	1(1-1)	3
Blechnum nudum	1(1-1)	43	1(1-2)	3
Carex appressa	1(1-2)	57	1(1-1)	4
Carex breviculmis	1(1-1)	29	1(1-1)	4
Cassinia aculeata	1(1-1)	25	1(1-1)	6
Coprosma quadrifida	1(1-1)	32	1(1-1)	10
Cyperus lucidus	2(1-2)	36	1(1-1)	1
Deyeuxia quadriseta	1(1-1)	21	1(1-1)	2

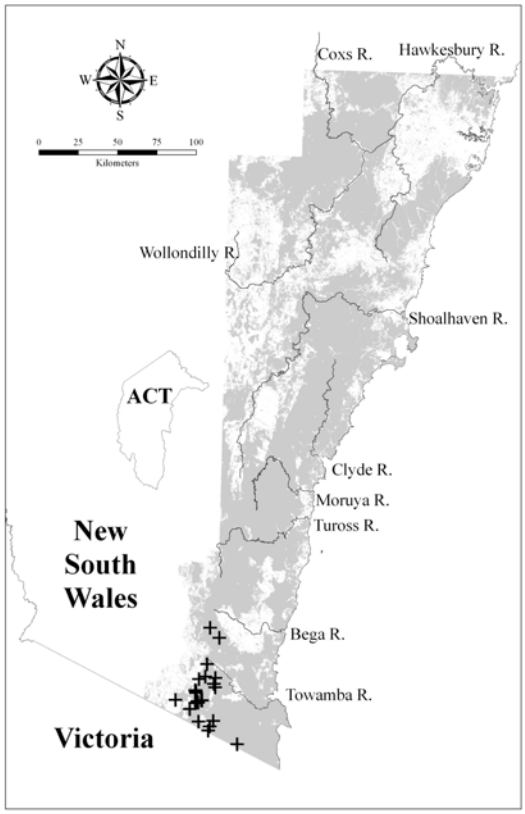
Dianella tasmanica	1(1-1)	36	1(1-1)	7
Dichelachne rara	1(1-1)	21	1(1-1)	5
Dichondra spp.	1(1-1)	71	1(1-2)	25
Eucalyptus ovata	2(1-2)	75	2(1-3)	1
Eucalyptus radiata subsp. *radiata*	1(1-2)	32	2(1-3)	6
Eucalyptus viminalis	2(2-2)	68	2(1-3)	4
Euchiton gymnocephalus	1(1-1)	54	1(1-1)	7
Exocarpos strictus	1(1-1)	36	1(1-1)	9
Gahnia sieberiana	1(1-1)	29	1(1-1)	5
Galium propinquum	1(1-1)	25	1(1-1)	7
Geranium neglectum	1(1-1)	21	1(1-1)	1
Geranium potentilloides	1(1-1)	57	1(1-1)	5
Glycine clandestina	1(1-1)	61	1(1-1)	26
Gratiola peruviana	1(1-1)	54	1(1-1)	1
Helichrysum scorpioides	1(1-1)	36	1(1-1)	7
Hydrocotyle peduncularis	1(1-1)	57	1(1-1)	9
Hydrocotyle tripartita	1(1-1)	39	1(1-1)	1
Hypericum gramineum	1(1-1)	39	1(1-1)	16
Hypericum japonicum	1(1-1)	39	1(1-1)	2
Kunzea ericoides	1(1-3)	32	1(1-2)	2
Lagenifera stipitata	1(1-1)	57	1(1-1)	14
Leptospermum continentale	1(1-1)	50	1(1-1)	3
Leptostigma reptans	1(1-1)	32	1(1-1)	<1
Lomandra longifolia	3(2-4)	93	1(1-1)	44
Poa ensiformis	1(1-2)	21	1(1-2)	2
Poa labillardierei var. *labillardierei*	2(1-3)	43	1(1-2)	12
Poa meionectes	1(1-1)	54	1(1-2)	16
Pteridium esculentum	1(1-2)	64	1(1-2)	37
Ranunculus plebeius	1(1-1)	57	1(1-1)	1
Rubus parvifolius	1(1-1)	29	1(1-1)	9
Rumex brownii	1(1-1)	21	1(1-1)	5
Senecio prenanthoides	1(1-1)	46	1(1-1)	8
Stellaria pungens	1(1-1)	43	1(1-1)	6
Viola hederacea	1(1-1)	71	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
Desmodium varians	1(1-1)	36	1(1-1)	21
Gonocarpus tetragynus	1(1-1)	39	1(1-1)	20
Microlaena stipoides	1(1-1)	46	1(1-2)	36
Oxalis perennans	1(1-1)	32	1(1-1)	13

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	2(2-2)	4	1(1-2)	9
Eucalyptus angophoroides	1(1-2)	11	1(1-2)	1
Eucalyptus consideniana	1(1-1)	4	2(1-2)	2
Eucalyptus cypellocarpa	1(1-3)	25	2(1-2)	10
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-1)	7	1(1-2)	3
Eucalyptus elata	3(2-3)	7	2(1-3)	5
Eucalyptus fastigata	1(1-1)	7	2(1-3)	6
Eucalyptus globoidea	1(1-2)	25	2(1-2)	12
Eucalyptus muelleriana	2(2-2)	4	2(1-2)	6
Eucalyptus obliqua	1(1-1)	14	2(1-3)	4
Eucalyptus pauciflora	1(1-1)	4	1(1-2)	3
Eucalyptus sieberi	1(1-1)	4	2(1-3)	16



Locations of survey sites allocated to FoW e17. Grey shading indicates extant native vegetation cover within the study area.

GW e18: Brogo Wet Vine Forest

Plate e18. Brogo Wet Vine Forest (Map Unit e18) dominated by *Eucalyptus tereticornis, E. bosistoana* and *E. maidenii* with scattered *Hymenanthera dentata, Pittosporum undulatum* and *Ficus rubiginosa* on Warrigal Range Bush Heritage Property, north of Brogo.

Sample Sites: 28
Area Extant (ha): 5200
Estimated % remaining: 50-65%
Area in conservation reserves (ha): 1400
Estimated % of pre-clearing area in conservation reserves: 10-20%
No. Taxa (total / unique): 217 / 1
No. Taxa per Plot (±sd): 44.3 (9.5)
Class: Coastal Valley Grassy Woodlands
Related TEC: Brogo Wet Vine Forest EEC (TSC)

Brogo Wet Vine Forest is equivalent to map unit 18 of the same name described by Keith & Bedward (1999), although the description has been updated to cover an expanded range. This *Eucalyptus* forest typically reaches a height of around 20 m and may occasionally feature rainforest elements up to 10 m tall. There is a diverse open stratum of shrubs and the species-rich groundcover is composed of large forbs emerging from a diverse matrix of smaller forbs and small ferns, grasses and graminoids. A diverse array of vines and twiners is interspersed amongst the groundcover and shrub stratum. Brogo Wet Vine Forest occurs on steep hilly terrain in the Brogo -Bega area at 100 - 300 m elevation, usually on granitoid substrates, but sometimes on outcrops of Ordovician mudstones near Bega. There are also stands in the Candelo - Myrtle Mountain area. This diverse assemblage is part of a complex of grassy ecosystems (Map Units 18-21) in the Bega valley and associated rainshadow areas. Occurring in the most elevated and wettest parts of the valley, it is distinguished from other assemblages by the dominance of *E. tereticornis* and the abundance of mesophyll shrubs and vines in the understorey. No similar assemblages have been described in adjacent regions (Austin 1978, Woodgate *et al.* 1994). Nearly half of this map unit has been cleared for agriculture and just under three-quarters of the remainder occurs on private land where is it potentially threatened by further clearing, grazing and weed invasion (Keith 1995). Frequent fire regimes as part of grazing management and hazard reduction also pose a potential threat, particularly to woody rainforest elements. Substantial areas of Brogo Wet Vine Forest remain in good condition, although remaining stands show symptoms of fine-scale clearing and grazing relative to other grassy assemblages in the Bega valley.

Floristic Summary:
Trees: *Acacia implexa, Acacia mearnsii, Eucalyptus bosistoana, Eucalyptus tereticornis, Pittosporum undulatum* **Shrubs:** *Breynia oblongifolia, Cassinia trinerva, Hymenanthera dentata, Solanum pungetium* **Climbers:** *Clematis glycinoides* var. *glycinoides, Eustrephus latifolius, Geitonoplesium cymosum, Marsdenia rostrata, Pandorea pandorana, Rubus parvifolius* **Groundcover:** *Asplenium flabellifolium, Cheilanthes sieberi, Desmodium varians, Dichondra* spp., *Echinopogon ovatus, Geranium solanderi* var. *solanderi, Glycine clandestina, Hydrocotyle laxiflora, Lepidosperma laterale, Microlaena stipoides, Oplismenus imbecillis, Pellaea falcata, Plectranthus parviflorus, Poa labillardierei* var. *labillardierei, Sigesbeckia orientalis* subsp. *Orientalis, Urtica incisa, Wahlenbergia gracilis, Xerochrysum bracteatum*

Vegetation structure:

Stratum	Frequency (n=24)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	96	21.2 (6.5)	20.9 (17.7)
Small tree	88	9.9 (3.5)	25.5 (16.3)
Shrub	92	2.5 (0.8)	21.9 (20.5)
Ground cover	100	0.6 (0.3)	50.6 (22.8)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 24 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 24 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia implexa	1(1-2)	71	1(1-1)	6
Acacia mearnsii	2(1-2)	68	1(1-2)	7
Angophora floribunda	1(1-1)	32	1(1-2)	9
Arthropodium species B	1(1-1)	21	1(1-1)	1
Asplenium flabellifolium	1(1-1)	43	1(1-1)	11
Austrocynoglossum latifolium	1(1-1)	21	1(1-1)	1
Austrodanthonia pilosa	1(1-2)	21	1(1-1)	3
Brachychiton populneus subsp. *populneus*	1(1-2)	29	1(1-1)	3
Breynia oblongifolia	1(1-1)	79	1(1-1)	12
Carex appressa	1(1-1)	36	1(1-1)	4
Carex breviculmis	1(1-1)	32	1(1-1)	4
Carex inversa	1(1-1)	25	1(1-1)	3
Carex longebrachiata	1(1-1)	29	1(1-2)	3
Cassinia trinerva	1(1-2)	50	1(1-1)	3
Celastrus australis	1(1-1)	21	1(1-1)	2
Cenchrus caliculatus	1(1-2)	39	1(1-1)	1
Cheilanthes sieberi	1(1-1)	50	1(1-1)	14
Clematis glycinoides var. *glycinoides*	1(1-1)	79	1(1-1)	10
Cynoglossum australe	1(1-1)	39	1(1-1)	2
Daucus glochidiatus	1(1-1)	29	1(1-1)	2
Desmodium brachypodum	1(1-1)	32	1(1-1)	3
Desmodium varians	1(1-1)	68	1(1-1)	21
Dichondra spp.	1(1-1)	96	1(1-2)	25
Echinopogon ovatus	1(1-1)	68	1(1-1)	14
Einadia hastata	1(1-1)	32	1(1-1)	3
Elymus scaber var. *scaber*	1(1-1)	21	1(1-1)	5
Eragrostis leptostachya	1(1-1)	39	1(1-1)	4
Eucalyptus bosistoana	1(1-2)	50	1(1-2)	3
Eucalyptus globoidea	2(1-2)	36	2(1-2)	12
Eucalyptus tereticornis	2(2-2)	71	2(1-3)	7
Euchiton gymnocephalus	1(1-1)	36	1(1-1)	7
Eustrephus latifolius	1(1-1)	61	1(1-1)	19
Ficus rubiginosa	1(1-3)	29	1(1-2)	1

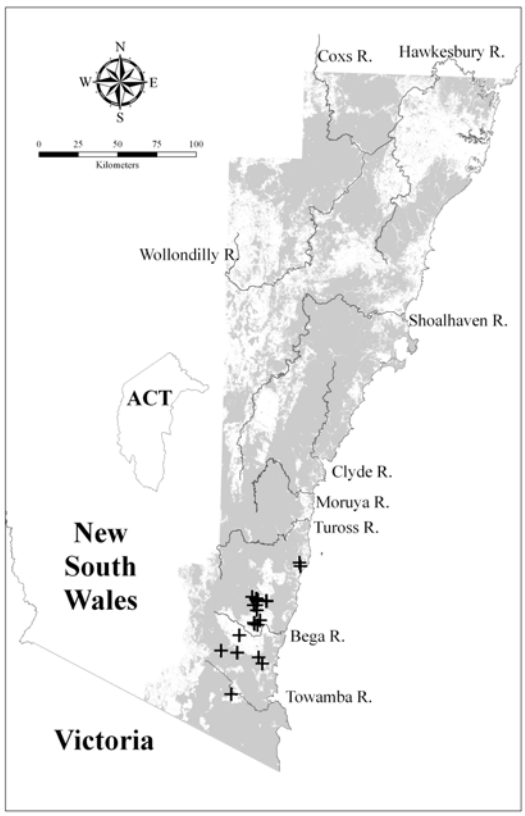
Geitonoplesium cymosum	1(1-1)	82	1(1-1)	16
Geranium solanderi var. *solanderi*	1(1-1)	71	1(1-1)	7
Glycine clandestina	1(1-1)	86	1(1-1)	26
Glycine tabacina	1(1-1)	32	1(1-1)	7
Hydrocotyle laxiflora	1(1-1)	61	1(1-1)	15
Hymenanthera dentata	1(1-2)	86	1(1-1)	6
Imperata cylindrica var. *major*	2(1-3)	29	1(1-2)	10
Indigofera australis	1(1-2)	29	1(1-1)	9
Marsdenia rostrata	1(1-1)	64	1(1-2)	12
Microlaena stipoides	1(1-2)	89	1(1-2)	36
Morinda jasminoides	1(1-1)	32	1(1-2)	9
Notodanthonia longifolia	1(1-1)	32	1(1-2)	5
Oplismenus imbecillis	1(1-1)	79	1(1-2)	14
Pandorea pandorana	1(1-1)	46	1(1-1)	18
Pellaea falcata	1(1-2)	89	1(1-1)	10
Pittosporum undulatum	1(1-2)	61	1(1-1)	14
Plantago debilis	1(1-1)	29	1(1-1)	7
Plectranthus parviflorus	1(1-1)	50	1(1-1)	8
Poa labillardierei var. *labillardierei*	1(1-2)	43	1(1-2)	12
Rubus parvifolius	1(1-1)	57	1(1-1)	9
Rumex brownii	1(1-1)	39	1(1-1)	5
Sarcopetalum harveyanum	1(1-1)	36	1(1-1)	4
Sicyos australis	1(1-1)	25	1(1-1)	<1
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	82	1(1-1)	7
Solanum pungetium	1(1-1)	43	1(1-1)	5
Stellaria flaccida	1(1-2)	61	1(1-1)	10
Stephania japonica var. *discolor*	1(1-1)	57	1(1-1)	7
Urtica incisa	1(1-2)	54	1(1-1)	5
Wahlenbergia gracilis	1(1-1)	43	1(1-1)	11
Xerochrysum bracteatum	1(1-1)	43	1(1-1)	2

Constant:

Species	C/A	Freq	C/A O	Freq O
Bursaria spinosa	1(1-1)	32	1(1-2)	14
Lepidosperma laterale	1(1-1)	46	1(1-1)	29
Lomandra longifolia	1(1-1)	32	1(1-1)	44
Oxalis perennans	1(1-1)	32	1(1-1)	13

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus baueriana	3(1-3)	7	2(1-2)	1
Eucalyptus maidenii	1(1-1)	7	2(1-2)	2
Eucalyptus muelleriana	1(1-1)	11	2(1-2)	6
Eucalyptus sieberi	1(1-1)	7	2(1-3)	16



Locations of survey sites allocated to GW e18. Grey shading indicates extant native vegetation cover within the study area.

DSF e19: Bega Wet Shrub Forest

Plate e19. Bega Wet Shrub Forest (Map Unit e19) dominated by *Eucalyptus baueriana, E. viminalis* and *E. radiata* with a prominent shrub stratum of *Cassinia longifolia* and *Kunzea ericoides,* and groundcover dominated by *Lepidosperma gunnii* near Myrtle Creek, Yowaka section of South East Forests National Park.

Sample Sites: 96
Area Extant (ha): 23600
Estimated % remaining: 35-50%
Area in conservation reserves (ha): 6600
Estimated % of pre-clearing area in conservation reserves: 5-15%
No. Taxa (total / unique): 363 / 0
No. Taxa per Plot (±sd): 45.5 (10.6)

Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Bega Wet Shrub Forest is equivalent to a combination of two units described by Keith & Bedward (1999): Bega Wet Shrub Forest (map unit 19) and Wadbilliga River Valley Forest (map unit W6). The following description was drawn from approximately twice as many samples as were available in the former study resulting in some differences in assemblage composition and an expansion of range. Bega Wet Shrub Forest is a very species-rich assemblage dominated by *Eucalyptus* species to approximately 25 m in height. A small tree stratum approximately 10 m tall is also characteristic as well as a prominent shrub stratum up to 3 m in height. The diverse and largely continuous groundcover is dominated by small forbs and also includes ferns, grasses, graminoids and lilioids. Several vine species twine amongst the groundcover. Bega Wet Shrub Forest occurs in dry lowland valleys from Yowrie-Wandella-Belowra south to Nethercote and Towamba, including the lower gorges of the Tuross and Wadbilliga Rivers, on sheltered slopes and in gullies up to 300 m elevation on Ordovician mudstone, metasediment or granitoid substrates. The assemblage varies considerably in composition across its range, possibly in relation to soils. For example, an unusual variant dominated by *E. tereticornis* occurs on lowland Devonian basalts in the Wolumla - Nethercote area. Bega Wet Shrub Forest belongs to the complex of grassy ecosystems (Map Units GWe18, GWe20p229) in the Bega and Araluen valleys and associated rainshadow areas. Occurring in the most sheltered parts of the valleys, it is distinguished from other assemblages by the dominance of *E. elata* and its prominent small tree and shrub strata. The existence of a similar assemblage in East Gippsland seems doubtful. A single sample of Bega Wet Shrub Forest at south Nungatta near the Victorian border suggests possible affinities to the depleted forests of the lower Cann and Genoa valleys. Woodgate et al (1994) include forest with *E. baueriana* and *E. bosistoana* on flats of the Cann and Genoa River valleys, which are now largely cleared, within Riparian Forest (Ecological Vegetation Class 18) along with other more widespread types of wet forest more closely resembling hinterland wet forests in Eden (Map Units WSFe13 & WSFe14). To the north, similar vegetation occurs in the Yowrie - Wandella area, e.g. at Dignams Creek (CSIRO 1996). Two-thirds of Bega Wet Shrub Forest has been cleared for agriculture and three-quarters of the remainder occurs on private land where is it potentially threatened by further clearing, grazing and weed invasion (Keith 1995). Frequent fire implemented for hazard reduction and grazing management also pose a potential threat, especially to woody components of the community.

