

Vegetation structure:

Stratum	Frequency (n=69)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	3	37.5 (3.5)	3 (-)
Tree canopy	99	24.4 (5.4)	27.3 (11.3)
Small tree	65	11.2 (4.2)	15.7 (13)
Shrub	67	2.2 (0.5)	18.6 (12.9)
Ground cover	90	1 (0.5)	34 (21.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 18 positive diagnostic species (95% confidence interval) provided that 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 18 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia implexa</i>	1(1-1)	28	1(1-1)	6
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1(1-1)	16	1(1-1)	2
<i>Acacia longissima</i>	1(1-1)	6	1(1-1)	1
<i>Acacia mabelliae</i>	1(1-2)	21	1(1-2)	1
<i>Acacia obtusifolia</i>	1(1-2)	22	1(1-2)	9
<i>Allocasuarina littoralis</i>	1(1-2)	53	1(1-2)	16
<i>Aristida vagans</i>	1(1-1)	24	1(1-2)	8
<i>Arthropodium milleflorum</i>	1(1-1)	16	1(1-1)	5
<i>Arthropodium minus</i>	1(1-1)	7	1(1-1)	1
<i>Billardiera scandens</i>	1(1-1)	44	1(1-1)	27
<i>Breynia oblongifolia</i>	1(1-1)	28	1(1-1)	12
<i>Brunoniella pumilio</i>	1(1-1)	12	1(1-1)	4
<i>Correa reflexa</i>	1(1-1)	14	1(1-1)	5
<i>Corymbia maculata</i>	2(2-3)	71	2(1-3)	3
<i>Cymbopogon refractus</i>	1(1-1)	16	1(1-1)	4
<i>Daviesia ulicifolia</i>	1(1-1)	19	1(1-1)	6
<i>Desmodium varians</i>	1(1-1)	52	1(1-1)	21
<i>Dianella caerulea</i>	1(1-1)	84	1(1-1)	28
<i>Dichelachne micrantha</i>	1(1-1)	26	1(1-1)	9
<i>Entolasia stricta</i>	1(1-1)	89	1(1-2)	33
<i>Eucalyptus fibrosa</i>	1(1-2)	11	2(1-3)	3
<i>Eucalyptus globoidea</i>	2(1-2)	62	2(1-2)	11
<i>Eucalyptus longifolia</i>	2(1-2)	10	1(1-2)	2
<i>Eucalyptus muelleriana</i>	2(1-2)	23	2(1-2)	6
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	2(1-2)	52	1(1-2)	2
<i>Eucalyptus pilularis</i>	1(1-2)	22	2(1-3)	5
<i>Eustrephus latifolius</i>	1(1-1)	40	1(1-1)	19
<i>Exocarpos strictus</i>	1(1-1)	27	1(1-1)	9
<i>Gahnia melanocarpa</i>	1(1-1)	14	1(1-1)	5
<i>Glycine clandestina</i>	1(1-1)	59	1(1-1)	26
<i>Gonocarpus teucroides</i>	1(1-1)	32	1(1-1)	17
<i>Hardenbergia violacea</i>	1(1-1)	77	1(1-1)	17
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	71	1(1-1)	10