Floristic Summary:
Trees: *Acacia mearnsii, Angophora floribunda, Eucalyptus elata* **Shrubs:** *Cassinia trinerva, Hymenanthera dentata, Senecio linearifolius, Solanum pungetium* **Climbers:** *Clematis glycinoides* var. *glycinoides, Eustrephus latifolius, Rubus parvifolius, Tylophora barbata* **Groundcover:** *Carex longebrachiata, Desmodium varians, Dichondra* spp., *Doodia aspera, Echinopogon ovatus, Entolasia marginata, Euchiton gymnocephalus, Galium propinquum, Glycine clandestina, Hydrocotyle laxiflora, Lepidosperma laterale, Lomandra longifolia, Microlaena stipoides, Oplismenus imbecillis, Oxalis perennans, Pellaea falcata, Plantago debilis, Poa meionectes, Pratia purpurascens, Pteridium esculentum, Stellaria flaccida*

Vegetation structure:

Stratum	Frequency (n=78)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	1	35 (-)	25 (-)
Tree canopy	96	25 (5)	28.2 (16.9)
Small tree	88	10.6 (4.1)	21.8 (16.8)
Shrub	74	2.5 (1)	24.2 (21)
Ground cover	100	0.7 (0.7)	73.1 (30.1)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 28 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 28 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia floribunda	1(1-1)	20	1(1-2)	2
Acacia implexa	1(1-1)	17	1(1-1)	6
Acacia mearnsii	2(1-2)	78	1(1-2)	6
Acaena novae-zelandiae	1(1-1)	35	1(1-1)	7
Adiantum aethiopicum	1(1-1)	40	1(1-2)	9
Ajuga australis	1(1-1)	11	1(1-1)	3
Amyema pendulum subsp. *pendulum*	1(1-1)	9	1(1-1)	2
Angophora floribunda	1(1-2)	42	1(1-2)	8

Arthropodium milleflorum	1(1-1)	35	1(1-1)	5
Arthropodium minus	1(1-1)	9	1(1-1)	1
Arthropodium species B	1(1-1)	11	1(1-1)	1
Asplenium flabellifolium	1(1-1)	39	1(1-1)	11
Austrocynoglossum latifolium	1(1-1)	18	1(1-1)	1
Austrodanthonia pilosa	1(1-1)	18	1(1-1)	3
Austrostipa rudis	1(1-1)	24	1(1-2)	6
Botrychium australe	1(1-1)	6	1(1-1)	<1
Brachychiton populneus subsp. *populneus*	1(1-1)	19	1(1-1)	3
Breynia oblongifolia	1(1-1)	23	1(1-1)	12
Bursaria spinosa	1(1-1)	40	1(1-2)	14
Carex appressa	1(1-1)	31	1(1-1)	4
Carex breviculmis	1(1-1)	23	1(1-1)	4
Carex inversa	1(1-1)	11	1(1-1)	3
Carex longebrachiata	1(1-1)	47	1(1-2)	3
Cassinia aculeata	1(1-1)	24	1(1-1)	6
Cassinia longifolia	1(1-2)	19	1(1-2)	6
Cassinia trinerva	1(1-2)	59	1(1-1)	3
Casuarina cunninghamiana subsp. *cunninghamiana*	1(1-1)	7	3(1-3)	1
Clematis glycinoides var. *glycinoides*	1(1-1)	63	1(1-1)	9
Coprosma quadrifida	1(1-1)	21	1(1-1)	9
Cotula australis	1(1-1)	5	1(1-1)	<1
Crassula sieberiana	1(1-1)	10	1(1-1)	3
Cynoglossum australe	1(1-1)	30	1(1-1)	1
Cynoglossum suaveolens	1(1-1)	8	1(1-1)	1
Cyperus lucidus	1(1-1)	5	1(1-1)	1
Cyperus trinervis	1(1-1)	4	1(1-1)	<1
Daucus glochidiatus	1(1-1)	14	1(1-1)	2
Desmodium varians	1(1-1)	78	1(1-1)	21
Dichondra spp.	1(1-1)	91	1(1-2)	25
Doodia aspera	1(1-2)	47	1(1-2)	11
Echinopogon ovatus	1(1-1)	74	1(1-1)	13
Einadia hastata	1(1-1)	16	1(1-1)	3
Elymus scaber var. *scaber*	1(1-1)	15	1(1-1)	5
Entolasia marginata	1(1-1)	59	1(1-1)	11
Eucalyptus angophoroides	2(1-2)	16	1(1-2)	1
Eucalyptus baueriana	2(1-3)	33	1(1-2)	1
Eucalyptus bosistoana	1(1-2)	14	1(1-2)	3
Eucalyptus botryoides	2(1-2)	16	2(1-3)	3
Eucalyptus elata	2(1-2)	67	2(1-3)	4
Eucalyptus globoidea	2(1-2)	31	1(1-2)	12
Eucalyptus maidenii	2(1-2)	16	2(1-2)	2
Eucalyptus viminalis	1(1-2)	19	2(1-3)	4
Euchiton gymnocephalus	1(1-1)	43	1(1-1)	7
Eustrephus latifolius	1(1-1)	47	1(1-1)	19
Exocarpos cupressiformis	1(1-1)	23	1(1-1)	5

Galium propinquum	1(1-1)	42	1(1-1)	7
Geitonoplesium cymosum	1(1-1)	39	1(1-1)	16
Geranium homeanum	1(1-1)	13	1(1-1)	3
Geranium potentilloides	1(1-1)	16	1(1-1)	6
Geranium solanderi var. *solanderi*	1(1-1)	40	1(1-1)	7
Glycine clandestina	1(1-1)	89	1(1-1)	25
Hydrocotyle laxiflora	1(1-1)	71	1(1-1)	15
Hydrocotyle tripartita	1(1-1)	18	1(1-1)	1
Hymenanthera dentata	1(1-1)	70	1(1-1)	6
Hypericum gramineum	1(1-1)	33	1(1-1)	16
Hypericum japonicum	1(1-1)	24	1(1-1)	2
Imperata cylindrica var. *major*	1(1-1)	32	1(1-2)	9
Indigofera australis	1(1-1)	20	1(1-1)	9
Kunzea ericoides	2(1-3)	21	1(1-2)	2
Lagenifera stipitata	1(1-1)	38	1(1-1)	14
Leucopogon juniperinus	1(1-1)	22	1(1-1)	5
Lomandra longifolia	1(1-1)	80	1(1-1)	43
Luzula flaccida	1(1-1)	18	1(1-1)	4
Marsdenia rostrata	1(1-1)	30	1(1-2)	12
Mentha diemenica	1(1-1)	5	1(1-1)	1
Microlaena stipoides	2(1-2)	86	1(1-2)	36
Notelaea venosa	1(1-1)	27	1(1-1)	12
Notodanthonia longifolia	1(1-2)	14	1(1-2)	5
Oplismenus imbecillis	1(1-2)	73	1(1-2)	14
Oxalis perennans	1(1-1)	43	1(1-1)	12
Ozothamnus argophyllus	1(1-1)	15	1(1-1)	2
Ozothamnus diosmifolius	1(1-1)	23	1(1-1)	9
Pellaea falcata	1(1-2)	71	1(1-1)	10
Phyllanthus gunnii	1(1-1)	10	1(1-1)	2
Picris angustifolia	1(1-1)	8	1(1-1)	<1
Pimelea axiflora	1(1-2)	11	1(1-1)	3
Pimelea ligustrina	1(1-1)	6	1(1-1)	1
Pittosporum undulatum	1(1-1)	36	1(1-1)	14
Plantago debilis	1(1-1)	49	1(1-1)	7
Plectranthus parviflorus	1(1-1)	34	1(1-1)	7
Poa ensiformis	1(1-2)	19	1(1-2)	2
Poa labillardierei var. *labillardierei*	1(1-1)	34	1(1-2)	12
Poa meionectes	1(1-2)	51	1(1-2)	16
Pomaderris aspera	1(1-1)	17	1(1-2)	5
Pratia purpurascens	1(1-1)	53	1(1-1)	17
Pteridium esculentum	1(1-2)	65	1(1-2)	37
Ranunculus plebeius	1(1-1)	9	1(1-1)	1
Rubus parvifolius	1(1-1)	73	1(1-1)	9
Rumex brownii	1(1-1)	40	1(1-1)	5
Santalum obtusifolium	1(1-1)	9	1(1-1)	1
Senecio hispidulus var. *hispidulus*	1(1-1)	11	1(1-1)	3

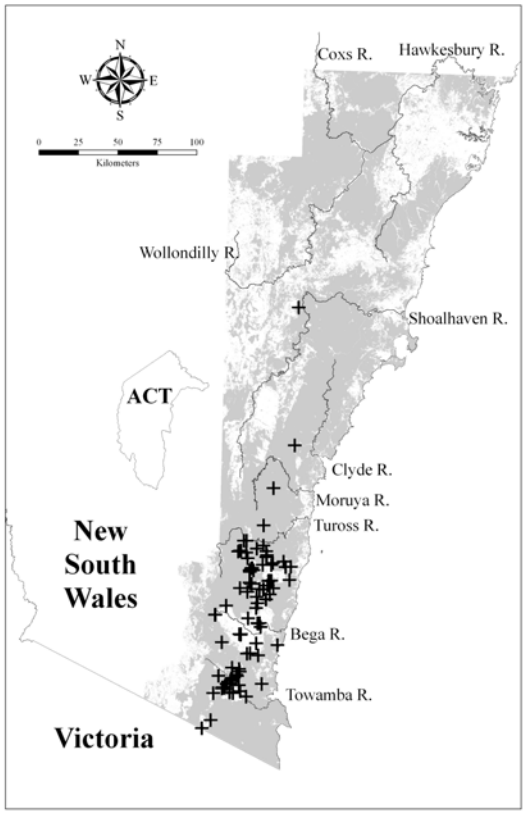
Senecio linearifolius	1(1-1)	56	1(1-1)	7
Senecio minimus	1(1-1)	21	1(1-1)	1
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	40	1(1-1)	6
Solanum americanum	1(1-1)	5	1(1-1)	<1
Solanum prinophyllum	1(1-1)	16	1(1-1)	6
Solanum pungetium	1(1-1)	48	1(1-1)	5
Stellaria flaccida	1(1-1)	65	1(1-1)	10
Tylophora barbata	1(1-1)	43	1(1-1)	16
Urtica incisa	1(1-1)	24	1(1-1)	5
Veronica calycina	1(1-1)	25	1(1-1)	6
Wahlenbergia gracilis	1(1-1)	33	1(1-1)	10

Constant:

Species	C/A	Freq	C/A O	Freq O
Clematis aristata	1(1-1)	31	1(1-1)	20
Lepidosperma laterale	1(1-1)	41	1(1-1)	28
Viola hederacea	1(1-1)	30	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus bridgesiana	1(1-1)	1	1(1-3)	1
Eucalyptus cypellocarpa	2(1-2)	8	2(1-2)	10
Eucalyptus eugenioides	2(2-2)	1	2(1-3)	4
Eucalyptus fastigata	3(3-3)	2	2(1-3)	6
Eucalyptus longifolia	2(2-2)	1	1(1-2)	2
Eucalyptus melliodora	1(1-1)	2	1(1-3)	2
Eucalyptus muelleriana	1(1-2)	3	2(1-2)	6
Eucalyptus obliqua	1(1-1)	1	2(1-3)	4
Eucalyptus ovata	2(2-2)	1	2(1-3)	1
Eucalyptus parramattensis subsp. *parramattensis*	1(1-1)	1	1(1-3)	<1
Eucalyptus polyanthemos subsp. *tarda*	2(1-2)	2	1(1-2)	<1
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	1	1(1-1)	<1
Eucalyptus radiata subsp. *radiata*	1(1-2)	5	2(1-3)	6
Eucalyptus saligna X botryoides	1(1-1)	1	2(1-3)	2
Eucalyptus tereticornis	2(1-2)	11	2(1-3)	7



Locations of survey sites allocated to DSF e19. Grey shading indicates extant native vegetation cover within the study area.

GW e20p229: Southeast Lowland Grassy Woodland

Plate e20p229. Southeast Lowland Grassy Woodland (Map Unit e20p229) dominated by *Eucalyptus tereticornis* and occasional *E. baueriana* with *Indigofera australis*, *Themeda australis* and *Microlaena stipoides* alongside a fenced roadside north of Wolumla, showing the effects of light grazing.

Sample Sites: 128
Area Extant (ha): 14,000
Estimated % remaining: 10-25%
Area in conservation reserves (ha): 780
Estimated % of pre-clearing area in conservation reserves: <5%
No. Taxa (total / unique): 379 / 1
No. Taxa per Plot (±sd): 39.4 (9.9)

Class: Coastal Valley Grassy Woodlands
Related TEC: Lowland Grassy Woodland of the South East Corner EEC (TSC)

Southeast Lowland Grassy Woodland represents a complex of grassy ecosystems including Bega and Candelo Dry Grass Forests (map units 20 and 21 described by Keith & Bedward (1999)), Araluen Valley Grassy Woodland and the southern examples of South Coast Grassy Woodland (map units GW229 and GW34 described by Tindal *et al.* (2004)). This woodland ranges from 20 – 22 m in height, with sparse strata of small trees and shrubs ranging from 2 – 9 m tall. The groundcover is dominated by grasses but typically includes a diverse array of forb and graminoid species. Southeast Lowland Grassy Woodland occurs in coastal rainshadow areas typically receiving between 800 – 950 mm of annual precipitation. It is most extensive in the Cobargo - Bega - Candelo area and the Towamba valley below 250 m elevation on granitoid substrates and Ordovician mudstones. Small stands also occur on fine-grained igneous intrusives on the coast near Tanja. In the driest western parts of the Bega and Towamba valleys it is found up to 300 m elevation on granitoid substrates or rarely Ordovician mudstones. Further north, a disjunct occurrence occupies the undulating floor of the Araluen valley on sandy loams derived from granite between 100 and 300m ASL. To the east of the Araluen valley Southeast Lowland Grassy Woodland is also found on granitoid substrates in the vicinity of Moruya.
No similar assemblages have been described in adjacent regions to the south (Austin 1978, Woodgate *et al.* 1994). To the north, Southeast Lowland Grassy Woodland grades into South Coast Grassy Woodland (GWp34) along the coast, while examples of the assemblage from the Araluen Valley share a number of species with Cumberland Shale Plains Woodland (Map Unit GW p29) of western Sydney.
Between 75 - 90% of Southeast Lowland Grassy Woodland has been cleared for agriculture and almost all of the remainder is highly fragmented on private land where is it potentially threatened by further clearing, grazing and weed invasion (Keith 1995).

Floristic Summary:
Trees: *Acacia mearnsii, Angophora floribunda, Eucalyptus globoidea, Eucalyptus tereticornis* **Shrubs:** *Bursaria spinosa, Ozothamnus diosmifolius* **Climbers:** *Clematis glycinoides* var. *glycinoides, Rubus parvifolius* **Groundcover:** *Cheilanthes sieberi, Desmodium varians, Dichondra* spp., *Echinopogon ovatus, Eragrostis leptostachya, Glycine clandestina, Glycine tabacina, Hydrocotyle laxiflora, Hypericum gramineum, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Oxalis perennans, Themeda australis, Wahlenbergia gracilis*

Vegetation structure:

Stratum	Frequency (n=124)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	1	20 (-)	25 (-)
Tree canopy	90	21.2 (4.5)	23.6 (14.7)
Small tree	73	9.5 (3.9)	18.5 (14.4)
Shrub	81	2.2 (0.8)	16 (14.3)
Ground cover	100	0.5 (0.3)	65.5 (24.6)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 23 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 23 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia implexa	1(1-1)	38	1(1-1)	6
Acacia mearnsii	1(1-2)	70	1(1-2)	6
Acaena agnipila	1(1-1)	3	1(1-1)	<1
Acaena echinata	1(1-1)	23	1(1-1)	2
Ajuga australis	1(1-1)	13	1(1-1)	3
Allocasuarina littoralis	1(1-1)	29	1(1-2)	17
Amyema congener subsp. *congener*	1(1-1)	3	1(1-1)	<1
Amyema pendulum subsp. *pendulum*	1(1-1)	9	1(1-1)	2
Angophora floribunda	2(1-2)	59	1(1-2)	8
Aristida vagans	1(1-1)	20	1(1-2)	8
Arthropodium milleflorum	1(1-1)	20	1(1-1)	5
Arthropodium species B	1(1-1)	9	1(1-1)	1

Asperula conferta	1(1-1)	17	1(1-1)	4
Austrodanthonia pilosa	1(1-1)	23	1(1-1)	3
Austrodanthonia racemosa var. *racemosa*	1(1-1)	34	1(1-2)	5
Austrostipa rudis	1(1-1)	35	1(1-2)	6
Bossiaea buxifolia	1(1-1)	14	1(1-1)	3
Bothriochloa macra	1(1-3)	7	1(1-2)	1
Brachychiton populneus subsp. *populneus*	1(1-1)	9	1(1-1)	3
Bursaria spinosa	1(1-2)	56	1(1-2)	14
Carex breviculmis	1(1-1)	20	1(1-1)	4
Carex inversa	1(1-1)	26	1(1-1)	3
Carex longebrachiata	1(1-1)	17	1(1-2)	3
Cassinia aculeata	1(1-1)	18	1(1-1)	6
Cassinia longifolia	1(1-1)	30	1(1-2)	6
Cassinia trinerva	1(1-1)	27	1(1-1)	3
Cenchrus caliculatus	1(1-1)	5	1(1-2)	1
Cheilanthes distans	1(1-1)	7	1(1-1)	2
Cheilanthes sieberi	1(1-1)	63	1(1-1)	13
Chrysocephalum semipapposum	1(1-1)	8	1(1-2)	1
Clematis glycinoides var. *glycinoides*	1(1-1)	42	1(1-1)	9
Convolvulus erubescens	1(1-1)	5	1(1-1)	1
Crassula sieberiana	1(1-1)	9	1(1-1)	3
Cymbopogon refractus	1(1-1)	27	1(1-1)	4
Cynodon dactylon	1(1-3)	5	1(1-2)	2
Cynoglossum australe	1(1-1)	10	1(1-1)	2
Cynoglossum suaveolens	1(1-1)	6	1(1-1)	1
Cyperus gracilis	1(1-2)	13	1(1-1)	2
Desmodium brachypodum	1(1-1)	26	1(1-1)	2
Desmodium varians	1(1-1)	71	1(1-1)	21
Dianella longifolia	1(1-1)	15	1(1-1)	4
Dianella revoluta var. *revoluta*	1(1-1)	27	1(1-1)	15
Dichanthium sericeum subsp. *sericeum*	1(1-1)	10	1(1-1)	<1
Dichelachne micrantha	1(1-1)	38	1(1-1)	8
Dichondra spp.	1(1-1)	95	1(1-2)	24
Digitaria parviflora	1(1-1)	11	1(1-1)	2
Digitaria ramularis	1(1-1)	20	1(1-1)	1
Dodonaea viscosa subsp. *angustifolia*	1(1-1)	7	1(1-1)	1
Echinopogon caespitosus var. *caespitosus*	1(1-1)	33	1(1-1)	6
Echinopogon ovatus	1(1-1)	55	1(1-1)	13
Einadia hastata	1(1-1)	17	1(1-1)	3
Einadia nutans	1(1-1)	21	1(1-1)	2
Einadia trigonos	1(1-2)	7	1(1-1)	1
Elymus scaber var. *scaber*	1(1-1)	30	1(1-1)	4
Epilobium billardierianum	1(1-1)	16	1(1-1)	1
Eragrostis leptostachya	1(1-1)	66	1(1-1)	3
Eucalyptus baueriana	1(1-2)	13	2(1-2)	1
Eucalyptus bosistoana	1(1-2)	16	1(1-2)	3

Eucalyptus globoidea	2(1-2)	52	1(1-2)	11
Eucalyptus maidenii	2(1-2)	8	2(1-2)	2
Eucalyptus melliodora	1(1-3)	19	1(1-3)	2
Eucalyptus tereticornis	2(1-2)	60	2(1-3)	6
Euchiton gymnocephalus	1(1-1)	37	1(1-1)	7
Exocarpos cupressiformis	1(1-1)	36	1(1-1)	4
Gahnia aspera	1(1-1)	14	1(1-1)	4
Galium propinquum	1(1-1)	39	1(1-1)	7
Geranium solanderi var. *solanderi*	1(1-1)	38	1(1-1)	7
Glycine clandestina	1(1-1)	80	1(1-1)	25
Glycine tabacina	1(1-1)	46	1(1-1)	6
Hardenbergia violacea	1(1-1)	32	1(1-1)	17
Hydrocotyle laxiflora	1(1-1)	73	1(1-1)	15
Hymenanthera dentata	1(1-1)	25	1(1-1)	6
Hypericum gramineum	1(1-1)	53	1(1-1)	16
Imperata cylindrica var. *major*	1(1-1)	22	1(1-2)	9
Jacksonia scoparia	1(1-2)	6	1(1-1)	2
Juncus subsecundus	1(1-1)	5	1(1-1)	1
Lepidosperma laterale	1(1-1)	44	1(1-1)	28
Leucopogon juniperinus	1(1-1)	19	1(1-1)	5
Lomandra multiflora subsp. *multiflora*	1(1-1)	43	1(1-1)	25
Microlaena stipoides	2(1-2)	90	1(1-2)	36
Notodanthonia longifolia	1(1-2)	23	1(1-2)	5
Opercularia aspera	1(1-1)	27	1(1-1)	8
Opercularia varia	1(1-1)	24	1(1-1)	2
Oplismenus imbecillis	1(1-1)	27	1(1-2)	14
Oxalis perennans	1(1-1)	45	1(1-1)	12
Oxalis radicosa	1(1-1)	5	1(1-1)	<1
Ozothamnus argophyllus	1(1-1)	23	1(1-1)	2
Ozothamnus diosmifolius	1(1-1)	45	1(1-1)	8
Ozothamnus ferrugineus	1(1-2)	3	1(1-1)	<1
Panicum effusum	1(1-1)	28	1(1-1)	2
Pellaea falcata	1(1-1)	24	1(1-2)	10
Philotheca trachyphylla	1(1-1)	3	1(1-1)	<1
Pimelea curviflora var. *gracilis*	1(1-1)	3	1(1-1)	<1
Pittosporum undulatum	1(1-1)	26	1(1-1)	14
Poa labillardierei var. *labillardierei*	1(1-2)	39	1(1-2)	11
Pratia purpurascens	1(1-1)	38	1(1-1)	17
Rubus parvifolius	1(1-1)	44	1(1-1)	9
Rumex brownii	1(1-1)	24	1(1-1)	5
Santalum obtusifolium	1(1-1)	5	1(1-1)	1
Scleranthus biflorus	1(1-1)	16	1(1-1)	2
Senecio hispidulus var. *hispidulus*	1(1-1)	16	1(1-1)	2
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	22	1(1-1)	7
Solanum americanum	1(1-1)	7	1(1-1)	<1
Solanum opacum	1(1-2)	3	1(1-1)	<1