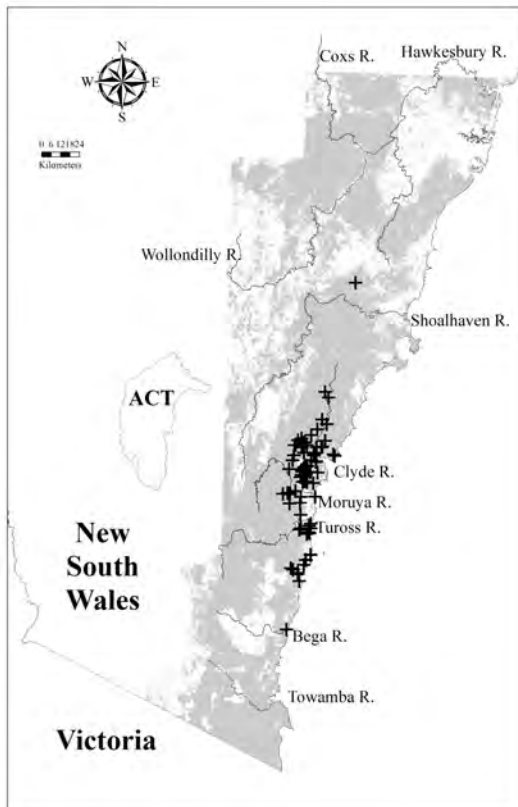
<i>Hibbertia diffusa</i>	1(1-1)	13	1(1-1)	3
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	62	1(1-2)	9
<i>Joycea pallida</i>	1(1-1)	28	1(1-2)	8
<i>Kennedia rubicunda</i>	1(1-1)	23	1(1-1)	6
<i>Lagenifera stipitata</i>	1(1-1)	37	1(1-1)	14
<i>Lepidosperma laterale</i>	1(1-1)	76	1(1-1)	28
<i>Lepidosperma urophorum</i>	1(1-1)	32	1(1-2)	6
<i>Leucopogon juniperinus</i>	1(1-1)	18	1(1-1)	5
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	57	1(1-1)	23
<i>Logania pusilla</i>	1(1-1)	9	1(1-1)	1
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-1)	27	1(1-2)	4
<i>Lomandra confertifolia</i> subsp. <i>similis</i>	2(1-2)	9	1(1-1)	2
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	26	1(1-1)	11
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	72	1(1-1)	24
<i>Macrozamia communis</i>	2(1-2)	93	1(1-2)	4
<i>Marsdenia suaveolens</i>	1(1-1)	19	1(1-1)	2
<i>Notelaea venosa</i>	1(1-1)	29	1(1-1)	12
<i>Notodanthonia longifolia</i>	1(1-1)	14	1(1-2)	5
<i>Opercularia hispida</i>	1(1-1)	11	1(1-1)	3
<i>Ozothamnus argophyllus</i>	1(1-1)	10	1(1-1)	2
<i>Ozothamnus diosmifolius</i>	1(1-1)	29	1(1-1)	8
<i>Pandorea pandorana</i>	1(1-1)	34	1(1-1)	18
<i>Panicum simile</i>	1(1-1)	16	1(1-1)	6
<i>Patersonia glabrata</i>	1(1-1)	21	1(1-1)	10
<i>Persoonia linearis</i>	1(1-1)	76	1(1-1)	28
<i>Phyllanthus hirtellus</i>	1(1-1)	39	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>collina</i>	1(1-1)	6	1(1-1)	1
<i>Pittosporum revolutum</i>	1(1-1)	18	1(1-1)	8
<i>Platysace lanceolata</i>	1(1-1)	70	1(1-1)	12
<i>Poa meionectes</i>	1(1-2)	37	1(1-2)	16
<i>Podolobium ilicifolium</i>	1(1-1)	53	1(1-1)	8
<i>Pomax umbellata</i>	1(1-1)	32	1(1-1)	14
<i>Pratia purpurascens</i>	1(1-1)	46	1(1-1)	17
<i>Pseuderanthemum variabile</i>	1(1-1)	19	1(1-2)	9
<i>Santalum obtusifolium</i>	1(1-1)	6	1(1-1)	1
<i>Scaevola ramosissima</i>	1(1-1)	11	1(1-1)	3
<i>Schelhammera undulata</i>	1(1-1)	52	1(1-1)	7
<i>Tetratea thymifolia</i>	1(1-1)	27	1(1-1)	6
<i>Themeda australis</i>	1(1-2)	33	1(1-3)	17
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-1)	27	1(1-1)	4
<i>Xanthosia atkinsoniana</i>	1(1-1)	6	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Dichondra</i> spp.	1(1-1)	32	1(1-2)	25
<i>Lomandra longifolia</i>	1(1-1)	58	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-1)	47	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-2)	4	1(1-3)	7
<i>Angophora floribunda</i>	1(1-2)	17	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-2)	19	2(1-2)	16
<i>Eucalyptus agglomerata</i>	2(1-2)	8	2(1-3)	7
<i>Eucalyptus angophoroides</i>	2(1-3)	3	1(1-2)	1
<i>Eucalyptus bosistoana</i>	1(1-1)	3	1(1-2)	3
<i>Eucalyptus botryoides</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus consideniiana</i>	1(1-3)	4	2(1-2)	2
<i>Eucalyptus elata</i>	3(3-3)	1	2(1-3)	5
<i>Eucalyptus eugenioides</i>	2(2-2)	2	2(1-3)	4
<i>Eucalyptus maidenii</i>	2(1-2)	2	2(1-2)	2
<i>Eucalyptus piperita</i>	3(1-3)	4	2(1-3)	9
<i>Eucalyptus punctata</i>	3(3-3)	1	1(1-3)	9
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	1	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus sieberi</i>	1(1-2)	9	2(1-3)	16
<i>Eucalyptus tricarpa</i>	1(1-1)	1	1(1-2)	1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	1	2(1-3)	8



Locations of survey sites allocated to WSF p90. Grey shading indicates extant native vegetation cover within the study area.

DSF p91: Clyde-Deua Open Forest



Plate p91. Clyde-Deua Open Forest (Map Unit p91) on an upper slope north of the Kings Highway between Sugarloaf Mountain and Government bend. The canopy here contains *Eucalyptus muelleriana*, *E. cypellocarpa* and *E. sieberi*, with a sparse understorey of *Acacia obtusifolia* and *Persoonia linearis* and very sparse groundcover including *Pteridium esculentum* and *Lepidosperma urophorum*.

Sample Sites: 73

Area Extant (ha): 34100

Estimated % remaining: >95%

Area in conservation reserves (ha): 24500

Estimated % of pre-clearing area in conservation reserves: 65-75%

No. taxa (total / unique): 258 / 0

No. taxa per plot (\pm sd): 26.3 (9.9)
 Class: South East Dry Sclerophyll Forests
 Related TEC: n/a

Clyde-Deua Open Forest (DSF p91) represents a revision of DSF 91 identified by Tindall *et al.* (2004), including amalgamation with a number of sites previously classified by Keith & Bedward (1999) as assemblage 33 (Coastal Range Dry Shrub Forest) and with a number of recent sites collated by Beukers (undated a,b). DSF p91 is a tall eucalypt forest with an open understorey of sclerophyll shrubs, ferns and forbs. This forest is found on sandy loams on dry slopes of the southern escarpment and coastal ranges, at elevations between 0-800m ASL. It occurs along the escarpment ranges south from the Yaboro River, along the Budawang Range east of Monga, south to Burragate and the Towamba River catchment. Within this distribution mean annual rainfall varies from 900 to 1150mm. Clyde-Deua Open Forest grades into South East Coast Range Dry Forest (DSF e33) in the southern part of its range, occupying the steeper, more rugged upper slopes and ridges while DSF e33 occurs on the less rugged terrain of the mid-lower slopes. Further north, DSF p91 grades into South Coast Hinterland Wet Forest (WSF n183) on the lower slopes and gullies. A substantial area of Clyde-Deua Open Forest is represented within Deua National Park, while minor clearing and logging has occurred in the northern part of the distribution.

Floristic Summary:

Trees: *Eucalyptus muelleriana*, *E. cypellocarpa*, *E. sieberi*, *Angophora floribunda*. **Shrubs:** *Acacia falciformis*, *Persoonia linearis*, *Leucopogon lanceolatus*, *Acacia obtusifolia*, *Platysace lanceolata*. **Climbers:** *Clematis aristata*. **Groundcover:** *Pteridium esculentum*, *Dianella caerulea*.

Vegetation structure:

Stratum	Frequency (n=46)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	24.5 (5.4)	28.8 (13)
Small tree	91	11.7 (6.1)	18.1 (14.8)
Shrub	78	2.1 (0.9)	14.7 (12.1)
Ground cover	85	0.7 (0.4)	15.2 (14.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 8 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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
<i>Acacia falciformis</i>	1(1-2)	81	1(1-2)	10
<i>Acacia obtusifolia</i>	1(1-2)	49	1(1-2)	9
<i>Allocasuarina littoralis</i>	1(1-2)	38	1(1-2)	17
<i>Angophora floribunda</i>	1(1-2)	44	1(1-2)	8
<i>Cassinia aculeata</i>	1(1-1)	18	1(1-1)	6
<i>Cassinia longifolia</i>	1(1-2)	23	1(1-2)	6
<i>Clematis aristata</i>	1(1-1)	45	1(1-1)	20
<i>Correa reflexa</i>	1(1-1)	25	1(1-1)	5
<i>Daviesia mimosoides</i>	2(1-2)	8	1(1-2)	2
<i>Dianella caerulea</i>	1(1-1)	77	1(1-1)	28
<i>Eucalyptus agglomerata</i>	1(1-2)	33	2(1-3)	7
<i>Eucalyptus bosistoana</i>	1(1-1)	15	1(1-2)	3
<i>Eucalyptus cypellocarpa</i>	1(1-1)	30	2(1-2)	10
<i>Eucalyptus muelleriana</i>	2(2-2)	93	2(1-2)	6
<i>Eucalyptus sieberi</i>	2(1-2)	62	2(1-3)	16
<i>Eucalyptus smithii</i>	1(1-2)	33	1(1-2)	2
<i>Hakea eriantha</i>	1(1-1)	11	1(1-1)	2
<i>Hibbertia dentata</i>	1(1-1)	25	1(1-1)	6
<i>Kennedia rubicunda</i>	1(1-1)	34	1(1-1)	6