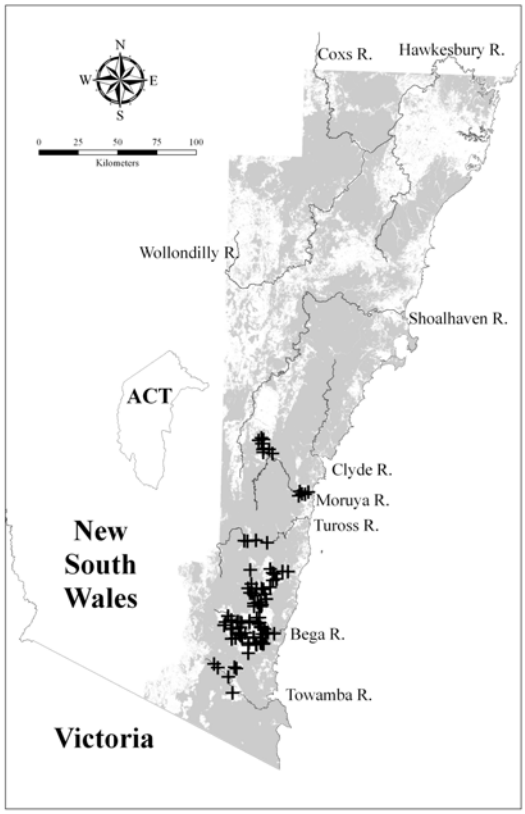
Solanum prinophyllum	1(1-1)	15	1(1-1)	6
Solanum pungetium	1(1-1)	28	1(1-1)	5
Sporobolus creber	1(1-1)	16	1(1-1)	1
Sporobolus elongatus	1(1-1)	5	1(1-1)	1
Themeda australis	2(1-3)	86	1(1-2)	16
Vernonia cinerea var. *cinerea*	1(1-1)	20	1(1-1)	4
Veronica calycina	1(1-1)	16	1(1-1)	6
Veronica plebeia	1(1-1)	22	1(1-1)	10
Wahlenbergia communis	1(1-1)	18	1(1-1)	2
Wahlenbergia gracilis	1(1-1)	42	1(1-1)	10
Wahlenbergia stricta subsp. *stricta*	1(1-1)	16	1(1-1)	5
Zornia dyctiocarpa var. *dyctiocarpa*	1(1-1)	4	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
Lomandra longifolia	1(1-1)	55	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus agglomerata	2(1-2)	5	2(1-3)	7
Eucalyptus angophoroides	2(1-2)	2	1(1-2)	1
Eucalyptus botryoides	1(1-2)	5	2(1-3)	3
Eucalyptus bridgesiana	1(1-1)	1	1(1-3)	2
Eucalyptus consideniana	1(1-1)	1	2(1-2)	2
Eucalyptus dives	2(2-2)	2	2(1-3)	4
Eucalyptus elata	2(1-3)	9	2(1-3)	5
Eucalyptus eugenioides	2(1-3)	3	2(1-3)	4
Eucalyptus mannifera	1(1-1)	1	2(1-3)	4
Eucalyptus muelleriana	2(1-2)	3	2(1-2)	6
Eucalyptus pauciflora	1(1-1)	1	1(1-2)	3
Eucalyptus polyanthemos subsp. *tarda*	1(1-1)	1	1(1-2)	<1
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	2	1(1-1)	<1
Eucalyptus radiata subsp. *radiata*	2(1-2)	2	2(1-3)	6
Eucalyptus viminalis	2(1-2)	7	2(1-3)	4



Locations of survey sites allocated to GW e20p229. Grey shading indicates extant native vegetation cover within the study area.

GL e23A: Monaro Grassland

Plate e23A. Monaro Grassland (Map Unit e23A) remnant dominated by *Poa labillardierei* var. *labillardierei* at Black Lake, west of Cathcart.

Sample Sites: 5
Area Extant (ha): 300
Estimated % remaining: <5%
Area in conservation reserves (ha): 0
Estimated % of pre-clearing area in conservation reserves: 0%
No. Taxa (total / unique): Unknown
No. Taxa per Plot (±sd): 11.0(2.5) (0.01ha)
Class: Temperate Montane Grasslands

Related TEC: Natural Temperate Grassland of the Southern Tablelands EEC (EPBC).

Monaro Grassland is equivalent to unit 23A of the same name described by Keith & Bedward (1999). It includes several floristic assemblages characteristic of different habitats and disturbance histories. Floristic data recorded in 10 x 10 m quadrats were compiled from Benson (1994) who recognised eight grassland assemblages on the Monaro Tableland, of which three were sampled in the Eden study area. The grasses *Poa sieberiana, Themeda australis* and *P. labillardieri* dominate Benson's communities 4, 5 and 8, respectively. Common interstitial herbs include *Acaena ovina, Geranium antrorsum, Asperula conferta, Chrysocephalum apiculatum, Leptorhynchos squamatus, Plantago varia* and *Cullen tenax.* Grassland composition varies within the region according to substrate, soil moisture status and grazing history. Benson (1994) attributed differences between communities 3 and 4 to differences in grazing pressure, while community 8 was found in low-lying poorly drained sites. Monaro Grassland occurs on heavy textured soils, usually derived from basalt, alluvium or granitoids above 800 m elevation in a rainshadow characterised by low rainfall (<800 mm mean annual precipitation), periodic drought, drying summer winds, frosts and cold winter temperatures (Benson 1994). The largest and least disturbed stands occur between Bombala and Nimmitabel. Similar grasslands extend west and north-west on parts of the Monaro Tableland (Costin 1954, Benson 1994) and south into Victoria on the Nunniong High Plains and Emu Flat (Community 7.3, Walsh *et al.* 1983). However, there are notable differences in composition compared with alpine and subalpine grasslands in the Kosciusko area and Victorian alps and lowland grasslands in Victoria and Tasmania (Benson 1994, McDougall & Kirkpatrick 1994). All Australian temperate grasslands, including those of the Eden region, persist in a highly modified, depleted state. Approximately one-twentieth of the region's grassland remains in a semi-natural state, although even this figure may be an overestimate. In the East Gippsland highlands, only 200 ha of degraded grassland remain (Woodgate *et al.* 1994). Most of the Monaro remnants are also heavily degraded by pasture improvement and overgrazing, although several small but significant patches retain a large complement of native species. These latter patches are associated with cemeteries, church yards, rubbish tips, travelling stock reserves and other small parcels of land that have been excluded from the most intensive pastoral land management practices. There are currently no formal conservation reserves that contain examples of grassland assemblages in the region and opportunities for conservation on and off reserve are extremely limited. The severity of continuing degradation supports the need for urgent conservation. Clearing and nutrification associated with cropping and pasture improvement encourages the replacement of native species by fast-growing swards of exotic grasses and herbs. Weed invasion associated with nutrification is most pronounced along drainage lines supporting assemblages dominated by *Poa labillardieri* (Benson 1994). Nutrification may also be associated with compositional shifts within the native component of the flora, with *P. labillardieri* known to produce a greater growth response to fertilisers than *Themeda australis* (Groves *et al.* 1973). High levels of grazing pressure are also associated with compositional changes. Species with erect herbaceous growth forms (e.g. *Microseris lanceolata, Podolepis hieracioides, Bulbine bulbosa, Discaria pubescens*) are likely to be more prone to elimination by intense grazing than those with rosette growth forms, which include several ubiquitous weed species (McIntyre *et al.* 1995). *Themeda australis* appears to be less resilient to heavy grazing than other grasses (Vickery 1961, Benson 1994). Contemporary disturbance regimes may also be associated with loss of diversity from grasslands, since the persistence of some herbaceous species is known to be dependent on gap dynamics (e.g. Morgan 1997). Disturbance regimes comprising certain mixtures of fire and grazing (e.g. exclusion of fire and herbivores, high stocking rates and fire exclusion) have been implicated in the loss of grassland diversity (Lunt 1991).

Vegetation structure:

Stratum	Frequency (n=15)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	0	- (-)	- (-)
Small tree	0	- (-)	- (-)
Shrub	0	- (-)	- (-)
Ground cover	100	0.5(0.1)	81(6)

Diagnostic Species: Not available

GW e24: Southeast Subalpine Dry Shrub Forest

Plate e24. Southeast Sub-alpine Dry Shrub Forest (Map Unit e24) dominated by *Eucalyptus pauciflora, E. dalrympleana* and *E. radiata* with *Gahnia subaequiglumis* and *Bossiaea foliosa* adjacent to Nunnock Swamp, Tantawangalo section, South East Forests National Park.

Sample Sites: 32
Area Extant (ha): 6200
Estimated % remaining: 50-60%
Area in conservation reserves (ha): 2000
Estimated % of pre-clearing area in conservation reserves: 10-20%
No. Taxa (total / unique): 167 / 2
No. Taxa per Plot (±sd): 23.4 (7.2)
Class: Subalpine Woodlands
Related TEC: n/a

Southeast Subalpine Dry Shrub Forest is equivalent to Subalpine Dry Shrub Forest (unit 24) described by Keith & Bedward (1999). It has a variable tree stratum up to 20 m tall with an understorey of scattered tall shrubs emerging from a stratum of smaller shrubs. The groundcover includes grass tussocks interspersed with forbs. Southeast subalpine Dry Shrub Forest is a variable unit extending across the Monaro Tableland from the western edge of the escarpment range as a major component of the complex of grassy assemblages in that rainshadow area. It typically occurs on gentle terrain above 700 m elevation on granitoid substrates or metasediments. Near the escarpment range *E. radiata* is most common and the assemblage is restricted to frost hollows associated with Southeast Subalpine Bogs (Map Unit FrWe59). Further west, the stands are more extensive, *E. pauciflora* becomes more dominant and the graminoid component of the understorey increases. Similar assemblages occur elsewhere on the Monaro Tableland (Costin 1954). In East Gippsland *E. radiata* and *E. dalrympleana* dominate 'better watered lower altitude' stands of Ecological Vegetation Class 36 (Woodgate *et al.* 1994), although some understorey components may differ. Approximately three-quarters of this extensive unit has been cleared for agriculture and although much of the remainder occurs on private land, there are significant stands in reserves and State Forest on the western edge of the escarpment range. The principal threats include further clearing (on private land), grazing, associated weed invasion and loss of shrub diversity in stands subject to frequent fire regimes.

Floristic Summary:
Trees: *Eucalyptus dalrympleana* subsp. *dalrympleana, Eucalyptus pauciflora, Eucalyptus radiata* subsp. *radiata* **Shrubs:** *Bossiaea foliosa, Daviesia ulicifolia, Hibbertia obtusifolia, Hovea linearis, Leucopogon lanceolatus* var. *lanceolatus, Monotoca scoparia, Persoonia silvatica* **Groundcover:** *Dianella tasmanica, Gonocarpus tetragynus, Lomandra longifolia, Microlaena stipoides, Stylidium graminifolium*

Vegetation structure:

Stratum	Frequency (n=15)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	18.3 (5.7)	26.3 (9.9)
Small tree	20	5.3 (1.2)	9.7 (9)
Shrub	93	1.4 (0.8)	32.6 (21.4)
Ground cover	93	0.4 (0.3)	22.4 (19.8)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 8 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 18 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
Acacia dealbata	1(1-1)	34	1(1-2)	5
Acacia obliquinervia	1(1-1)	22	1(1-1)	1
Astroloma humifusum	1(1-1)	28	1(1-1)	4
Banksia marginata	1(1-2)	22	1(1-1)	3
Bossiaea foliosa	1(1-1)	81	1(1-1)	<1
Brachyloma daphnoides	1(1-1)	38	1(1-1)	6
Brachyscome spathulata	1(1-1)	22	1(1-1)	1
Choretrum pauciflorum	1(1-1)	25	1(1-1)	1
Daviesia ulicifolia	1(1-1)	53	1(1-1)	6
Dianella tasmanica	1(1-1)	50	1(1-1)	7
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-2)	81	1(1-3)	3
Eucalyptus dives	2(1-2)	38	2(1-3)	4
Eucalyptus pauciflora	1(1-1)	53	2(1-3)	3
Eucalyptus radiata subsp. *radiata*	1(1-2)	66	2(1-3)	6
Exocarpos strictus	1(1-1)	34	1(1-1)	9
Gompholobium huegelii	1(1-1)	31	1(1-1)	2
Gonocarpus tetragynus	1(1-1)	66	1(1-1)	20
Goodenia hederacea subsp. *alpestris*	1(1-1)	25	1(1-1)	<1
Helichrysum scorpioides	1(1-1)	28	1(1-1)	7
Hibbertia obtusifolia	1(1-1)	63	1(1-1)	10
Hovea linearis	1(1-1)	47	1(1-1)	9
Lomandra longifolia	1(1-1)	91	1(1-1)	44
Monotoca scoparia	1(1-2)	66	1(1-1)	12
Olearia erubescens	1(1-1)	25	1(1-1)	2
Patersonia sericea	1(1-1)	28	1(1-1)	9
Persoonia chamaepeuce	1(1-1)	28	1(1-1)	1
Persoonia silvatica	1(1-1)	66	1(1-1)	2
Stylidium graminifolium	1(1-1)	72	1(1-1)	9
Viola betonicifolia	1(1-1)	25	1(1-1)	5

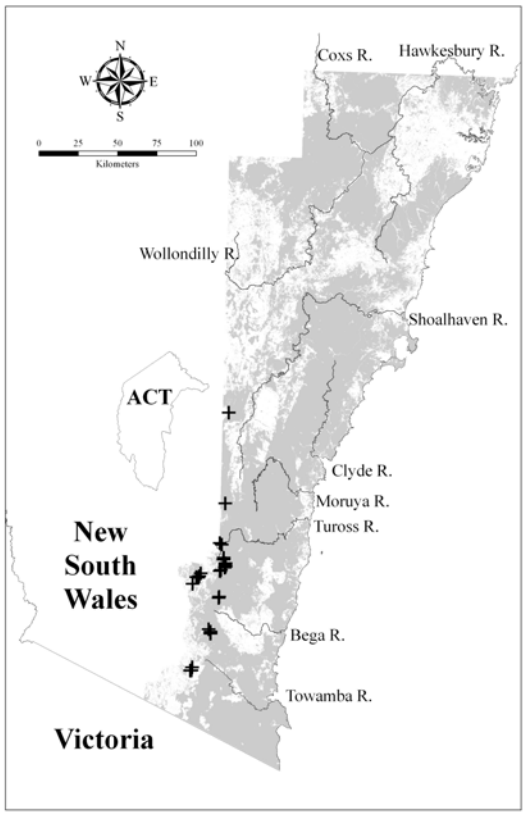
Constant:

Species	C/A	Freq	C/A O	Freq O
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	44	1(1-1)	24
Lomandra multiflora subsp. *multiflora*	1(1-1)	31	1(1-1)	25

Microlaena stipoides	1(1-1)	50	1(1-2)	36
Platysace lanceolata	1(1-1)	31	1(1-1)	13
Poa meionectes	1(1-2)	34	1(1-2)	16

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Corymbia gummifera	1(1-1)	3	2(1-2)	16
Eucalyptus fastigata	1(1-2)	9	2(1-3)	6
Eucalyptus obliqua	1(1-1)	3	2(1-3)	4
Eucalyptus rubida subsp. *rubida*	1(1-2)	9	1(1-2)	2
Eucalyptus sieberi	1(1-1)	6	2(1-3)	16
Eucalyptus stellulata	1(1-1)	6	1(1-2)	1
Eucalyptus viminalis	1(1-3)	13	2(1-3)	4



Locations of survey sites allocated to GW e24. Grey shading indicates extant native vegetation cover within the study area.

DSF e25: Southeast Sandstone Dry Shrub Forest

Plate e25. Southeast Sandstone Dry Shrub Forest (Map Unit e25) dominated by *Eucalyptus obliqua, E. sieberi* and *E.* sp. aff. *radiata* with *Acacia mucronata, Ozothamnus cuneifolius* and *Persoonia brevifolia* on Nungatta Plateau, Genoa section, South East Forests National Park.

Sample Sites: 11
Area Extant (ha): 820
Estimated % remaining: 65-75%
Area in conservation reserves (ha): 720
Estimated % of pre-clearing area in conservation reserves: 60-70%
No. Taxa (total / unique): 105 / 0
No. Taxa per Plot (±sd): 22.7 (6.5)
Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Southeast Sandstone Dry Shrub Forest is equivalent to Sandstone Dry Shrub Forest (unit 25) described by Keith & Bedward (1999). It is characterised by a *Eucalyptus* canopy approximately 20 m in height with a prominent sclerophyllous shrub stratum and a relatively dense groundcover dominated by ferns, grasses, graminoids and forbs. Southeast Sandstone Dry Shrub Forest is restricted to elevated ridges on the Genoa sandstone and nearby sites on quartz-rich granitoid substrates and metasediments, usually above 700 m elevation. Although about one-quarter of its distribution has been cleared for pine plantations, the principal occurrences on Nungatta Mountain and Mt Tennyson are represented within conservation reserves. Future clearing is therefore unlikely to pose a significant threat. Frequent fire regimes that reduce diversity by interrupting life-cycle processes of woody species are likely to be the main threat to this assemblage. The high densities of *Pteridium esculentum, Tetrarrhena juncea* and *Acacia mucronata* may reflect the passage of a high intensity fire that burnt almost the entire range of this unit in 1983. Intervals between planned and unplanned fires need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided. Although no similar assemblage has been described in East Gippsland (Forbes et al 1982), one may occur within the Shrubby Dry Forest complex (Ecological Vegetation Class 21, Woodgate *et al.* 1994) on nearby elevated sandstone areas such as Mt Coopracambra and Mt Kaye.