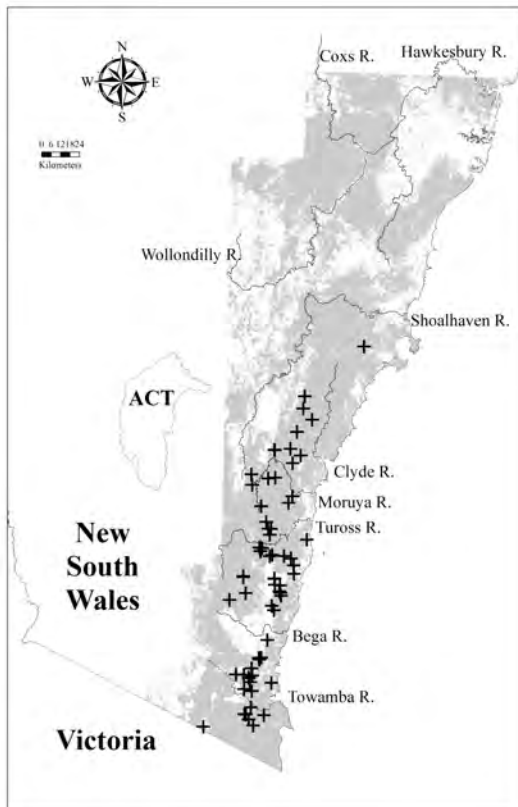
<i>Lepidosperma urophorum</i>	1(1-1)	29	1(1-2)	7
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	55	1(1-1)	23
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-2)	14	1(1-1)	4
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	51	1(1-1)	25
<i>Notelaea venosa</i>	1(1-1)	30	1(1-1)	12
<i>Ozothamnus argophyllus</i>	1(1-1)	26	1(1-1)	2
<i>Persoonia linearis</i>	1(1-1)	88	1(1-1)	28
<i>Platysace lanceolata</i>	1(1-1)	74	1(1-1)	12
<i>Poa meionectes</i>	1(1-1)	38	1(1-2)	16
<i>Podolobium ilicifolium</i>	1(1-1)	45	1(1-1)	8
<i>Polyscias sambucifolia</i>	1(1-1)	32	1(1-1)	6
<i>Pomax umbellata</i>	1(1-1)	30	1(1-1)	14
<i>Poranthera microphylla</i>	1(1-1)	34	1(1-1)	15

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	34	1(1-1)	28
<i>Entolasia stricta</i>	1(1-1)	30	1(1-2)	34
<i>Hardenbergia violacea</i>	1(1-1)	32	1(1-1)	17
<i>Lepidosperma laterale</i>	1(1-1)	34	1(1-1)	29
<i>Lomandra longifolia</i>	1(1-1)	58	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-1)	38	1(1-2)	36
<i>Pteridium esculentum</i>	1(1-1)	51	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia maculata</i>	2(2-2)	1	2(1-3)	3
<i>Eucalyptus angophoroides</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus blaxlandii</i>	2(2-2)	1	1(1-3)	1
<i>Eucalyptus botryoides</i>	1(1-1)	4	2(1-3)	3
<i>Eucalyptus consideniana</i>	1(1-1)	1	2(1-2)	2
<i>Eucalyptus elata</i>	1(1-1)	5	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus fraxinoides</i>	1(1-1)	1	2(1-3)	1
<i>Eucalyptus globoidea</i>	1(1-1)	11	2(1-2)	12
<i>Eucalyptus longifolia</i>	2(1-2)	7	1(1-2)	2
<i>Eucalyptus maidenii</i>	2(1-2)	3	2(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	2(1-2)	3	1(1-2)	3
<i>Eucalyptus pilularis</i>	1(1-1)	1	2(1-3)	5
<i>Eucalyptus piperita</i>	1(1-3)	4	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	3	2(1-3)	6
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	4	2(1-3)	2
<i>Eucalyptus tricarpa</i>	2(1-2)	3	1(1-2)	1



Locations of survey sites allocated to DSF p91. Grey shading indicates extant native vegetation cover within the study area.