Floristic Summary:
Trees: *Eucalyptus obliqua* **Shrubs:** *Acacia mucronata* subsp. *longifolia, Epacris impressa, Leucopogon lanceolatus* var. *lanceolatus, Lomatia ilicifolia, Monotoca scoparia, Oxylobium arborescens, Platysace lanceolata* **Groundcover:** *Amperea xiphoclada, Dianella tasmanica, Gonocarpus tetragynus, Gonocarpus teucrioides, Lomandra longifolia, Poa meionectes, Pteridium esculentum, Tetrarrhena juncea, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=11)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	20.9 (6.5)	28.2 (12.7)
Small tree	9	6 (-)	5 (-)
Shrub	100	1.6 (0.7)	35.9 (19.5)
Ground cover	100	0.6 (0.4)	47.3 (21.8)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 7 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 18 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
Acacia mucronata subsp. *longifolia*	3(1-3)	82	1(1-1)	1
Amperea xiphoclada	1(1-1)	55	1(1-1)	7
Banksia marginata	1(1-2)	27	1(1-1)	3
Dianella tasmanica	1(1-2)	45	1(1-1)	7
Epacris impressa	2(1-2)	91	1(1-1)	4
Eucalyptus obliqua	2(1-2)	64	2(1-3)	4
Gonocarpus teucrioides	1(1-1)	55	1(1-1)	18
Leptospermum continentale	2(2-2)	27	1(1-1)	3
Lomandra longifolia	2(2-3)	100	1(1-1)	44
Lomatia ilicifolia	1(1-1)	73	1(1-1)	6
Monotoca scoparia	1(1-2)	45	1(1-1)	12
Olearia erubescens	1(1-2)	36	1(1-1)	2
Oxylobium arborescens	1(1-1)	55	1(1-2)	<1
Persoonia brevifolia	1(1-1)	36	1(1-1)	<1
Platysace lanceolata	1(1-1)	91	1(1-1)	13
Poa meionectes	1(1-3)	73	1(1-2)	16
Pteridium esculentum	1(1-3)	82	1(1-2)	37
Tetrarrhena juncea	1(1-2)	45	1(1-2)	5

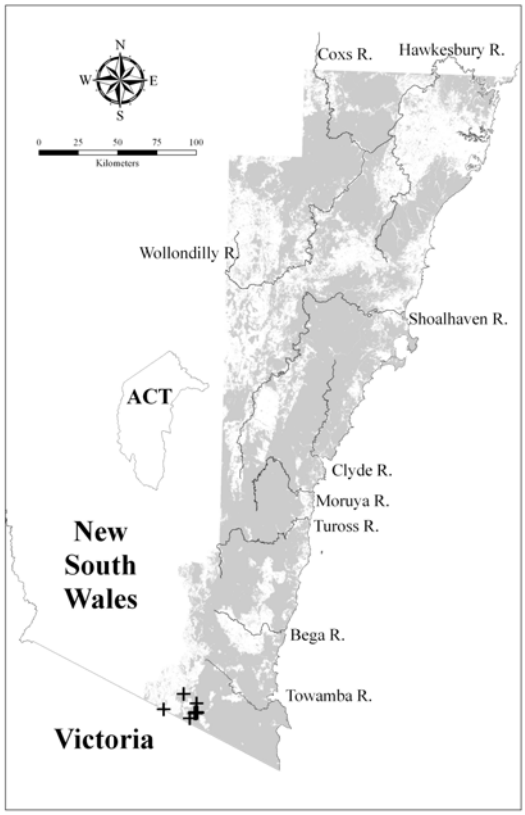
Constant:

Species	C/A	Freq	C/A O	Freq O
Dianella caerulea	1(1-1)	36	1(1-1)	28
Eucalyptus sieberi	2(1-3)	36	2(1-3)	16
Gonocarpus tetragynus	1(1-1)	45	1(1-1)	20
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	45	1(1-1)	24
Microlaena stipoides	1(1-1)	36	1(1-2)	36
Viola hederacea	1(1-1)	45	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus angophoroides	2(2-2)	9	1(1-2)	1
Eucalyptus consideniana	3(3-3)	9	1(1-2)	2
Eucalyptus cypellocarpa	2(2-2)	18	2(1-2)	10
Eucalyptus dives	1(1-1)	9	2(1-3)	4

Eucalyptus elata	2(2-2)	9	2(1-3)	5
Eucalyptus globoidea	1(1-1)	9	2(1-2)	12
Eucalyptus mckintii	3(3-3)	9	2(2-3)	<1
Eucalyptus ovata	2(2-2)	9	2(1-3)	1
Eucalyptus radiata subsp. *radiata*	1(1-1)	18	2(1-3)	6
Eucalyptus rubida subsp. *rubida*	1(1-1)	9	1(1-2)	2



Locations of survey sites allocated to **DSF** e2**5**. Grey shading indicates extant native vegetation cover within the study area.

DSF e26: Southeast Tableland Dry Shrub Forest

Plate e26. Southeast Tableland Dry Shrub Forest (Map Unit e26) dominated by *Eucalyptus viminalis* and *E. angophoroides* with *Acacia dealbata, Poa meionectes, Lomandra longifolia* and *Gahnia sieberiana* near Walla Walla Creek, Waalimma section of South East Forests National Park.

Sample Sites: 38
Area Extant (ha): 15000
Estimated % remaining: 60-70%
Area in conservation reserves (ha): 5700
Estimated % of pre-clearing area in conservation reserves: 20-30%
No. Taxa (total / unique): 223 / 0
No. Taxa per Plot (±sd): 33.6 (10.0)
Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Southeast Tableland Dry Shrub Forest is equivalent to Tableland Dry Shrub Forest (unit 26) described by Keith & Bedward (1999). It is characterised by a *Eucalyptus* canopy up to 30 m tall with an open sclerophyllous shrub stratum dominated by Epacridaceae. The groundcover is relatively sparse and comprises a mixture of grasses, graminoids and forbs with a variable cover of bracken fern (*Pteridium esculentum).* Southeast Tableland Dry Shrub Forest occurs on ridges and dry slopes on metasediments and granitoid substrates at 300-850 m elevation in the south-western part of the study area. Forbes *et al.* (1982) described a similar assemblage (Community 9.3) scattered through the foothills of East Gippsland, but this differs in some compositional aspects (e.g. low frequency of *E. radiata*). About two-fifths of Southeast Tableland Dry Shrub Forest has been cleared, mainly for pine plantation and about two-thirds of the remainder occurs on State Forest and private land available for logging. Although a further 3 200 ha of this vegetation is potentially threatened by further clearing, the principal threat to stands outside reserves is frequent disturbance regimes that include logging and fire in combination. These regimes reduce diversity by interrupting life-cycle processes of woody species (Keith 1996). Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planed and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Eucalyptus cypellocarpa, Eucalyptus globoidea, Eucalyptus radiata* subsp. *radiata* **Shrubs:** *Acacia mucronata* subsp. *longifolia, Acrotriche serrulata, Epacris impressa, Leucopogon lanceolatus* var. *lanceolatus, Monotoca scoparia, Persoonia linearis* **Groundcover:** *Dianella caerulea, Dichelachne rara, Gonocarpus tetragynus, Helichrysum scorpioides, Hibbertia obtusifolia, Hydrocotyle laxiflora, Hypericum gramineum, Lagenifera stipitata, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Poa meionectes, Pteridium esculentum, Senecio prenanthoides, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=33)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	27.9 (5.2)	28.6 (9.6)
Small tree	45	7.8 (3.3)	14.3 (9.8)
Shrub	100	2 (1)	22.9 (19.3)
Ground cover	100	0.5 (0.2)	18.6 (15.3)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 14 positive diagnostic species (95% confidence interval) provided 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 14 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia dealbata	1(1-2)	21	1(1-2)	5
Acacia mucronata subsp. *longifolia*	1(1-1)	45	1(1-2)	1
Acrotriche serrulata	1(1-1)	45	1(1-1)	3
Carex breviculmis	1(1-1)	21	1(1-1)	4
Dianella caerulea	1(1-1)	87	1(1-1)	28
Dichelachne rara	1(1-1)	45	1(1-1)	4
Epacris impressa	1(1-1)	84	1(1-1)	4
Eucalyptus angophoroides	2(1-2)	32	1(1-2)	1
Eucalyptus cypellocarpa	2(1-2)	53	2(1-2)	10
Eucalyptus globoidea	2(1-2)	61	1(1-2)	12
Eucalyptus obliqua	2(2-2)	26	2(1-3)	4
Eucalyptus radiata subsp. *radiata*	2(1-2)	61	2(1-3)	6
Euchiton gymnocephalus	1(1-1)	29	1(1-1)	7
Gahnia radula	1(1-1)	29	1(1-2)	2
Gonocarpus tetragynus	1(1-1)	58	1(1-1)	20
Helichrysum scorpioides	1(1-1)	61	1(1-1)	7
Hibbertia obtusifolia	1(1-1)	74	1(1-1)	10
Hydrocotyle laxiflora	1(1-1)	47	1(1-1)	15
Hypericum gramineum	1(1-1)	63	1(1-1)	16
Joycea pallida	1(1-2)	24	1(1-2)	8
Lagenifera stipitata	1(1-1)	55	1(1-1)	14
Leptospermum continentale	1(1-1)	29	1(1-1)	3
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	87	1(1-1)	23
Lomandra longifolia	1(1-1)	100	1(1-1)	44
Lomandra multiflora subsp. *multiflora*	1(1-1)	63	1(1-1)	25
Lomatia ilicifolia	1(1-1)	34	1(1-1)	6
Microlaena stipoides	1(1-1)	66	1(1-2)	36
Monotoca scoparia	1(1-1)	63	1(1-1)	12
Olearia erubescens	1(1-1)	21	1(1-1)	2
Persoonia linearis	1(1-1)	55	1(1-1)	29
Platysace lanceolata	1(1-1)	37	1(1-1)	13
Poa meionectes	2(1-2)	92	1(1-2)	16
Pteridium esculentum	1(1-1)	66	1(1-2)	37

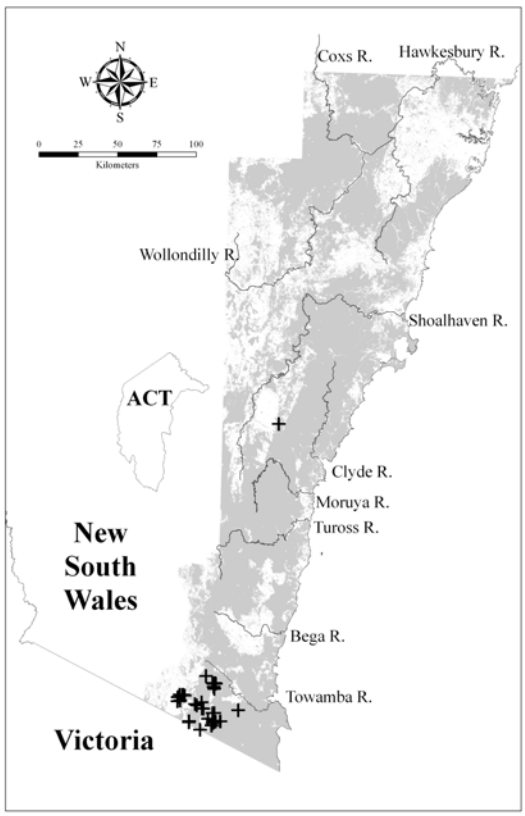
Pultenaea retusa	1(1-1)	21	1(1-1)	1
Senecio prenanthoides	1(1-1)	61	1(1-1)	8
Stylidium graminifolium	1(1-1)	26	1(1-1)	9
Tetratheca thymifolia	1(1-1)	32	1(1-1)	6
Veronica calycina	1(1-1)	34	1(1-1)	6
Viola betonicifolia	1(1-1)	24	1(1-1)	5
Viola hederacea	1(1-1)	58	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
Billardiera scandens	1(1-1)	34	1(1-1)	28
Hardenbergia violacea	1(1-1)	37	1(1-1)	17
Lepidosperma laterale	1(1-1)	37	1(1-1)	29

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus croajingolensis	3(2-3)	5	1(1-3)	<1
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-2)	18	1(1-2)	3
Eucalyptus dives	2(2-2)	3	2(1-3)	4
Eucalyptus elata	1(1-1)	3	2(1-3)	5
Eucalyptus mckintii	2(2-2)	3	2(2-3)	<1
Eucalyptus muelleriana	2(2-2)	11	2(1-2)	6
Eucalyptus ovata	1(1-1)	5	2(1-3)	1
Eucalyptus pauciflora	2(2-2)	3	1(1-2)	3
Eucalyptus polyanthemos subsp. *tarda*	1(1-1)	3	1(1-2)	<1
Eucalyptus rubida subsp. *rubida*	1(1-1)	3	1(1-2)	2
Eucalyptus sieberi	2(1-2)	26	2(1-3)	16
Eucalyptus stellulata	1(1-1)	3	1(1-2)	1
Eucalyptus viminalis	1(1-2)	18	2(1-3)	4



Locations of survey sites allocated to DSF e26. Grey shading indicates extant native vegetation cover within the study area.

DSF e27: Waalimma Dry Grass Forest

Plate e27. Waalimma Dry Grass Forest (Map Unit e27) dominated by *Eucalyptus tricarpa, E. angophoroides* and *E. globoidea* with *Acacia mucronata, A. stricta, Lissanthe strigosa, Gahnia radula* and *Echinopogon ovatus* on the northern toe slope of Mt Waalimma, Waalimma section, South East Forest National Park.

Sample Sites: 7
Area Extant (ha): 1300
Estimated % remaining: >95%
Area in conservation reserves (ha): 300
Estimated % of pre-clearing area in conservation reserves: 15-25%
No. Taxa (total / unique): 113 / 0
No. Taxa per Plot (±sd): 40.0 (5.3)

Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Waalimma Dry Grass Forest is equivalent to Map Unit 27 of the same name described by Keith & Bedward (1999). It is characterised by a tree stratum up to 25 m tall, a tall, sclerophyllous shrub stratum and a rich and distinctive grassy understorey. A variety of small shrubs and forbs are interspersed among the grassy tussocks. Waalimma Dry Grass Forest occurs on broad ridges and upper slopes on metasediments and granitoid substrates at 350-500 m elevation. It has a highly restricted distribution around Mt Waalimma close to the Victorian border, primarily on State Forest. Forbes *et al.* (1982) recorded a similar assemblage on adjacent sites across the Victorian border (Box-Ironbark Woodland, Community 10.1). However, these stands appear to differ substantially in composition and habitat from other stands attributed to Box-Ironbark elsewhere in the foothills of East Gippsland. Foothill Box-Ironbark Forest (Ecological Vegetation Class 24) described by Woodgate *et al.* (1994) shares two tree species (*E. polyanthemos* and *E. tricarpa*) with Waalimma Dry Grass Forest, but has a structurally different shrubby understorey (cf. grassy) with none of the major species in common. The Victorian assemblage occurs in two highly restricted stands (ca. 600 ha) on limestone and metasediments (Woodgate *et al.* 1994). It therefore seems unlikely that Waalimma Dry Grass Forest occurs in Victoria beyond areas adjacent to the border. The principal threat facing Waalimma Dry Grass Forest is high frequency disturbance regimes associated with timber production. The largest area of this vegetation includes tree stands of post-1952 fire regrowth which are scheduled for intensive silvicultural management for thinnings and sawlog production in the first decades of the twenty-first century. Frequent disturbance regimes including logging, thinning and burning may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996). Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity from this distinctive, species-rich assemblage are to be avoided.

Floristic Summary:
Trees: *Eucalyptus angophoroides, Eucalyptus globoidea, Eucalyptus polyanthemos* subsp. *tarda, Eucalyptus sieberi, Eucalyptus tricarpa* **Shrubs:** *Acacia mucronata* subsp. *longifolia, Acacia stricta, Acrotriche serrulata, Astroloma humifusum, Bossiaea prostrata, Epacris impressa, Hibbertia aspera* subsp. *aspera, Hibbertia empetrifolia* subsp. *empetrifolia, Leptospermum continentale, Leucopogon lanceolatus* var. *lanceolatus, Lissanthe strigosa, Olearia erubescens, Pultenaea scabra* **Climbers:** *Billardiera scandens, Cassytha pubescens, Comesperma volubile, Hardenbergia violacea* **Groundcover:** *Burchardia umbellata, Deyeuxia quadriseta, Dianella caerulea, Dianella revoluta* var. *revoluta, Dichelachne micrantha, Dichelachne rara, Euchiton gymnocephalus, Gahnia radula, Gonocarpus tetragynus, Helichrysum scorpioides, Hypericum gramineum, Joycea pallida, Lepidosperma laterale, Lomandra filiformis* subsp. *flavior, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Poa meionectes, Tetratheca thymifolia, Themeda australis, Viola hederacea, Wahlenbergia gracilis, Wahlenbergia stricta* subsp. *stricta*

Vegetation structure:

Stratum	Frequency (n=7)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	23.3 (5.1)	24.3 (5.3)
Small tree	43	9 (3.6)	10 (8.7)
Shrub	86	1.5 (0.5)	30.8 (14.6)
Ground cover	100	0.5 (0.3)	56.4 (24.8)

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 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 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia mucronata subsp. *longifolia*	2(1-2)	43	1(1-2)	1
Acacia stricta	2(1-3)	43	1(1-1)	<1
Acrotriche serrulata	1(1-1)	57	1(1-1)	3
Astroloma humifusum	1(1-3)	71	1(1-1)	4
Bossiaea prostrata	1(1-1)	86	1(1-1)	3
Burchardia umbellata	1(1-1)	57	1(1-1)	2
Comesperma volubile	1(1-1)	43	1(1-1)	2

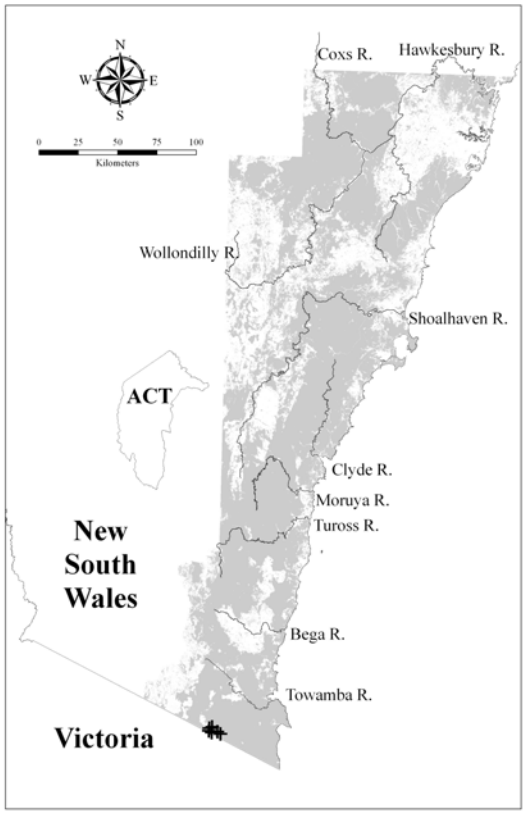
Daviesia latifolia	3(1-3)	29	1(1-2)	1
Deyeuxia monticola	1(1-1)	29	1(1-1)	1
Deyeuxia quadriseta	1(1-1)	57	1(1-1)	2
Dianella revoluta var. *revoluta*	1(1-1)	71	1(1-1)	15
Dichelachne rara	1(1-1)	57	1(1-1)	5
Epacris impressa	2(1-2)	71	1(1-1)	4
Eucalyptus angophoroides	2(1-2)	86	1(1-2)	1
Eucalyptus bosistoana	3(1-3)	29	1(1-2)	3
Eucalyptus globoidea	1(1-2)	71	2(1-2)	12
Eucalyptus polyanthemos subsp. *tarda*	1(1-2)	43	1(1-2)	<1
Eucalyptus tricarpa	2(2-3)	57	1(1-2)	1
Euchiton gymnocephalus	1(1-1)	57	1(1-1)	7
Gahnia radula	2(2-3)	100	1(1-2)	3
Gonocarpus tetragynus	1(1-1)	71	1(1-1)	20
Helichrysum scorpioides	1(1-1)	86	1(1-1)	7
Hibbertia empetrifolia subsp. *empetrifolia*	1(1-1)	71	1(1-1)	7
Hypericum gramineum	1(1-1)	86	1(1-1)	16
Lepidosperma laterale	1(1-1)	86	1(1-1)	29
Leptospermum continentale	1(1-1)	57	1(1-1)	3
Lissanthe strigosa	1(1-2)	100	1(1-1)	8
Lomandra filiformis subsp. *flavior*	1(1-2)	43	1(1-1)	<1
Lomandra multiflora subsp. *multiflora*	1(1-1)	100	1(1-1)	25
Olearia erubescens	1(1-1)	43	1(1-1)	2
Plantago varia	1(1-1)	29	1(1-1)	2
Pultenaea retusa	2(1-2)	29	1(1-1)	2
Pultenaea scabra	1(1-2)	43	1(1-2)	2
Tetratheca thymifolia	1(1-1)	57	1(1-1)	7
Themeda australis	1(1-1)	86	1(1-3)	17
Wahlenbergia gracilis	1(1-1)	57	1(1-1)	11
Wahlenbergia stricta subsp. *stricta*	1(1-1)	43	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
Billardiera scandens	1(1-1)	71	1(1-1)	28
Cassytha pubescens	1(1-1)	43	1(1-1)	8
Dianella caerulea	1(1-1)	57	1(1-1)	28
Dichelachne micrantha	1(1-1)	43	1(1-1)	9
Eucalyptus sieberi	1(1-2)	57	2(1-3)	16
Hardenbergia violacea	1(1-1)	43	1(1-1)	17
Hibbertia aspera subsp. *aspera*	1(1-1)	43	1(1-1)	10
Joycea pallida	2(1-3)	43	1(1-2)	8
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	43	1(1-1)	24
Lomandra longifolia	1(1-2)	57	1(1-1)	44
Microlaena stipoides	1(1-1)	57	1(1-2)	36
Poa meionectes	2(1-3)	57	1(1-2)	16
Viola hederacea	1(1-1)	43	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus agglomerata	2(1-2)	29	2(1-3)	7
Eucalyptus cypellocarpa	1(1-1)	29	2(1-2)	10
Eucalyptus muelleriana	2(2-2)	29	2(1-2)	6
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	14	1(1-1)	<1



Locations of survey sites allocated to DSF e27. Grey shading indicates extant native vegetation cover within the study area.