WSF p95: Southern Turpentine Forest



Plate p95. Southern Turpentine Forest (Map Unit p95) along Deans Gap Road in Colynea State Conservation Area, showing a canopy of *Syncarpia glomulifera* subsp. *glomulifera* and *Eucalyptus scias* subsp. *callimastha*, a shrub layer including *Persoonia linearis* and *Acacia longifolia*, and a groundcover dominated by grasses and sedges.

Sample Sites: 55
 Area Extant (ha): 62400
 Estimated % remaining: >85%
 Area in conservation reserves (ha): 38300
 Estimated % of pre-clearing area in conservation reserves: 45-65%
 No. taxa (total / unique): 310 / 0
 No. taxa per plot (\pm sd): 34.7 (9.5)

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

Southern Turpentine Forest (WSF p95) is equivalent to WSF 95 identified by Tindall *et al.* (2004). This unit is a rather dense eucalypt forest with an open shrubby understorey, found between Bundanoon and the Upper Clyde River area on loamy soils derived from Permian Shoalhaven group sediments. It is widespread east of the Morton plateau on coastal lowlands near Conjola and Wandandian, and is also common in steep gorge country along tributaries of the Shoalhaven and upper Clyde Rivers including Kangaroo River, Bundanoon, Ettrema, Yarramunmun, Danjera, Yarrunga, Yalwal and Pigeon House Creeks. Within this distribution Southern Turpentine Forest typically occurs on sheltered slopes below 600 m ASL with an annual rainfall between 950 and 1300mm. On lower slopes adjacent Tallowa Dam this unit grades into Yalwal Shale-Sandstone Transition Forest (DSF p246) and in moist sheltered locations may grade into Escarpment Foothills Wet Forest (WSF p100) or Coastal Warm Temperate Rainforest (RF p113). On the coastal plain near Wandandian, Southern Turpentine Forest grades into Currumbene Lowlands Forest (DSF p85). Here there has been some clearing on the fringe of the rural districts, although large areas occur in Morton and Conjola National Parks and adjacent state forests.

Floristic Summary:

Trees: *Syncarpia glomulifera*, *Corymbia gummifera*, *Eucalyptus piperita*, *E. scias*. **Shrubs:** *Persoonia linearis*, *Leucopogon lanceolatus*, *Acacia obtusifolia*, *Tetratheca thymifolia*, *Elaeocarpus reticulatus*, *Banksia spinulosa*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Dianella caerulea*, *Entolasia stricta*, *Pteridium esculentum*, *Lepidosperma urophorum*.

Vegetation structure:

Stratum	Frequency (n=45)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	93	29 (7.1)	33.6 (9.2)
Small tree	76	12.2 (5.3)	34.3 (26)
Shrub	67	2.2 (0.7)	31.8 (25.9)
Ground cover	96	0.7 (0.3)	25 (19.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 14 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 27 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 14 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1(1-2)	16	1(1-1)	2
<i>Acacia longifolia</i>	1(1-2)	35	1(1-2)	9
<i>Acacia obtusifolia</i>	1(1-2)	73	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	36	1(1-1)	11
<i>Amperea xiphioclada</i>	1(1-1)	20	1(1-1)	7
<i>Angophora floribunda</i>	2(1-3)	22	1(1-2)	9
<i>Aotus ericoides</i>	1(1-2)	18	1(1-1)	3
<i>Astrotricha species B</i>	1(1-1)	13	1(1-1)	<1
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	53	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	55	1(1-1)	27
<i>Calochlaena dubia</i>	2(1-3)	25	1(1-3)	9
<i>Ceratopetalum gummiferum</i>	1(1-2)	24	1(1-2)	3
<i>Corymbia gummifera</i>	2(1-2)	80	2(1-2)	15
<i>Cymbidium suave</i>	1(1-1)	20	1(1-1)	2
<i>Dampiera purpurea</i>	1(1-1)	15	1(1-1)	4
<i>Dianella caerulea</i>	1(1-1)	89	1(1-1)	28
<i>Dodonaea triquetra</i>	1(1-1)	20	1(1-2)	6
<i>Elaeocarpus reticulatus</i>	1(1-1)	55	1(1-1)	12