DSF e28: Wog Wog Dry Grass Forest

Plate e28. Wog Wog Dry Grass Forest (Map Unit e28) dominated by *Eucalyptus maidenii* and *E. agglomerata* with *Leucopogon lanceolatus, Poa meionectes* and *Pteridium esculentum* on Conga Road near Wog Wog River, Coolangubra section, South East Forests National Park.

Sample Sites: 11
Area Extant (ha): 920
Estimated % remaining: 65-75%
Area in conservation reserves (ha): 880
Estimated % of pre-clearing area in conservation reserves: 60-70%
No. Taxa (total / unique): 110 / 0
No. Taxa per Plot (±sd): 33.2 (6.6)
Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Wog Wog Dry Grass Forest is equivalent to Map Unit 28 of the same name described by Keith & Bedward (1999). The *Eucalyptus* canopy rises up to 30 m in height with an understorey comprised of a sparse stratum of sclerophyllous shrubs and a species-rich, semi-continuous groundcover dominated by grasses and graminoids interspersed with a rich array of forbs. The groundcover also includes prostrate shrubs of *Astroloma humifusum* and twining plants of *Glycine clandestina*. Wog Wog Dry Grass Forest is restricted to gentle lower slopes on granitoid substrates at 400-500 m elevation in the Wog Wog Creek area. No similar assemblages have been described outside the Eden region (Austin 1978, Woodgate *et al.* 1994). About one third of Wog Wog Dry Grass Forest has been cleared for agriculture and is now under pine plantation. Most of the remainder is in a national park, where fire regimes and feral pigs are the main management concerns. Diggings of feral pigs, which have been present in appreciable numbers in this area, potentially threaten the groundcover with loss of diversity and weed invasion.

Floristic Summary:
Trees: *Eucalyptus agglomerata, Eucalyptus maidenii* **Shrubs:** *Astroloma humifusum, Coprosma quadrifida, Hibbertia obtusifolia, Leucopogon lanceolatus* var. *lanceolatus, Senecio linearifolius* **Climbers:** *Glycine clandestina* **Groundcover:** *Acaena novae-zelandiae, Ajuga australis, Austrodanthonia pilosa, Desmodium varians, Geranium potentilloides, Gonocarpus tetragynus, Gonocarpus teucrioides, Hydrocotyle peduncularis, Hypericum gramineum, Lachnagrostis filiformis, Lagenifera stipitata, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Luzula flaccida, Oxalis perennans, Plantago debilis, Plantago varia, Poa meionectes, Poranthera microphylla, Pteridium esculentum, Senecio prenanthoides, Viola hederacea, Wahlenbergia gracilis, Wahlenbergia stricta* subsp. *stricta*

Vegetation structure:

Stratum	Frequency (n=10)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	28.5 (3.4)	34 (9.7)
Small tree	30	6.3 (1.5)	11.3 (8.1)
Shrub	100	2.5 (1.2)	14.4 (16.6)
Ground cover	100	0.4 (0.3)	69 (26.9)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 28 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:

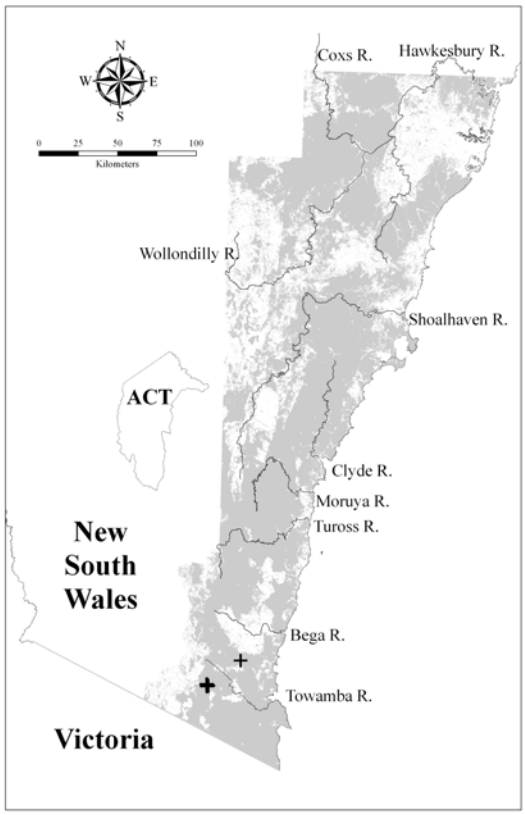
Species	C/A	Freq	C/A O	Freq O
Acaena novae-zelandiae	1(1-1)	73	1(1-1)	7
Acrotriche serrulata	1(1-1)	36	1(1-1)	3
Ajuga australis	1(1-1)	55	1(1-1)	3
Astroloma humifusum	1(1-1)	73	1(1-1)	4
Austrodanthonia pilosa	1(1-1)	73	1(1-1)	3
Cassinia aculeata	1(1-2)	36	1(1-1)	6
Cassinia longifolia	1(1-1)	36	1(1-2)	6
Coprosma quadrifida	1(1-1)	55	1(1-1)	10
Desmodium varians	1(1-1)	73	1(1-1)	21
Eucalyptus agglomerata	2(2-3)	82	2(1-3)	7
Eucalyptus angophoroides	1(1-2)	36	1(1-2)	1
Eucalyptus maidenii	2(1-2)	91	2(1-2)	2
Euchiton gymnocephalus	1(1-1)	36	1(1-1)	7
Geranium potentilloides	1(1-1)	55	1(1-1)	6
Gonocarpus teucrioides	1(1-1)	73	1(1-1)	17
Hibbertia obtusifolia	1(1-1)	55	1(1-1)	11
Hydrocotyle peduncularis	1(1-1)	82	1(1-1)	9
Hypericum gramineum	1(1-1)	82	1(1-1)	16
Lachnagrostis filiformis	1(1-1)	64	1(1-1)	3
Lagenifera stipitata	1(1-1)	82	1(1-1)	14
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	100	1(1-1)	24
Luzula flaccida	1(1-1)	45	1(1-1)	4
Oxalis perennans	1(1-1)	64	1(1-1)	13
Plantago debilis	1(1-1)	73	1(1-1)	7
Plantago varia	1(1-1)	45	1(1-1)	2
Poa meionectes	4(3-5)	100	1(1-2)	16
Poranthera microphylla	1(1-1)	91	1(1-1)	15
Senecio linearifolius	1(1-1)	82	1(1-1)	8
Senecio prenanthoides	1(1-1)	55	1(1-1)	8
Viola betonicifolia	1(1-1)	36	1(1-1)	5
Viola hederacea	1(1-1)	64	1(1-1)	22
Wahlenbergia gracilis	1(1-1)	55	1(1-1)	11
Wahlenbergia stricta subsp. *stricta*	1(1-1)	73	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	2(1-2)	36	1(1-2)	10
Billardiera scandens	1(1-1)	36	1(1-1)	28
Glycine clandestina	1(1-1)	64	1(1-1)	26
Gonocarpus tetragynus	1(1-1)	45	1(1-1)	20
Lomandra longifolia	1(1-2)	45	1(1-1)	44
Lomandra multiflora subsp. *multiflora*	1(1-1)	55	1(1-1)	25
Pteridium esculentum	1(1-1)	45	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus bosistoana	1(1-1)	9	1(1-2)	3
Eucalyptus cypellocarpa	2(2-2)	9	2(1-2)	10
Eucalyptus dalrympleana subsp. *dalrympleana*	1(1-1)	9	1(1-2)	3
Eucalyptus elata	1(1-1)	9	2(1-3)	5
Eucalyptus globoidea	3(3-3)	9	2(1-2)	12
Eucalyptus muelleriana	2(1-2)	18	2(1-2)	6
Eucalyptus sieberi	1(1-1)	9	2(1-3)	16



Locations of survey sites allocated to DSF e28. Grey shading indicates extant native vegetation cover within the study area.

DSF e29: Nalbaugh Dry Grass Forest

Plate e29. Nalbaugh Dry Grass Forest (Map Unit e29) dominated by *Eucalyptus radiata, E. viminalis* and *E. globoidea* with *Kunzea ericoides* and *Poa meionectes* on the summit of Big Jack Mountain, Coolangubra section of South East Forests National Park.

Sample Sites: 11
Area Extant (ha): 1900
Estimated % remaining: 70-80%
Area in conservation reserves (ha): 700
Estimated % of pre-clearing area in conservation reserves: 25-35%
No. Taxa (total / unique): 171 / 0
No. Taxa per Plot (±sd): 35.2 (9.1)
Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Nalbaugh Dry Grass Forest is equivalent to Map Unit 29 of the same name described by Keith & Bedward (1999). It comprises a *Eucalyptus* forest rising to over 25 m in height with an open shrub stratum and moderately dense groundcover dominated by grasses and graminoids with a diverse compliment of forbs. Nalbaugh Dry Grass Forest occurs on lower granitoid slopes at 500-850 m elevation on the southern part of the escarpment range. It differs from Southeast Tableland Dry Shrub Forest (Map Unit DSF e26) in its subdominant tree species and the greater diversity of forbs in its more developed groundcover. Its composition does not readily match any of the assemblages described in adjacent regions (Austin 1978, Forbes *et al.* 1982), however, there may be restricted occurrences within the Grassy Dry Forest complex in East Gippsland (Woodgate *et al.* 1994). One-quarter of Nalbaugh Dry Grass Forest has been cleared and three-fifths of the remainder occurs on State Forest and private land available for logging. The principal threat to stands outside reserves is frequent disturbance regimes that include logging and fire in combination, although the impact of these regimes is likely to be less severe than in assemblages with more diverse woody components. Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Eucalyptus cypellocarpa, Eucalyptus globoidea* **Shrubs:** *Acrotriche serrulata, Cassinia aculeata, Cassinia longifolia, Epacris impressa, Leucopogon lanceolatus* var. *lanceolatus* **Groundcover:** *Gonocarpus tetragynus, Helichrysum scorpioides, Hydrocotyle peduncularis, Hypericum gramineum, Lagenifera stipitata, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Luzula flaccida, Microlaena stipoides, Poa meionectes, Poranthera microphylla, Senecio prenanthoides, Veronica calycina, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=12)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	25	31.7 (7.6)	14.9 (17.4)
Tree canopy	100	25 (4.8)	33.2 (17)
Small tree	33	9.5 (1.9)	16.3 (14.4)
Shrub	83	3 (0.8)	31.8 (17.6)
Ground cover	100	0.6 (0.4)	43.3 (24.6)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 15 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 28 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 15 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	2(2-3)	37	1(1-2)	10
Acrotriche serrulata	1(1-1)	58	1(1-1)	3
Astroloma humifusum	1(1-1)	37	1(1-1)	4
Bossiaea prostrata	1(1-1)	37	1(1-1)	3
Cassinia aculeata	1(1-2)	84	1(1-1)	6
Cassinia longifolia	1(1-1)	47	1(1-2)	6
Dichelachne inaequiglumis	1(1-1)	21	1(1-1)	3
Dichelachne rara	1(1-1)	32	1(1-1)	5
Epacris impressa	1(1-1)	79	1(1-1)	4
Eucalyptus cypellocarpa	2(2-3)	68	2(1-2)	10
Eucalyptus globoidea	3(2-3)	84	1(1-2)	12
Euchiton gymnocephalus	1(1-1)	37	1(1-1)	7
Exocarpos strictus	1(1-1)	37	1(1-1)	9
Geranium potentilloides	1(1-1)	37	1(1-1)	6
Gonocarpus tetragynus	1(1-2)	63	1(1-1)	20
Hakea eriantha	1(1-1)	21	1(1-1)	2
Helichrysum scorpioides	1(1-1)	79	1(1-1)	7
Hydrocotyle peduncularis	1(1-1)	47	1(1-1)	9
Hypericum gramineum	1(1-1)	58	1(1-1)	16
Kunzea ericoides	1(1-3)	26	1(1-2)	2
Lagenifera stipitata	1(1-1)	68	1(1-1)	14
Leptospermum continentale	1(1-1)	37	1(1-1)	3
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	74	1(1-1)	23
Lissanthe strigosa	1(1-2)	37	1(1-1)	8
Lomandra filiformis subsp. *filiformis*	1(1-1)	37	1(1-1)	11
Lomandra longifolia	1(1-2)	84	1(1-1)	44
Lomandra multiflora subsp. *multiflora*	1(1-1)	63	1(1-1)	25
Lomatia ilicifolia	1(1-1)	26	1(1-1)	6
Luzula flaccida	1(1-1)	63	1(1-1)	4
Olearia erubescens	1(1-1)	32	1(1-1)	2
Opercularia varia	1(1-1)	21	1(1-1)	3
Plantago debilis	1(1-1)	37	1(1-1)	7
Poa meionectes	2(2-3)	84	1(1-2)	16

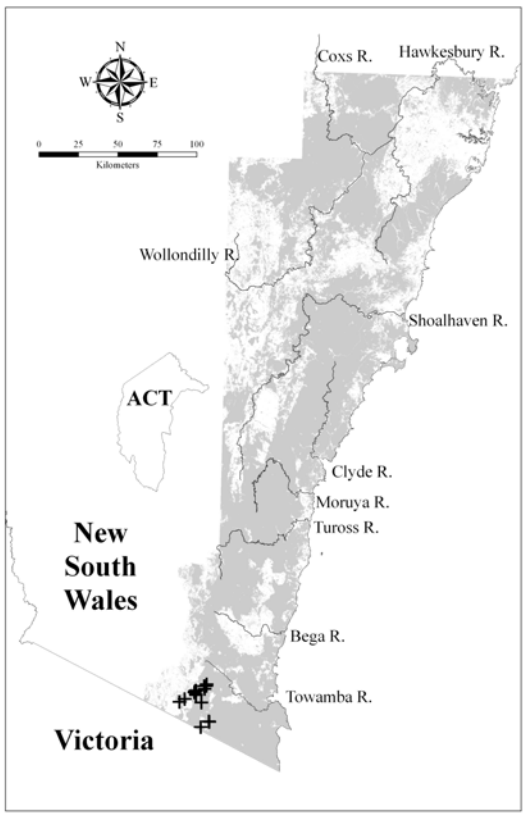
Poranthera microphylla	1(1-1)	84	1(1-1)	15
Schoenus apogon	1(1-1)	26	1(1-1)	2
Senecio linearifolius	1(1-1)	37	1(1-1)	8
Senecio prenanthoides	1(1-1)	63	1(1-1)	8
Stackhousia monogyna	1(1-1)	21	1(1-1)	2
Stylidium graminifolium	1(1-1)	37	1(1-1)	9
Veronica calycina	1(1-1)	47	1(1-1)	6
Viola hederacea	1(1-1)	79	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
Glycine clandestina	1(1-1)	32	1(1-1)	26
Hibbertia obtusifolia	1(1-1)	32	1(1-1)	11
Lepidosperma laterale	1(1-1)	42	1(1-1)	29
Microlaena stipoides	1(1-1)	68	1(1-2)	36
Pteridium esculentum	1(1-2)	37	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Eucalyptus angophoroides	2(1-2)	11	1(1-2)	1
Eucalyptus elata	1(1-1)	5	2(1-3)	5
Eucalyptus maidenii	1(1-1)	5	2(1-2)	2
Eucalyptus muelleriana	2(2-2)	5	2(1-2)	6
Eucalyptus obliqua	1(1-1)	11	2(1-3)	4
Eucalyptus ovata	1(1-2)	16	2(1-3)	1
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	11	1(1-1)	<1
Eucalyptus radiata subsp. *radiata*	2(1-2)	11	2(1-3)	6
Eucalyptus robertsonii subsp. *robertsonii*	4(3-4)	11	2(1-4)	<1
Eucalyptus sieberi	1(1-2)	21	2(1-3)	16
Eucalyptus viminalis	1(1-2)	16	2(1-3)	4



Locations of survey sites allocated to DSF e29. Grey shading indicates extant native vegetation cover within the study area.

DSF e30: Wallagaraugh Dry Grass Forest

Plate e30. Wallagaraugh Dry Grass Forest (Map Unit e30) dominated by *Eucalyptus angophoroides, E. viminalis* and *E. ovata* with *Acacia longifolia, Lomandra longifolia, Poa meionectes* and *Gahnia sieberiana* on Walla Walla Creek, Waalimma section of South East Forests National Park.

Sample Sites: 11
Area Extant (ha): 800
Estimated % remaining: 50-60%
Area in conservation reserves (ha): 350
Estimated % of pre-clearing area in conservation reserves: 20-30%
No. Taxa (total / unique): 170 / 0
No. Taxa per Plot (±sd): 37.9 (10.1)
Class: Southern Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Wallagaraugh Dry Grass Forest is equivalent to Map Unit 30 of the same name described by Keith & Bedward (1999). It has a variable tree stratum exceeding 25 m in height and an open shrub stratum occasionally developing to the height of small trees. The species-rich groundcover is moderately dense and comprises grasses and graminoids with a variety of forbs and twiners interspersed. A variable stratum of bracken fern *Pteridium esculentum* may also be present. Wallagaraugh Dry Grass Forest is restricted to relatively small stands on lower slopes, usually on granitoid substrates at 100-500 m elevation in the southern hinterland. It generally occurs at lower elevation, extending into damper habitats than Southeast Tableland Dry Shrub Forest (Map Unit DSF e26) and Nalbaugh Dry Grass Forest (Map Unit DSF e29), and has a more variable composition of trees and less sclerophyllous compliment of shrub species than these other assemblages. In broad open valleys Wallagaraugh Dry Grass Forest may grade into Southeast Lowland Swamp (Map Unit FrW e59) which occupies the most low-lying waterlogged sites in the catchment. Its composition does not readily match any of the assemblages described in adjacent regions (Austin 1978, Forbes *et al.* 1982), however, there may be restricted occurrences within the Grassy Dry Forest complex in the foothills of East Gippsland (Woodgate *et al.* 1994). Almost half of Wallagaraugh Dry Grass Forest has been cleared, mainly for pine plantation and three-fifths of the remainder occurs on State Forest and private land available for logging. Stands on private land are potentially threatened by further clearing. Frequent disturbance regimes that include logging (outside reserves) and fire in combination may reduce diversity by interrupting life-cycle processes of woody species and increase rates of sedimentation. Feral pigs also pose a threat to soils and the diverse ground flora through their diggings.