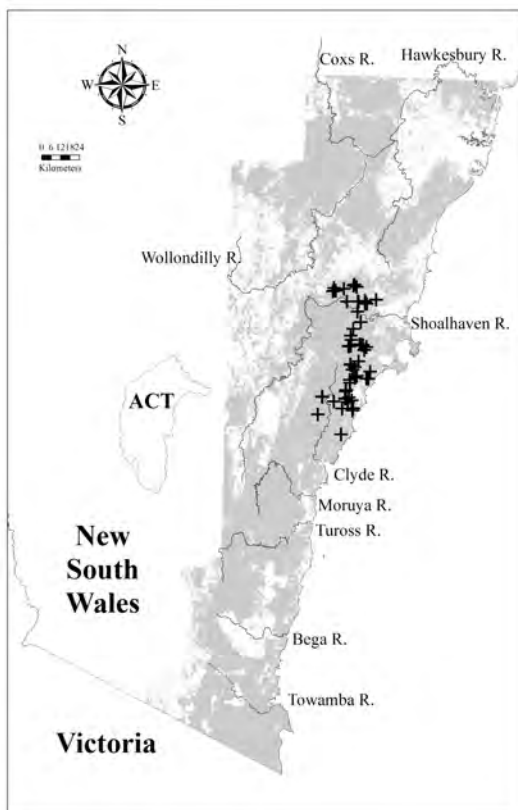
<i>Entolasia stricta</i>	1(1-2)	78	1(1-2)	33
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-2)	20	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(2-2)	22	2(1-3)	5
<i>Eucalyptus piperita</i>	2(2-3)	80	2(1-3)	8
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-2)	31	1(1-2)	<1
<i>Gompholobium latifolium</i>	1(1-1)	31	1(1-1)	3
<i>Gonocarpus teucrioides</i>	1(1-1)	40	1(1-1)	17
<i>Goodenia heterophylla</i>	1(1-1)	13	1(1-1)	2
<i>Hibbertia dentata</i>	1(1-1)	18	1(1-1)	6
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	25	1(1-1)	6
<i>Kennedia rubicunda</i>	1(1-2)	18	1(1-1)	6
<i>Lepidosperma urophorum</i>	1(1-2)	56	1(1-2)	6
<i>Leptospermum polygalifolium</i>	1(1-1)	24	1(1-2)	8
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	78	1(1-1)	23
<i>Lindsaea microphylla</i>	1(1-1)	29	1(1-1)	5
<i>Lomatia ilicifolia</i>	1(1-1)	44	1(1-1)	6
<i>Macrozamia communis</i>	1(1-2)	20	1(1-2)	4
<i>Marsdenia suaveolens</i>	1(1-1)	36	1(1-1)	2
<i>Olearia tomentosa</i>	1(1-1)	24	1(1-1)	1
<i>Opercularia aspera</i>	1(1-1)	27	1(1-1)	8
<i>Patersonia glabrata</i>	1(1-1)	31	1(1-1)	10
<i>Persoonia linearis</i>	1(1-1)	87	1(1-1)	28
<i>Persoonia mollis</i> subsp. <i>caleyi</i>	1(1-2)	20	1(1-1)	1
<i>Phyllanthus hirtellus</i>	1(1-1)	36	1(1-1)	14
<i>Platylobium formosum</i>	1(1-1)	16	1(1-1)	3
<i>Platysace lanceolata</i>	1(1-1)	31	1(1-1)	13
<i>Podolobium ilicifolium</i>	1(1-1)	24	1(1-1)	9
<i>Pteridium esculentum</i>	1(1-1)	67	1(1-2)	37
<i>Pultenaea daphnoides</i>	1(1-1)	40	1(1-1)	4
<i>Schelhammera undulata</i>	1(1-1)	29	1(1-1)	7
<i>Smilax glycyphylla</i>	1(1-1)	49	1(1-1)	8
<i>Stylidium laricifolium</i>	1(1-1)	13	1(1-1)	1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(2-3)	85	2(1-3)	7
<i>Tetratea thymifolia</i>	1(1-1)	58	1(1-1)	6
<i>Tristaniopsis collina</i>	1(1-3)	15	1(1-2)	2
<i>Xanthorrhoea concava</i>	1(1-1)	16	1(1-1)	4
<i>Xanthosia pilosa</i>	1(1-1)	25	1(1-1)	8
<i>Zieria arborescens</i>	1(1-2)	13	1(1-2)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lepidosperma laterale</i>	1(1-1)	47	1(1-1)	28
<i>Lomandra longifolia</i>	1(1-1)	62	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-1)	33	1(1-2)	36

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	3(1-3)	4	1(1-2)	2
<i>Corymbia maculata</i>	2(2-2)	2	2(1-3)	3
<i>Eucalyptus agglomerata</i>	2(1-2)	15	2(1-3)	7
<i>Eucalyptus consideriana</i>	2(1-3)	7	1(1-2)	2
<i>Eucalyptus eugenioides</i>	2(1-2)	11	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-2)	18	2(1-2)	12
<i>Eucalyptus obliqua</i>	1(1-1)	2	2(1-3)	4
<i>Eucalyptus punctata</i>	1(1-3)	9	2(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	2	1(1-2)	1
<i>Eucalyptus sieberi</i>	2(1-3)	24	2(1-3)	16



Locations of survey sites allocated to WSF p95. Grey shading indicates extant native vegetation cover within the study area.

DSF p98: Clyde-Deua Ridgetop Forest

Plate p98. Clyde-Deua Ridgetop Forest (Map Unit p98) beside the Kings Highway east of the Corn Trail on Clyde Mountain. *Eucalyptus sieberi* and *E. radiata* subsp. *radiata* dominate the canopy, with scattered tall shrubs of *Acacia obtusifolia*. Lower shrubs include *Banksia spinulosa* subsp. *spinulosa* and *Leucopogon lanceolatus* var. *lanceolatus* and the groundcover contains clumps of *Pteridium esculentum* and *Lepidosperma urophorum* interspersed with dense patches of *Gleichenia dicarpa*.

Sample Sites: 48
 Area Extant (ha): 30400
 Estimated % remaining: >90%
 Area in conservation reserves (ha): 23000
 Estimated % of pre-clearing area in conservation reserves: 65-85%
 No. taxa (total / unique): 226 / 0
 No. taxa per plot (\pm sd): 24.6 (9)
 Class: South East Dry Sclerophyll Forests
 Related TEC: n/a

Clyde-Deua Ridgetop Forest (DSF p98) represents a slight revision and extension of DSF 98 identified by Tindall *et al.* (2004) based on additional samples over a larger area. This unit is an open eucalypt forest with an open understorey of sclerophyll shrubs, sedges & forbs. DSF p98 is distributed south from Wog Wog mountain along the Budawang range to the Bendoura and Minuma ranges, continuing east through the Deua foothills and south to Dampier State Forest. Within this distribution mean annual rainfall varies from 950 to 1200mm. Clyde-Deua Ridgetop Forest occupies sandy loams on dry ridges varying in elevation from 250 to 1100m ASL. Extensive stands are represented within Budawang, Monga and Deua National Parks and little of the original range has been cleared.

Floristic Summary:

Trees: *Eucalyptus sieberi*. **Shrubs:** *Acacia obtusifolia*, *Persoonia linearis*, *Amperea xiphoclada*, *Leucopogon lanceolatus* var. *lanceolatus*, *Platysace lanceolata*, *Podolobium ilicifolium*, *Tetrateca thymifolia*. **Groundcover:** *Pteridium esculentum*, *Dianella caerulea*.

Vegetation structure:

Stratum	Frequency (n=38)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	23.3 (5.2)	26.8 (12.4)
Small tree	63	9.5 (5.6)	23.2 (17.1)
Shrub	39	2.6 (0.5)	24.3 (15.3)
Ground cover	97	1.1 (0.2)	37.2 (23.8)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 7 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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
<i>Acacia obtusifolia</i>	2(1-2)	98	1(1-2)	9
<i>Amperea xiphoclada</i>	1(1-1)	71	1(1-1)	7
<i>Daviesia ulicifolia</i>	1(1-1)	23	1(1-1)	6
<i>Dianella caerulea</i>	1(1-1)	75	1(1-1)	28
<i>Epacris impressa</i>	1(1-1)	19	1(1-1)	4
<i>Eucalyptus globoidea</i>	1(1-2)	29	2(1-2)	12
<i>Eucalyptus muelleriana</i>	1(1-1)	21	2(1-2)	6
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-3)	27	2(1-3)	6
<i>Eucalyptus sieberi</i>	2(2-3)	92	2(1-3)	16
<i>Hibbertia dentata</i>	1(1-1)	19	1(1-1)	6
<i>Lepidosperma urophorum</i>	1(1-1)	33	1(1-2)	7
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	69	1(1-1)	23
<i>Lomandra confertifolia</i> subsp. <i>similis</i>	1(1-2)	29	1(1-1)	2
<i>Lomatia ilicifolia</i>	1(1-1)	27	1(1-1)	6
<i>Marsdenia suaveolens</i>	1(1-1)	19	1(1-1)	3
<i>Persoonia linearis</i>	1(1-1)	85	1(1-1)	28
<i>Platysace lanceolata</i>	1(1-1)	71	1(1-1)	13
<i>Podolobium ilicifolium</i>	1(1-1)	54	1(1-1)	8
<i>Polyscias sambucifolia</i>	1(1-1)	27	1(1-1)	6
<i>Pteridium esculentum</i>	1(1-2)	83	1(1-2)	37
<i>Pultenaea daphnoides</i>	1(1-1)	17	1(1-1)	4
<i>Stylidium graminifolium</i>	1(1-1)	29	1(1-1)	9
<i>Tetratheca thymifolia</i>	1(1-2)	58	1(1-1)	6
<i>Xanthorrhoea australis</i>	2(1-3)	17	1(1-1)	1
<i>Xanthorrhoea concava</i>	1(1-2)	17	1(1-1)	4
<i>Xanthosia pilosa</i>	1(1-1)	23	1(1-1)	8