Floristic Summary:
Trees: *Eucalyptus cypellocarpa, Eucalyptus globoidea* **Shrubs:** *Acacia mearnsii, Cassinia aculeata, Exocarpos strictus, Gahnia radula, Hibbertia aspera* subsp. *aspera, Persoonia linearis* **Climbers:** *Billardiera scandens, Glycine clandestina, Kennedia rubicunda* **Groundcover:** *Desmodium varians, Dianella caerulea, Euchiton gymnocephalus, Gonocarpus teucrioides, Hydrocotyle peduncularis, Hypericum gramineum, Lagenifera stipitata, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Poa labillardierei* var. *labillardierei, Poa meionectes, Pteridium esculentum, Senecio prenanthoides, Themeda australis, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=8)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	21.1 (6.1)	35 (18.5)
Small tree	13	10 (-)	30 (-)
Shrub	88	2.1 (1.2)	30.3 (14.9)
Ground cover	100	0.6 (0.4)	58.1 (26.6)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 11 positive diagnostic species (95% confidence interval) provided 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 11 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia mearnsii	1(1-3)	73	1(1-2)	7
Billardiera scandens	1(1-1)	73	1(1-1)	28
Bossiaea prostrata	1(1-1)	27	1(1-1)	3
Cassinia aculeata	1(1-1)	45	1(1-1)	6
Cassinia longifolia	1(1-3)	36	1(1-2)	6
Dichelachne rara	1(1-1)	36	1(1-1)	5
Eucalyptus bosistoana	2(1-3)	27	1(1-2)	3
Eucalyptus cypellocarpa	2(1-2)	73	2(1-2)	10
Eucalyptus globoidea	1(1-2)	64	2(1-2)	12
Euchiton gymnocephalus	1(1-1)	55	1(1-1)	7
Exocarpos strictus	1(1-1)	55	1(1-1)	9
Gahnia radula	3(2-3)	55	1(1-2)	3
Geranium solanderi var. *solanderi*	1(1-1)	36	1(1-1)	8
Glycine clandestina	1(1-1)	73	1(1-1)	26

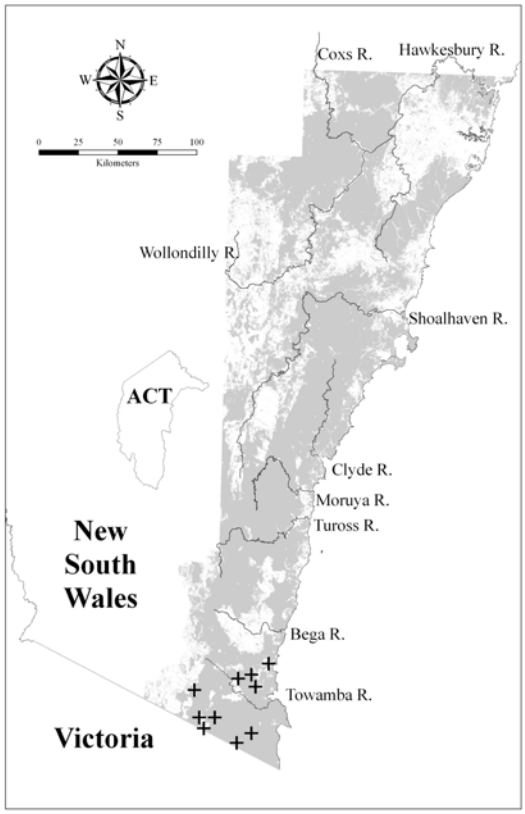
Gonocarpus teucrioides	1(1-1)	55	1(1-1)	18
Hibbertia aspera subsp. *aspera*	1(1-2)	55	1(1-1)	10
Hydrocotyle peduncularis	1(1-1)	45	1(1-1)	9
Hypericum gramineum	1(1-1)	100	1(1-1)	16
Kennedia rubicunda	1(1-1)	45	1(1-1)	6
Lagenifera stipitata	1(1-1)	73	1(1-1)	14
Lepidosperma laterale	1(1-1)	91	1(1-1)	29
Microlaena stipoides	1(1-1)	82	1(1-2)	36
Poa labillardierei var. *labillardierei*	1(1-1)	55	1(1-2)	12
Poa meionectes	2(1-3)	91	1(1-2)	16
Pultenaea retusa	1(1-1)	27	1(1-1)	2
Senecio prenanthoides	1(1-1)	55	1(1-1)	8
Viola hederacea	1(1-1)	73	1(1-1)	22

Constant:

Species	C/A	Freq	C/A O	Freq O
Clematis aristata	1(1-1)	36	1(1-1)	20
Desmodium varians	1(1-1)	55	1(1-1)	21
Dianella caerulea	1(1-1)	55	1(1-1)	28
Dichondra spp.	1(1-1)	36	1(1-2)	25
Hardenbergia violacea	1(1-1)	36	1(1-1)	17
Lomandra longifolia	1(1-1)	73	1(1-1)	44
Lomandra multiflora subsp. *multiflora*	1(1-1)	45	1(1-1)	25
Oxalis perennans	1(1-1)	36	1(1-1)	13
Persoonia linearis	1(1-1)	45	1(1-1)	29
Pteridium esculentum	2(1-3)	64	1(1-2)	37
Themeda australis	2(1-3)	45	1(1-3)	17

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Corymbia gummifera	2(2-2)	9	2(1-2)	16
Eucalyptus agglomerata	1(1-1)	9	2(1-3)	7
Eucalyptus angophoroides	2(2-2)	9	1(1-2)	1
Eucalyptus muelleriana	2(2-2)	9	2(1-2)	6
Eucalyptus pilularis	3(3-3)	9	2(1-3)	5
Eucalyptus radiata subsp. *radiata*	2(1-2)	18	2(1-3)	6
Eucalyptus sieberi	2(2-2)	9	2(1-3)	16
Eucalyptus smithii	1(1-1)	9	1(1-2)	2
Eucalyptus viminalis	2(1-2)	18	2(1-3)	4



Locations of survey sites allocated to DSF e30. Grey shading indicates extant native vegetation cover within the study area.

DSF e31: Southeast Hinterland Dry Grass Forest

Plate e31. Southeast Hinterland Dry Grass Forest (Map Unit e31) dominated by *Eucalyptus angophoroides, E. cypellocarpa* and *E. globoidea* with *Poa meionectes* and numerous other grass and forb species on Nungatta Road east of Nungatta Creek, Waalimma section of South East Forests National Park.

Sample Sites: 57
Area Extant (ha): 27000
Estimated % remaining: 80-90%
Area in conservation reserves (ha): 16500
Estimated % of pre-clearing area in conservation reserves: 45-55%
No. Taxa (total / unique): 262 / 0
No. Taxa per Plot (±sd): 37.6 (9.0)

Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Southeast Hinterland Dry Grass Forest is equivalent to Hinterland Dry Grass Forest (unit 31) described by Keith & Bedward (1999). The *Eucalyptus* canopy rises to approximately 25 m in height above a stratum of scattered shrubs. The groundcover is diverse and semi-continuous and dominated by grasses and graminoids interspersed with forbs and twiners. A variable cover of bracken fern *Pteridium esculentum* may also be present. Southeast Hinterland Dry Grass Forest is widespread in undulating granitoid terrain at 250-700 m elevation in the hinterland and foothills mainly south of the Bega valley. It generally occurs on drier sites than Nalbaugh Dry Grass Forest (Map Unit DSF e29) and Wallagaraugh Dry Grass Forest (Map Unit DSF e30) and differs in the composition of sub-dominant trees, its less developed shrub stratum and greater compliment of groundcover species. Its composition does not readily match any of the assemblages described in adjacent regions (Austin 1978, Forbes *et al.* 1982), however, there may be restricted occurrences within the Grassy Dry Forest complex in the foothills of East Gippsland (Woodgate *et al.* 1994). About 15% of Southeast Hinterland Dry Grass Forest has been cleared, but large areas remain on all tenures. Stands on private land are potentially threatened by further clearing. Frequent disturbance regimes that include logging (outside reserves) and fire in combination may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996), changing the relative abundance of eucalypt species (Bridges 1983) and increasing rates of sedimentation. These impacts are most severe for assemblages with larger components of woody species and those more topographically restricted to lower slopes.

Floristic Summary:
Trees: *Eucalyptus globoidea, Eucalyptus maidenii* **Shrubs:** *Cassinia aculeata, Coprosma quadrifida, Hibbertia obtusifolia, Leucopogon lanceolatus* var. *lanceolatus, Senecio linearifolius* **Climbers:** *Clematis aristata, Glycine clandestina* **Groundcover:** *Desmodium varians, Dichelachne rara, Euchiton gymnocephalus, Gonocarpus tetragynus, Hydrocotyle laxiflora, Hypericum gramineum, Lagenifera stipitata, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Oxalis perennans, Persoonia linearis, Plantago varia, Poa meionectes, Poranthera microphylla, Pteridium esculentum, Senecio prenanthoides, Veronica calycina, Viola betonicifolia, Viola hederacea, Wahlenbergia gracilis, Wahlenbergia stricta* subsp. *stricta*

Vegetation structure:

Stratum	Frequency (n=45)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	24.8 (5.5)	34.7 (10.7)
Small tree	24	9.9 (3.9)	9.5 (5.7)
Shrub	91	2.1 (1.3)	20.6 (14.1)
Ground cover	100	0.5 (0.2)	35.8 (22.1)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 20 positive diagnostic species (95% confidence interval) provided 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
Acacia falciformis	1(1-2)	25	1(1-2)	10
Acacia mearnsii	1(1-2)	26	1(1-2)	7
Acaena novae-zelandiae	1(1-1)	30	1(1-1)	7
Acrotriche serrulata	1(1-1)	23	1(1-1)	3
Astroloma humifusum	1(1-1)	32	1(1-1)	4
Austrodanthonia pilosa	1(1-1)	21	1(1-1)	3
Austrodanthonia racemosa var. *racemosa*	1(1-1)	23	1(1-2)	6
Bossiaea buxifolia	1(1-1)	16	1(1-1)	3
Carex breviculmis	1(1-1)	33	1(1-1)	4
Cassinia aculeata	1(1-2)	42	1(1-1)	6
Cassinia longifolia	1(1-2)	37	1(1-2)	6
Clematis aristata	1(1-1)	44	1(1-1)	20
Coprosma quadrifida	1(1-1)	40	1(1-1)	9
Cymbonotus preissianus	1(1-1)	23	1(1-1)	1

Desmodium varians	1(1-1)	70	1(1-1)	21
Dichelachne micrantha	1(1-1)	35	1(1-1)	9
Dichelachne rara	1(1-1)	63	1(1-1)	4
Echinopogon ovatus	1(1-1)	35	1(1-1)	14
Epacris impressa	1(1-1)	16	1(1-1)	4
Eucalyptus angophoroides	2(1-2)	33	1(1-2)	1
Eucalyptus bosistoana	1(1-2)	18	1(1-2)	3
Eucalyptus cypellocarpa	2(1-2)	30	2(1-2)	10
Eucalyptus elata	1(1-2)	19	2(1-3)	5
Eucalyptus globoidea	2(1-2)	81	1(1-2)	11
Eucalyptus maidenii	2(1-2)	42	2(1-2)	2
Eucalyptus muelleriana	2(2-3)	23	2(1-2)	6
Eucalyptus sieberi	2(1-3)	35	2(1-3)	16
Euchiton gymnocephalus	1(1-1)	67	1(1-1)	7
Gahnia radula	1(1-1)	23	1(1-2)	2
Galium propinquum	1(1-1)	23	1(1-1)	7
Glycine clandestina	1(1-1)	75	1(1-1)	26
Gonocarpus tetragynus	1(1-1)	56	1(1-1)	20
Helichrysum scorpioides	1(1-1)	33	1(1-1)	7
Hibbertia obtusifolia	1(1-1)	46	1(1-1)	10
Hydrocotyle laxiflora	1(1-1)	74	1(1-1)	15
Hypericum gramineum	1(1-1)	89	1(1-1)	16
Lachnagrostis filiformis	1(1-1)	12	1(1-1)	3
Lagenifera stipitata	1(1-1)	65	1(1-1)	14
Lepidosperma laterale	1(1-1)	49	1(1-1)	28
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	68	1(1-1)	23
Lomandra longifolia	1(1-1)	89	1(1-1)	43
Lomandra multiflora subsp. *multiflora*	1(1-1)	58	1(1-1)	25
Luzula flaccida	1(1-1)	18	1(1-1)	4
Microlaena stipoides	1(1-1)	67	1(1-2)	36
Opercularia aspera	1(1-1)	33	1(1-1)	8
Oxalis perennans	1(1-1)	44	1(1-1)	13
Persoonia linearis	1(1-1)	51	1(1-1)	29
Plantago debilis	1(1-1)	23	1(1-1)	7
Plantago varia	1(1-1)	42	1(1-1)	2
Poa labillardierei var. *labillardierei*	1(1-2)	35	1(1-2)	12
Poa meionectes	2(1-2)	82	1(1-2)	16
Poranthera microphylla	1(1-1)	56	1(1-1)	15
Pteridium esculentum	1(1-2)	60	1(1-2)	37
Senecio linearifolius	1(1-1)	56	1(1-1)	8
Senecio prenanthoides	1(1-1)	65	1(1-1)	8
Stylidium graminifolium	1(1-1)	25	1(1-1)	9
Tylophora barbata	1(1-1)	35	1(1-1)	17
Veronica calycina	1(1-1)	74	1(1-1)	6
Viola betonicifolia	1(1-1)	49	1(1-1)	5
Viola hederacea	1(1-1)	51	1(1-1)	22

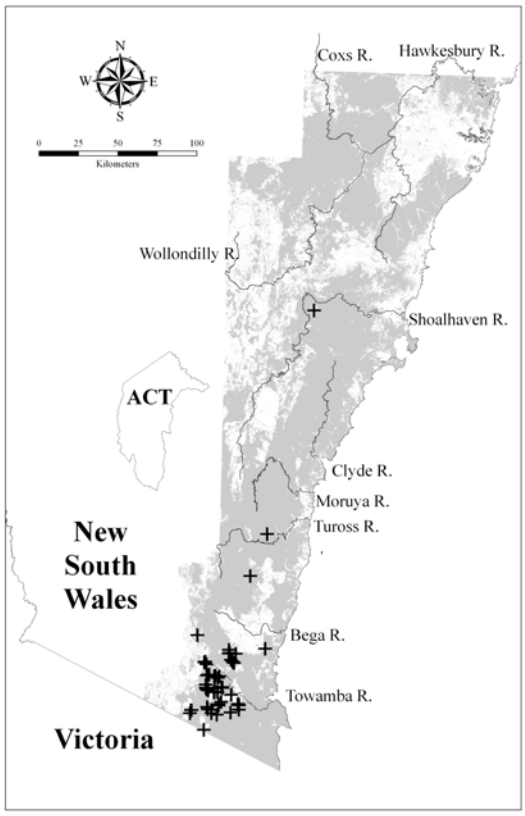
Wahlenbergia gracilis	1(1-1)	40	1(1-1)	10
Wahlenbergia stricta subsp. *stricta*	1(1-1)	40	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
Billardiera scandens	1(1-1)	37	1(1-1)	28
Dianella caerulea	1(1-1)	37	1(1-1)	28
Dichondra spp.	1(1-1)	35	1(1-2)	25

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-1)	2	1(1-2)	9
Eucalyptus agglomerata	2(1-2)	11	2(1-3)	7
Eucalyptus baueriana	3(3-3)	2	2(1-2)	1
Eucalyptus croajingolensis	2(2-2)	2	2(1-3)	<1
Eucalyptus dives	2(1-2)	4	2(1-3)	4
Eucalyptus fastigata	2(2-2)	2	2(1-3)	6
Eucalyptus obliqua	1(1-1)	2	2(1-3)	4
Eucalyptus polyanthemos subsp. *tarda*	2(1-2)	11	1(1-2)	<1
Eucalyptus radiata subsp. *radiata*	1(1-2)	16	2(1-3)	6
Eucalyptus robertsonii subsp. *robertsonii*	1(1-1)	2	3(2-4)	<1
Eucalyptus viminalis	2(1-2)	11	2(1-3)	4



Locations of survey sites allocated to DSF e31. Grey shading indicates extant native vegetation cover within the study area.

DSF e32A: Deua-Brogo Foothills Dry Shrub Forest

Plate e32A. Deua-Brogo Foothills Dry Shrub Forest (Map Unit e32A) dominated by *Eucalyptus agglomerata, E. paniculata* and *E. longifolia* with *Allocasuarina littoralis*, *Macrozamia communis* and *Joycea pallida,* below Donalds Creek Road in Deua National Park.

Sample Sites: 96
Area Extant (ha): 42,200
Estimated % remaining: >95%
Area in conservation reserves (ha): 27,700
Estimated % of pre-clearing area in conservation reserves: 60-70%
No. Taxa (total / unique): 272 / 0
No. Taxa per Plot (±sd): 28.8 (11.1)
Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Deua-Brogo Foothills Dry Shrub Forest includes the northern distribution of Coastal Foothills Dry Shrub Forest (unit 32) described by Keith & Bedward (1999). It is characterised by a variable tree stratum dominated by *Eucalyptus, Angophora or Corymbia* sp. around 23 m in height. *Allocasuarina littoralis* may form an open subcanopy ca. 12 m tall. An open shrub stratum is usually present with a variety of species occurring with low frequency. The groundcover is characteristically dominated by tussock grasses. Deua-Brogo Foothills Dry Shrub Forest occurs on metamorphosed sediments and mudstones and is widespread on steep slopes and ridges at 50-250 m elevation on the coastal foothills from Brogo to Moruya. It shares many species with the closely related Far South Coastal Foothills Dry Shrub Forest (Map Unit DSF e32b) but is more often dominated by *Eucalyptus agglomerata, E. sieberi* or *Angophora floribunda* whereas *E. tricarpa* is more common in map unit DSF e32b. In addition, the groundcover of Deua-Brogo Foothills Dry Shrub Forest is less grassy than its southern counterpart. About 5% of this unit has been cleared for small-scale rural development, but large areas remain on all tenures. Stands on private land are potentially threatened by further clearing with ongoing development of rural blocks. Frequent disturbance regimes that include logging (outside reserves) and fire in combination may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996) and increasing erosion from the steep slopes in these habitats. Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Allocasuarina littoralis, Angophora floribunda, Eucalyptus agglomerata, Eucalyptus longifolia, Eucalyptus muelleriana, Eucalyptus sieberi* **Shrubs:** *Acacia obtusifolia, Leucopogon lanceolatus* var. *lanceolatus, Persoonia linearis, Platysace lanceolata, Podolobium ilicifolium* **Climbers:** *Billardiera scandens, Hardenbergia violacea* **Groundcover:** *Dianella caerulea, Entolasia stricta, Joycea pallida, Lepidosperma laterale, Lomandra confertifolia* subsp. *similis, Lomandra multiflora* subsp. *multiflora*

Vegetation structure:

Stratum	Frequency (n=47)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)

Tree canopy	94	22.8 (4.5)	22.8 (9.2)
Small tree	79	10.4 (3.8)	16.2 (12.5)
Shrub	70	2.1 (1.2)	13.7 (12.6)
Ground cover	100	0.7 (0.3)	22 (17.4)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 13 positive diagnostic species (95% confidence interval) provided 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 13 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	1(1-1)	40	1(1-2)	10
Acacia implexa	1(1-1)	22	1(1-1)	6
Acacia longissima	1(1-1)	5	1(1-1)	1
Acacia obtusifolia	1(1-2)	50	1(1-2)	9
Acacia terminalis	1(1-1)	31	1(1-1)	11
Allocasuarina littoralis	1(1-2)	79	1(1-2)	16
Angophora floribunda	1(1-1)	54	1(1-2)	8
Billardiera scandens	1(1-1)	46	1(1-1)	27
Bossiaea obcordata	1(1-2)	22	1(1-2)	7
Correa reflexa	1(1-1)	40	1(1-1)	5
Cymbidium suave	1(1-1)	15	1(1-1)	2
Daviesia ulicifolia	1(1-1)	34	1(1-1)	6
Dianella caerulea	1(1-1)	61	1(1-1)	28
Entolasia stricta	1(1-1)	61	1(1-2)	33
Eucalyptus agglomerata	1(1-2)	64	2(1-3)	7
Eucalyptus bosistoana	1(1-2)	9	1(1-2)	3
Eucalyptus consideniana	1(1-2)	7	2(1-2)	2
Eucalyptus globoidea	1(1-1)	32	2(1-2)	12
Eucalyptus longifolia	1(1-2)	45	2(1-2)	2
Eucalyptus muelleriana	1(1-2)	41	2(1-2)	6
Eucalyptus sieberi	1(1-2)	66	2(1-3)	15
Eucalyptus tricarpa	1(1-1)	33	1(1-2)	<1
Goodenia ovata	1(1-1)	19	1(1-1)	7
Hardenbergia violacea	1(1-1)	72	1(1-1)	17
Hibbertia aspera subsp. *aspera*	1(1-1)	34	1(1-1)	10
Joycea pallida	2(1-2)	41	1(1-2)	8
Kennedia rubicunda	1(1-1)	19	1(1-1)	6
Lagenifera stipitata	1(1-1)	27	1(1-1)	14
Lepidosperma laterale	1(1-1)	60	1(1-1)	28
Lepidosperma urophorum	1(1-2)	17	1(1-2)	7
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	43	1(1-1)	23
Lindsaea microphylla	1(1-1)	17	1(1-1)	5
Logania pusilla	1(1-1)	13	1(1-1)	1
Lomandra confertifolia subsp. *rubiginosa*	1(1-1)	22	1(1-2)	4
Lomandra confertifolia subsp. *similis*	1(1-1)	75	1(1-2)	2
Lomandra multiflora subsp. *multiflora*	1(1-1)	70	1(1-1)	24
Macrozamia communis	1(1-1)	33	1(1-2)	4

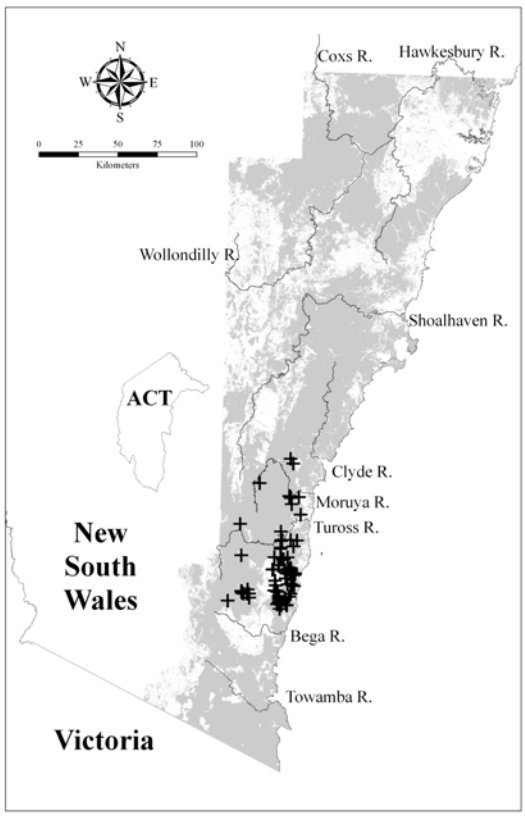
Notelaea venosa	1(1-1)	23	1(1-1)	12
Notodanthonia longifolia	2(1-2)	33	1(1-1)	5
Opercularia varia	1(1-1)	8	1(1-1)	3
Ozothamnus argophyllus	1(1-1)	24	1(1-1)	2
Ozothamnus diosmifolius	1(1-1)	32	1(1-1)	8
Persoonia linearis	1(1-1)	88	1(1-1)	28
Platysace lanceolata	1(1-1)	93	1(1-1)	12
Poa cheelii	1(1-1)	5	1(1-1)	<1
Podolobium ilicifolium	1(1-1)	83	1(1-1)	8
Pomax umbellata	1(1-1)	34	1(1-1)	14
Rumohra adiantiformis	1(1-1)	4	1(1-1)	<1
Senecio velleioides	1(1-1)	5	1(1-1)	1
Vernonia cinerea var. *cinerea*	1(1-1)	16	1(1-1)	4
Wahlenbergia littoricola	1(1-1)	7	1(1-1)	<1
Xanthorrhoea concava	1(1-1)	14	1(1-1)	4
Xanthosia atkinsoniana	1(1-1)	4	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
Glycine clandestina	1(1-1)	31	1(1-1)	26

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora costata	2(1-2)	4	1(1-3)	7
Angophora subvelutina	2(2-2)	1	3(1-3)	<1
Corymbia gummifera	1(1-2)	15	2(1-2)	16
Corymbia maculata	2(2-2)	2	2(1-3)	3
Eucalyptus angophoroides	2(1-2)	2	1(1-2)	1
Eucalyptus botryoides	1(1-1)	5	2(1-3)	3
Eucalyptus cypellocarpa	1(1-1)	3	2(1-2)	10
Eucalyptus eugenioides	1(1-1)	1	2(1-3)	4
Eucalyptus fibrosa	1(1-2)	3	2(1-3)	3
Eucalyptus melliodora	1(1-1)	1	1(1-3)	2
Eucalyptus paniculata subsp. *paniculata*	1(1-2)	5	1(1-2)	3
Eucalyptus pilularis	2(2-2)	1	2(1-3)	5
Eucalyptus radiata subsp. *radiata*	1(1-2)	3	2(1-3)	6
Eucalyptus smithii	2(1-2)	2	1(1-2)	2
Eucalyptus viminalis	1(1-1)	1	2(1-3)	5



Locations of survey sites allocated to DSF e32A. Grey shading indicates extant native vegetation cover within the study area.

DSF e32B: Far South Coastal Foothills Dry Shrub Forest

Plate e32B. Far South Coastal Foothills Dry Shrub Forest (Map Unit e32B) dominated by *Eucalyptus tricarpa, E. longifolia* and *E. bosistoana* with *Acacia falciformis, Daviesia mimosoides* and *Chionochloa pallida* on Goats Knob Road, southern section of Mimosa Rocks National Park.

Sample Sites: 45
Area Extant (ha): 14,000
Estimated % remaining: >90%
Area in conservation reserves (ha): 4,700
Estimated % of pre-clearing area in conservation reserves: 25-35%
No. Taxa (total / unique): 245 / 2
No. Taxa per Plot (±sd): 33.1 (16.6)

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

Far South Coast Foothills Dry Shrub Forest includes the southern distribution of Coastal Foothills Dry Shrub Forest (unit 32) described by Keith & Bedward (1999). It is characterised by a variable tree stratum dominated by *Eucalyptus* and *Corymbia* spp. around 25 m in height. *Allocasuarina littoralis* may form an open subcanopy ca. 12 m tall. An open shrub stratum is usually present with a variety of species occurring with low frequency. The groundcover is characteristically dominated by tussock grasses. Far South Coast Foothills Dry Shrub Forest occurs on metamorphosed sediments and mudstones and is widespread on steep slopes and ridges at 50-250 m elevation on the coastal foothills from Bermagui to Eden. It shares many species with the closely related Deua - Brogo Foothills Dry Shrub Forest (Map Unit DSF e32a) however this latter community is frequently dominated by *Eucalyptus agglomerata, E. sieberi* or *Angophora floribunda* whereas *E. tricarpa* is more common in Far South Coastal Foothills Dry Shrub Forest. In addition, the groundcover of Far South Coast Foothills Dry Shrub Forest generally contains a more diverse cover of grasses. About 10% of this unit has been cleared for small-scale rural development, but large areas remain on all tenures. Stands on private land are potentially threatened by further clearing with ongoing development of rural blocks. Frequent disturbance regimes that include logging (outside reserves) and fire in combination may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996) and increasing erosion from the steep slopes in these habitats. Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Acacia falciformis, Allocasuarina littoralis, Eucalyptus longifolia, Eucalyptus muelleriana, Eucalyptus tricarpa* **Shrubs:** *Daviesia mimosoides, Hibbertia aspera* subsp. *aspera, Ozothamnus diosmifolius, Persoonia linearis, Platysace lanceolata* **Climbers:** *Glycine clandestina, Hardenbergia violacea* **Groundcover:** *Dianella caerulea, Entolasia stricta, Joycea pallida, Lagenifera stipitata, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Microlaena stipoides, Poa meionectes, Themeda australis*

Vegetation structure:

Stratum	Frequency (n=32)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	24.5 (5)	32.6 (12.4)
Small tree	59	11.1 (3.3)	16.4 (12.4)
Shrub	91	2 (0.9)	29 (15.8)
Ground cover	100	0.5 (0.3)	42.3 (28.1)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided 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 10 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	1(1-2)	44	1(1-2)	10
Allocasuarina littoralis	1(1-2)	60	1(1-2)	16
Aristida vagans	1(1-1)	22	1(1-2)	8
Austrostipa rudis	1(1-2)	27	1(1-2)	6
Cassinia longifolia	1(1-2)	24	1(1-2)	6
Correa reflexa	1(1-1)	36	1(1-1)	5
Daviesia mimosoides	2(2-3)	62	1(1-2)	2
Dichelachne rara	1(1-1)	18	1(1-1)	4
Eucalyptus agglomerata	2(1-2)	36	2(1-3)	7
Eucalyptus bosistoana	1(1-1)	20	1(1-2)	3
Eucalyptus globoidea	2(2-3)	33	1(1-2)	12
Eucalyptus longifolia	1(1-2)	56	1(1-2)	2
Eucalyptus muelleriana	2(1-2)	58	2(1-2)	6
Eucalyptus tricarpa	1(1-2)	60	1(1-2)	1

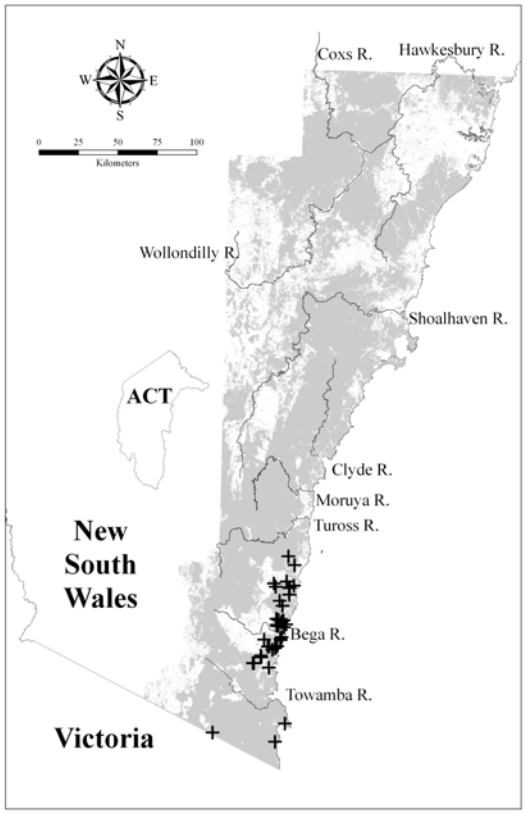
Exocarpos strictus	1(1-1)	29	1(1-1)	9
Gahnia melanocarpa	1(1-2)	20	1(1-1)	5
Gahnia radula	2(1-2)	18	1(1-2)	3
Glycine clandestina	1(1-1)	51	1(1-1)	26
Goodenia ovata	1(1-2)	27	1(1-1)	7
Hardenbergia violacea	1(1-1)	49	1(1-1)	17
Hibbertia aspera subsp. *aspera*	1(1-1)	58	1(1-1)	10
Hypericum gramineum	1(1-1)	38	1(1-1)	16
Joycea pallida	2(1-3)	69	1(1-2)	8
Lagenifera stipitata	1(1-1)	42	1(1-1)	14
Lepidosperma laterale	1(1-1)	69	1(1-1)	28
Lomandra confertifolia subsp. *rubiginosa*	1(1-1)	36	1(1-2)	4
Lomandra multiflora subsp. *multiflora*	1(1-1)	69	1(1-1)	25
Microlaena stipoides	1(1-1)	62	1(1-2)	36
Opercularia aspera	1(1-1)	29	1(1-1)	8
Ozothamnus diosmifolius	1(1-1)	44	1(1-1)	9
Persoonia linearis	1(1-1)	56	1(1-1)	29
Platysace lanceolata	1(1-1)	78	1(1-1)	12
Poa meionectes	1(1-2)	67	1(1-2)	16
Pratia purpurascens	1(1-1)	36	1(1-1)	17
Pultenaea daphnoides	1(1-1)	20	1(1-1)	4
Themeda australis	1(1-2)	42	1(1-3)	17
Vernonia cinerea var. *cinerea*	1(1-1)	24	1(1-1)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
Corymbia gummifera	2(2-3)	31	2(1-2)	16
Dianella caerulea	1(1-1)	49	1(1-1)	28
Dichondra spp.	1(1-1)	33	1(1-2)	25
Entolasia stricta	1(1-1)	53	1(1-2)	34
Lomandra longifolia	1(1-1)	56	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-1)	18	1(1-2)	9
Corymbia maculata	2(1-4)	11	2(1-3)	3
Eucalyptus consideniana	1(1-1)	4	2(1-2)	2
Eucalyptus cypellocarpa	2(1-2)	9	2(1-2)	10
Eucalyptus paniculata subsp. *paniculata*	2(2-2)	2	1(1-2)	3
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	2	1(1-1)	<1
Eucalyptus sieberi	2(1-2)	24	2(1-3)	16
Eucalyptus smithii	3(1-3)	4	1(1-2)	2
Eucalyptus tereticornis	1(1-1)	2	2(1-3)	7



Locations of survey sites allocated to DSF e32B. Grey shading indicates extant native vegetation cover within the study area.

DSF e33: Southeast Coastal Range Dry Shrub Forest

Plate e33. Southeast Coastal Range Dry Shrub Forest (Map Unit e33) dominated by *Eucalyptus muelleriana* and *E. sieberi* with tall shrubs of *Acacia cognata* and scattered *Goodenia ovata* and *Poa meionectes* on the footslopes of Mt Imlay, southwest of Eden.

Sample Sites: 32
Area Extant (ha): 16300
Estimated % remaining: >95%

Area in conservation reserves (ha): 9700
Estimated % of pre-clearing area in conservation reserves: 55-65%
No. Taxa (total / unique): 187 / 0
No. Taxa per Plot (±sd): 28.0 (8.4)
Class: South East Dry Sclerophyll Forests
Related TEC: n/a

Southeast Coastal Range Dry Shrub Forest comprises a subset of Coastal Range Dry Shrub Forest (unit 33) described by Keith & Bedward (1999). The original unit was split based on the degree of topographic ruggedness; sites occupying the steeper, more rugged upper slopes and ridges were transferred to Clyde – Deua Open Forest (map unit DSF p91), while those occupying less rugged terrain on mid-lower slopes comprise the revised unit. Southeast Coastal Range Dry Shrub Forest is characterised by a tall *Eucalyptus* canopy frequently exceeding 28 m in height and a prominent stratum of shrubs 2 - 8 m tall. The groundcover is relatively species-poor and features mainly scattered grasses and graminoid species. Southeast Coastal Range Dry Shrub Forest is widespread on dry to intermediate slopes of the coastal and hinterland ranges south of Bega, primarily on metasediments at 100-600 m elevation. It often occupies drier slopes adjacent to gullies with Southeast Hinterland Wet Shrub Forest (Map Unit WSF e14) or Southeast Coastal Gully Shrub Forest (Map Unit WSF e34). Its distribution extends to higher elevations and further south than Far South Coastal Foothills Dry Shrub Forest (Map Unit DSF e32b). No similar assemblages have been described outside the Eden region (Austin 1978, Forbes *et al.* 1982). Most of this assemblage occurs on public land and very little has been cleared. The principal threat is frequent disturbance regimes that include logging (outside reserves) and fire in combination. These may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996) and increasing erosion from the steep slopes in these habitats. Logging followed by regeneration burns and thinning may change the relative abundance of eucalypt species, particularly *E. sieberi* (Bridges 1983). Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Acacia falciformis, Eucalyptus cypellocarpa, Eucalyptus muelleriana* **Shrubs:** *Cassinia aculeata, Cassinia longifolia, Leucopogon lanceolatus* var. *lanceolatus* **Climbers:** *Billardiera scandens, Glycine clandestina, Tylophora barbata* **Groundcover:** *Desmodium varians, Dianella caerulea, Dichelachne rara, Gonocarpus teucrioides, Hypericum gramineum, Lagenifera stipitata, Lepidosperma laterale, Lomandra longifolia, Lomandra multiflora* subsp. *multiflora, Opercularia aspera, Poa labillardierei* var. *labillardierei, Poa meionectes, Pteridium esculentum, Wahlenbergia gracilis*

Vegetation structure:

Stratum	Frequency (n=11)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	27.9 (6.9)	34.1 (12.4)
Small tree	55	8.5 (3)	22.3 (19.4)
Shrub	100	1.8 (0.5)	29.4 (22)
Ground cover	100	0.6 (0.3)	17.5 (13.4)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 8 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 21 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
Acacia cognata	1(1-2)	22	2(1-2)	1
Acacia falciformis	1(1-2)	72	1(1-2)	10
Acacia mearnsii	1(1-2)	34	1(1-2)	7
Cassinia aculeata	1(1-1)	41	1(1-1)	6
Cassinia longifolia	1(1-1)	75	1(1-2)	6
Daviesia buxifolia	2(2-5)	22	1(1-2)	<1
Desmodium varians	1(1-1)	47	1(1-1)	21
Dichelachne rara	1(1-1)	50	1(1-1)	4
Eucalyptus cypellocarpa	2(1-2)	44	2(1-2)	10
Eucalyptus muelleriana	2(2-3)	81	2(1-2)	6

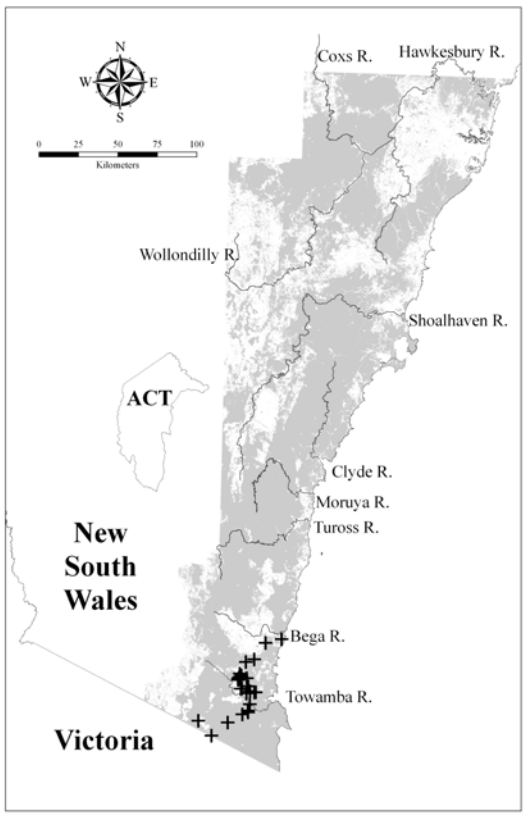
Geranium potentilloides	1(1-1)	28	1(1-1)	6
Glycine clandestina	1(1-1)	56	1(1-1)	26
Gonocarpus teucrioides	1(1-1)	53	1(1-1)	17
Goodenia ovata	1(1-1)	28	1(1-1)	7
Hibbertia dentata	1(1-1)	22	1(1-1)	6
Hypericum gramineum	1(1-1)	50	1(1-1)	16
Kennedia rubicunda	1(1-1)	28	1(1-1)	6
Lagenifera stipitata	1(1-1)	41	1(1-1)	14
Lepidosperma laterale	1(1-1)	63	1(1-1)	28
Lomandra multiflora subsp. *multiflora*	1(1-1)	56	1(1-1)	25
Opercularia aspera	1(1-1)	50	1(1-1)	8
Poa labillardierei var. *labillardierei*	1(1-2)	53	1(1-2)	12
Poa meionectes	1(1-2)	78	1(1-2)	16
Senecio prenanthoides	1(1-1)	31	1(1-1)	8
Stypandra glauca	1(1-2)	25	1(1-2)	5
Tylophora barbata	1(1-1)	47	1(1-1)	17
Veronica plebeia	1(1-1)	34	1(1-1)	10
Wahlenbergia gracilis	1(1-1)	41	1(1-1)	11

Constant:

Species	C/A	Freq	C/A O	Freq O
Billardiera scandens	1(1-1)	47	1(1-1)	28
Clematis aristata	1(1-1)	34	1(1-1)	20
Dianella caerulea	1(1-1)	41	1(1-1)	28
Eucalyptus sieberi	2(1-2)	31	2(1-3)	16
Leucopogon lanceolatus var. *lanceolatus*	1(1-1)	41	1(1-1)	24
Lomandra longifolia	1(1-1)	56	1(1-1)	44
Persoonia linearis	1(1-1)	38	1(1-1)	29
Pteridium esculentum	1(1-1)	47	1(1-2)	37
Viola hederacea	1(1-1)	38	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	1(1-1)	3	1(1-2)	9
Eucalyptus agglomerata	2(2-2)	22	2(1-3)	7
Eucalyptus baueriana	2(2-2)	3	2(1-2)	1
Eucalyptus bosistoana	2(1-2)	19	1(1-2)	3
Eucalyptus elata	2(2-2)	3	2(1-3)	5
Eucalyptus globoidea	2(2-2)	28	1(1-2)	12
Eucalyptus longifolia	1(1-1)	3	1(1-2)	2
Eucalyptus maidenii	1(1-1)	3	2(1-2)	2
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	9	1(1-1)	<1
Eucalyptus smithii	2(1-2)	19	1(1-2)	2
Eucalyptus tricarpa	1(1-2)	9	1(1-2)	1



Locations of survey sites allocated to DSF e33. Grey shading indicates extant native vegetation cover within the study area.

WSF e34: Southeast Coastal Gully Shrub Forest

Plate e34. Southeast Coastal Gully Shrub Forest (Map Unit e34) variant dominated by *Eucalyptus paniculata, Corymbia maculata* and *Macrozamia communis* with a diverse grassy groundcover, west of Bermagui in Bermagui State Forest.

Sample Sites: 49
Area Extant (ha): 22800
Estimated % remaining: >85%
Area in conservation reserves (ha): 6900
Estimated % of pre-clearing area in conservation reserves: 25-35%
No. Taxa (total / unique): 284 / 2
No. Taxa per Plot (±sd): 45.7 (12.0)

Class: South Coast Wet Sclerophyll Forests
Related TEC: n/a

Southeast Coastal Gully Shrub Forest is equivalent to Coastal Gully Shrub Forest (unit 34) described by Keith & Bedward (1999). It is characterised by a very variable tree stratum reaching heights of up to 30 m and an open small tree stratum approximately 10 m tall that often contains species typical of rainforest. The shrub stratum contains a diverse range of mesophyllous species and the groundcover is species-rich and includes a variety of grasses, graminoids and forbs. Both the ground and shrub strata are entangled in a diverse compliment of vines. Southeast Coastal Gully Shrub Forest is restricted to metasediments below 200 m elevation. It occurs in steep gullies on the coastal range mainly between Merimbula and Narooma and often co-occurs with Far South Coastal Foothills Dry Shrub Forest (Map Unit DSF e32b), which occupies adjacent upper slopes. Substantial areas of this assemblage remain on all tenures, slightly less than 15% being cleared. About 5 000 ha is potentially threatened by development of small rural holdings on private land. Frequent disturbance regimes that include logging (outside reserves) and fire in combination may reduce diversity by interrupting life-cycle processes of woody species and increasing erosion on the steep slopes in these habitats. Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if high levels of diversity are to be maintained in this species-rich assemblage.

Floristic Summary:
Trees: *Acacia falciformis, Acacia mearnsii, Allocasuarina littoralis, Eucalyptus muelleriana, Pittosporum undulatum* **Shrubs:** *Breynia oblongifolia, Hibbertia aspera* subsp. *aspera, Notelaea venosa, Ozothamnus diosmifolius, Pittosporum revolutum, Platysace lanceolata* **Climbers:** *Billardiera scandens, Clematis aristata, Eustrephus latifolius, Geitonoplesium cymosum, Glycine clandestina, Marsdenia rostrata, Pandorea pandorana, Rubus parvifolius* **Groundcover:** *Desmodium varians, Dianella caerulea, Dichondra* spp.*, Doodia aspera, Entolasia stricta, Gahnia melanocarpa, Goodenia ovata, Lepidosperma laterale, Lomandra longifolia, Microlaena stipoides, Notodanthonia longifolia, Oplismenus imbecillis, Poa meionectes, Pratia purpurascens, Pteridium esculentum, Viola hederacea*

Vegetation structure:

Stratum	Frequency (n=33)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	94	26.2 (6)	31 (14.2)
Small tree	91	11.3 (4.6)	26.4 (20.8)
Shrub	85	2.6 (1.7)	29.4 (16.9)
Ground cover	100	0.7 (0.4)	42.3 (25.7)

Diagnostic Species:
A 0.04 ha plot located in this Map Unit is expected to contain at least 24 positive diagnostic species (95% confidence interval) provided 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 24 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	1(1-2)	55	1(1-2)	10
Acacia implexa	1(1-1)	27	1(1-1)	6
Acacia irrorata subsp. *irrorata*	2(1-2)	14	1(1-1)	2
Acacia mearnsii	1(1-2)	53	1(1-2)	7
Adiantum aethiopicum	1(1-1)	24	1(1-2)	9
Allocasuarina littoralis	1(1-2)	45	1(1-2)	17
Angophora floribunda	1(1-1)	31	1(1-2)	9
Austrostipa rudis	1(1-2)	22	1(1-2)	6
Beyeria lasiocarpa	1(1-2)	14	1(1-2)	1
Billardiera scandens	1(1-1)	65	1(1-1)	27
Breynia oblongifolia	1(1-1)	41	1(1-1)	12
Cassinia aculeata	1(1-1)	39	1(1-1)	6
Cassinia trinerva	1(1-2)	27	1(1-1)	3
Clematis aristata	1(1-1)	49	1(1-1)	20
Clematis glycinoides var. *glycinoides*	1(1-1)	33	1(1-1)	10

Comesperma volubile	1(1-1)	14	1(1-1)	2
Coprosma quadrifida	1(1-1)	24	1(1-1)	10
Correa reflexa	1(1-1)	39	1(1-1)	5
Desmodium varians	1(1-1)	57	1(1-1)	21
Dianella caerulea	1(1-1)	63	1(1-1)	28
Dichondra spp.	1(1-1)	71	1(1-2)	25
Doodia aspera	1(1-1)	41	1(1-2)	11
Elaeocarpus reticulatus	1(1-1)	29	1(1-1)	12
Entolasia marginata	1(1-2)	31	1(1-1)	11
Entolasia stricta	1(1-1)	63	1(1-2)	34
Eucalyptus baueriana	2(1-2)	16	2(1-2)	1
Eucalyptus bosistoana	2(1-2)	31	1(1-2)	3
Eucalyptus cypellocarpa	1(1-3)	31	2(1-2)	10
Eucalyptus elata	1(1-2)	31	2(1-3)	5
Eucalyptus globoidea	1(1-2)	29	2(1-2)	12
Eucalyptus longifolia	2(1-2)	31	1(1-2)	2
Eucalyptus muelleriana	2(1-2)	55	2(1-2)	6
Eustrephus latifolius	1(1-1)	82	1(1-1)	19
Exocarpos cupressiformis	1(1-1)	29	1(1-1)	5
Gahnia melanocarpa	1(1-1)	55	1(1-1)	5
Geitonoplesium cymosum	1(1-1)	71	1(1-1)	16
Glycine clandestina	1(1-1)	73	1(1-1)	26
Goodenia ovata	1(1-1)	69	1(1-1)	7
Hibbertia aspera subsp. *aspera*	1(1-1)	65	1(1-1)	10
Hibbertia dentata	1(1-1)	39	1(1-1)	6
Hymenanthera dentata	1(1-1)	20	1(1-1)	6
Imperata cylindrica var. *major*	1(1-1)	24	1(1-2)	10
Indigofera australis	1(1-1)	37	1(1-1)	9
Kennedia rubicunda	1(1-1)	24	1(1-1)	6
Lepidosperma laterale	1(1-1)	63	1(1-1)	28
Leucopogon juniperinus	1(1-1)	20	1(1-1)	5
Lomandra longifolia	1(1-1)	71	1(1-1)	44
Macrozamia communis	1(1-1)	16	1(1-2)	4
Marsdenia rostrata	1(1-1)	61	1(1-2)	12
Microlaena stipoides	1(1-1)	61	1(1-2)	36
Notelaea venosa	1(1-1)	78	1(1-1)	11
Notodanthonia longifolia	1(1-2)	49	1(1-2)	5
Oplismenus imbecillis	1(1-1)	65	1(1-2)	14
Ozothamnus argophyllus	1(1-2)	37	1(1-1)	2
Ozothamnus diosmifolius	1(1-1)	69	1(1-1)	8
Pandorea pandorana	1(1-1)	57	1(1-1)	18
Pimelea axiflora	1(1-2)	24	1(1-1)	3
Pittosporum revolutum	1(1-1)	61	1(1-1)	8
Pittosporum undulatum	1(1-1)	67	1(1-1)	14
Plantago debilis	1(1-1)	24	1(1-1)	7
Platysace lanceolata	1(1-1)	45	1(1-1)	13

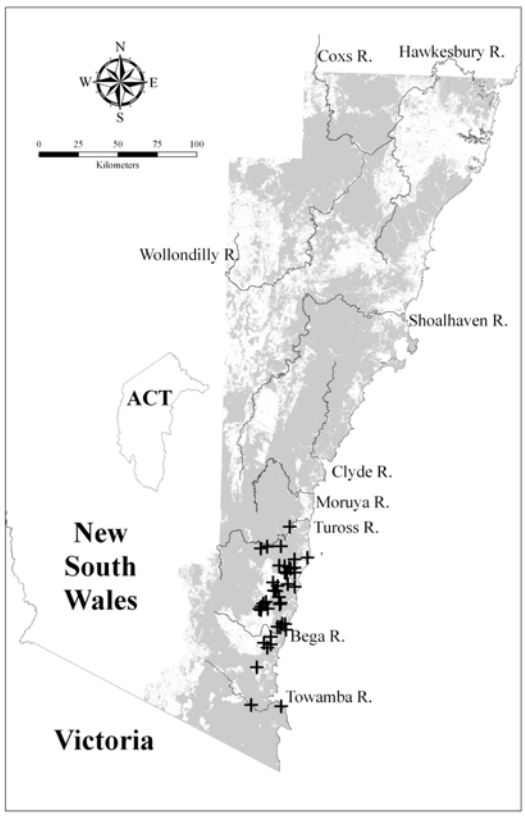
Poa meionectes	1(1-2)	73	1(1-2)	16
Polyscias sambucifolia	1(1-1)	22	1(1-1)	6
Pomaderris aspera	1(1-2)	24	1(1-2)	5
Pomaderris cinerea	1(1-2)	18	1(1-2)	1
Pratia purpurascens	1(1-1)	63	1(1-1)	17
Pseuderanthemum variabile	1(1-1)	22	1(1-2)	9
Rubus parvifolius	1(1-1)	43	1(1-1)	9
Senecio linearifolius	1(1-1)	39	1(1-1)	8
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	39	1(1-1)	7
Solanum pungetium	1(1-1)	29	1(1-1)	5
Tylophora barbata	1(1-1)	39	1(1-1)	17
Vernonia cinerea var. *cinerea*	1(1-1)	22	1(1-1)	4
Viola hederacea	1(1-1)	49	1(1-1)	22
Zieria smithii	1(1-1)	18	1(1-1)	2

Constant:

Species	C/A	Freq	C/A O	Freq O
Gonocarpus teucrioides	1(1-1)	35	1(1-1)	17
Hydrocotyle laxiflora	1(1-1)	31	1(1-1)	15
Lomandra multiflora subsp. *multiflora*	1(1-1)	35	1(1-1)	25
Persoonia linearis	1(1-1)	37	1(1-1)	29
Pteridium esculentum	1(1-1)	45	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Corymbia gummifera	2(2-2)	2	2(1-2)	16
Corymbia maculata	2(2-3)	10	2(1-3)	3
Eucalyptus agglomerata	1(1-1)	2	2(1-3)	7
Eucalyptus angophoroides	1(1-1)	4	1(1-2)	1
Eucalyptus botryoides	1(1-1)	12	2(1-3)	3
Eucalyptus maidenii	2(1-2)	4	2(1-2)	2
Eucalyptus paniculata subsp. *paniculata*	1(1-1)	2	1(1-2)	3
Eucalyptus pilularis	1(1-1)	2	2(1-3)	5
Eucalyptus radiata subsp. *radiata*	1(1-1)	2	2(1-3)	6
Eucalyptus saligna X botryoides	1(1-1)	2	2(1-3)	2
Eucalyptus sieberi	2(2-3)	14	2(1-3)	16
Eucalyptus smithii	2(1-2)	8	1(1-2)	2
Eucalyptus tereticornis	1(1-1)	6	2(1-3)	7
Eucalyptus tricarpa	1(1-1)	2	1(1-2)	1



Locations of survey sites allocated to WSF e34. Grey shading indicates extant native vegetation cover within the study area.

DSF e35: Southeast Escarpment Dry Grass Forest

Plate e35. Southeast Escarpment Dry Grass Forest (Map Unit e35) dominated by *Eucalyptus maidenii* and *E. bosistoana* saplings with *Indigofera australis, Acacia falciformis* and *Poa meionectes* on the dry lower slopes of the Brown Mountain escarpment, Tantawangalo section of South East Forests National Park.

Sample Sites: 59
Area Extant (ha): 22600
Estimated % remaining: 65-75%
Area in conservation reserves (ha): 9200
Estimated % of pre-clearing area in conservation reserves: 20-30%
No. Taxa (total / unique): 247 / 0
No. Taxa per Plot (±sd): 34.9 (10.8)

Class: Southern Hinterland Dry Sclerophyll Forests
Related TEC: n/a

Southeast Escarpment Dry Grass Forest is equivalent to Escarpment Dry Grass Forest (unit 35) described by Keith & Bedward (1999). It is characterised by a *Eucalyptus* canopy frequently exceeding 27 m in height with an open stratum of mesophyllous shrubs. The groundcover is dominated by grasses but includes a diverse range of forbs. Southeast Escarpment Dry Grass Forest occurs at 150-700 m elevation on steep to moderate, dry granitoid slopes surrounding the Bega and Towamba valleys and further north between Mumbullah Mountain and Central Tilba. Unusual stands occur on small basalt outcrops west of Nethercote. In the Murrabrine area and on the Bega valley escarpment, it is interspersed with Southeast Hinterland Wet Fern Forest (Map Unit WSF e13), which occupies more sheltered mesic sites. South of Wyndham, it occurs in hilly terrain interspersed with Bega Wet Shrub Forest (Map Unit WSF e19) on low relief sites. No similar assemblages have been described south of the Eden region (Austin 1978, Forbes *et al.* 1982). Approximately one-third of Southeast Escarpment Dry Grass Forest has been cleared for agriculture and over half of the remainder occurs on private land (mainly on toeslopes and foothills of the escarpment) where it is potentially threatened by further clearing. Soil erosion is a potential threat associated with logging, although in some cases this will be restricted to indirect effects from operations upslope because steep slopes may preclude direct timber harvesting within stands of this assemblage. Frequent burning around the interface of private and public land may also be a threat to some stands of Southeast Escarpment Dry Grass Forest. These may reduce diversity by interrupting life-cycle processes of woody species (Keith 1996) and increasing erosion from the steep slopes in these habitats. Intervals between planned and unplanned disturbances need to be long enough to allow replenishment of seed banks and restoration of habitat structure if losses of diversity are to be avoided.

Floristic Summary:
Trees: *Acacia falciformis, Acacia mearnsii, Eucalyptus bosistoana, Eucalyptus globoidea, Eucalyptus maidenii* **Shrubs:** *Cassinia longifolia, Indigofera australis, Senecio linearifolius* **Climbers:** *Clematis aristata, Eustrephus latifolius, Glycine clandestina, Tylophora barbata* **Groundcover:** *Desmodium varians, Dichondra* spp.*, Echinopogon ovatus, Hydrocotyle laxiflora, Hypericum gramineum, Lepidosperma laterale, Lomandra longifolia, Microlaena stipoides, Notodanthonia longifolia, Plectranthus parviflorus, Poa meionectes*

Vegetation structure:

Stratum	Frequency (n=33)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	26.8 (5.9)	28 (10.5)
Small tree	64	8.3 (2.8)	20.5 (21.3)
Shrub	94	2.1 (1)	22.1 (14.8)
Ground cover	97	0.4 (0.2)	27.4 (25.4)

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 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 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
Acacia falciformis	2(1-2)	41	1(1-2)	10
Acacia mearnsii	2(1-2)	53	1(1-2)	7
Acaena novae-zelandiae	1(1-1)	19	1(1-1)	7
Ajuga australis	1(1-1)	14	1(1-1)	3
Arthropodium milleflorum	1(1-1)	32	1(1-1)	5
Arthropodium species B	1(1-1)	14	1(1-1)	1
Austrodanthonia pilosa	1(1-1)	17	1(1-1)	3
Brachychiton populneus subsp. *populneus*	1(1-1)	24	1(1-1)	3
Bursaria spinosa	1(1-2)	36	1(1-2)	14
Carex breviculmis	1(1-1)	24	1(1-1)	4
Carex inversa	1(1-1)	12	1(1-1)	3
Cassinia aculeata	1(1-1)	17	1(1-1)	6
Cassinia longifolia	2(1-2)	56	1(1-1)	6
Cassinia trinerva	1(1-2)	19	1(1-1)	3

Clematis aristata	1(1-1)	42	1(1-1)	20
Clematis glycinoides var. *glycinoides*	1(1-1)	31	1(1-1)	10
Crassula sieberiana	1(1-1)	20	1(1-1)	3
Cynoglossum suaveolens	1(1-1)	15	1(1-1)	1
Desmodium varians	1(1-1)	83	1(1-1)	21
Dichelachne rara	1(1-1)	32	1(1-1)	4
Dichondra spp.	1(1-1)	73	1(1-2)	25
Echinopogon ovatus	1(1-1)	47	1(1-1)	14
Eucalyptus baueriana	1(1-2)	19	2(1-2)	1
Eucalyptus bosistoana	2(1-2)	54	1(1-2)	2
Eucalyptus elata	1(1-2)	17	2(1-3)	5
Eucalyptus globoidea	2(1-2)	58	2(1-2)	11
Eucalyptus maidenii	2(2-2)	86	2(1-2)	1
Eucalyptus muelleriana	2(1-2)	36	2(1-2)	6
Eucalyptus polyanthemos subsp. *tarda*	1(1-2)	12	1(1-2)	<1
Euchiton sphaericus	1(1-1)	12	1(1-1)	3
Eustrephus latifolius	1(1-1)	42	1(1-1)	19
Gahnia melanocarpa	1(1-1)	20	1(1-1)	5
Geitonoplesium cymosum	1(1-1)	37	1(1-1)	16
Glycine clandestina	1(1-1)	81	1(1-1)	26
Goodenia ovata	2(1-2)	22	1(1-1)	7
Hydrocotyle laxiflora	1(1-1)	42	1(1-1)	15
Hypericum gramineum	1(1-1)	53	1(1-1)	16
Indigofera australis	1(1-2)	58	1(1-1)	9
Lagenifera stipitata	1(1-1)	37	1(1-1)	14
Lepidosperma laterale	1(1-1)	56	1(1-1)	28
Leucopogon juniperinus	1(1-1)	20	1(1-1)	5
Lomandra longifolia	1(1-1)	66	1(1-1)	44
Marsdenia rostrata	1(1-1)	29	1(1-2)	12
Microlaena stipoides	1(1-1)	68	1(1-2)	36
Notodanthonia longifolia	1(1-1)	46	1(1-2)	5
Opercularia aspera	1(1-1)	36	1(1-1)	8
Oxalis perennans	1(1-1)	36	1(1-1)	13
Ozothamnus argophyllus	3(1-3)	14	1(1-1)	2
Pellaea falcata	1(1-1)	34	1(1-2)	10
Pimelea axiflora	1(1-1)	15	1(1-1)	3
Pittosporum undulatum	1(1-1)	29	1(1-1)	14
Plantago debilis	1(1-1)	37	1(1-1)	7
Plectranthus parviflorus	1(1-1)	54	1(1-1)	7
Poa meionectes	2(1-2)	56	1(1-2)	16
Pomaderris aspera	1(1-2)	19	1(1-2)	5
Rubus parvifolius	1(1-1)	36	1(1-1)	9
Rumex brownii	1(1-1)	24	1(1-1)	5
Senecio linearifolius	1(1-1)	54	1(1-1)	8
Senecio prenanthoides	1(1-1)	27	1(1-1)	8
Sigesbeckia orientalis subsp. *orientalis*	1(1-1)	31	1(1-1)	7

Solanum pungetium	1(1-1)	19	1(1-1)	5
Tylophora barbata	1(1-1)	41	1(1-1)	17
Veronica calycina	1(1-1)	29	1(1-1)	6
Wahlenbergia gracilis	1(1-1)	31	1(1-1)	11
Wahlenbergia stricta subsp. *stricta*	1(1-1)	17	1(1-1)	5
Xerochrysum bracteatum	1(1-1)	22	1(1-1)	2

Constant:

Species	C/A	Freq	C/A O	Freq O
Dianella caerulea	1(1-1)	31	1(1-1)	28
Lomandra multiflora subsp. *multiflora*	1(1-1)	31	1(1-1)	25

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
Angophora floribunda	2(2-2)	2	1(1-2)	9
Eucalyptus agglomerata	2(2-2)	3	2(1-3)	7
Eucalyptus angophoroides	2(1-2)	3	1(1-2)	1
Eucalyptus botryoides	1(1-1)	2	2(1-3)	3
Eucalyptus cypellocarpa	1(1-2)	7	2(1-2)	10
Eucalyptus fastigata	3(3-3)	2	2(1-3)	6
Eucalyptus polyanthemos subsp. *vestita*	1(1-1)	5	1(1-1)	<1
Eucalyptus sieberi	1(1-3)	8	2(1-3)	16
Eucalyptus smithii	1(1-2)	10	1(1-2)	2
Eucalyptus tricarpa	1(1-1)	2	1(1-2)	1
Eucalyptus viminalis	2(2-2)	2	2(1-3)	5