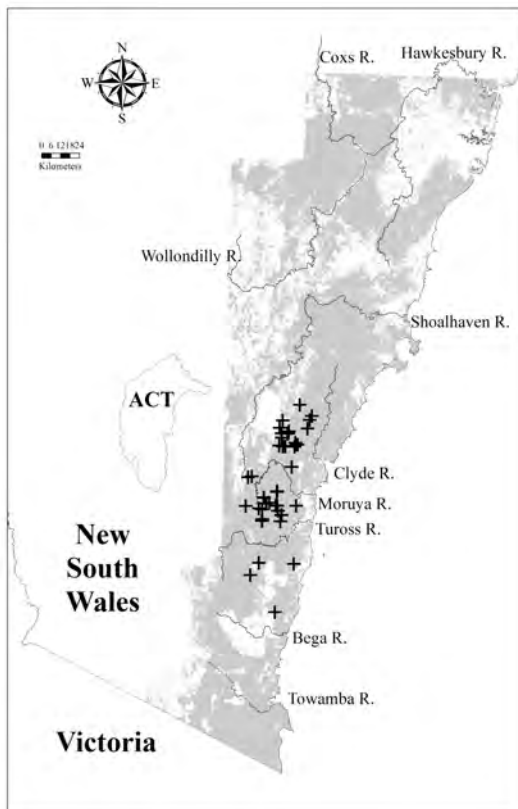
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	31	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	40	1(1-1)	28
<i>Entolasia stricta</i>	1(1-1)	31	1(1-2)	34
<i>Lomandra longifolia</i>	1(1-1)	50	1(1-1)	44
<i>Viola hederacea</i>	1(1-1)	33	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-2)	17	1(1-2)	9
<i>Corymbia gummifera</i>	2(1-3)	8	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-2)	8	2(1-3)	7
<i>Eucalyptus consideniensis</i>	1(1-2)	6	2(1-2)	2
<i>Eucalyptus cypellocarpa</i>	1(1-2)	10	2(1-2)	10

<i>Eucalyptus dives</i>	1(1-1)	2	2(1-3)	4
<i>Eucalyptus elata</i>	1(1-1)	4	2(1-3)	5
<i>Eucalyptus fraxinoides</i>	1(1-1)	2	2(1-3)	1
<i>Eucalyptus longifolia</i>	1(1-1)	2	1(1-2)	2
<i>Eucalyptus obliqua</i>	2(1-2)	8	2(1-3)	4
<i>Eucalyptus paliformis</i>	1(1-1)	2	0(0-0)	<1
<i>Eucalyptus piperita</i>	3(1-3)	4	2(1-3)	9
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	2(1-2)	6	1(1-2)	1
<i>Eucalyptus stenostoma</i>	2(2-2)	4	1(1-1)	<1
<i>Eucalyptus tricarpa</i>	1(1-1)	2	1(1-2)	1
<i>Eucalyptus triflora</i>	1(1-1)	2	3(3-3)	<1



Locations of survey sites allocated to DSF p98. Grey shading indicates extant native vegetation cover within the study area.

WSF p99: Illawarra Gully Wet Forest

Plate p99. Illawarra Gully Wet Forest (Map Unit p99) on a steep north-facing slope above Stanwell Park Creek. The overstorey is dominated by *Eucalyptus pilularis*, with a sparse sub canopy of *Acacia maidenii* and a sparse groundcover including *Pteridium esculentum*, *Lomandra longifolia* and *Imperata cylindrica* var. *major*.

Sample Sites: 87

Area Extant (ha): 7100

Estimated % remaining: 50-70%

Area in conservation reserves (ha): 1900

Estimated % of pre-clearing area in conservation reserves: 5-20%

No. taxa (total / unique): 422 / 0

No. taxa per plot (\pm sd): 39.3 (11.8)

Class: North Coast Wet Sclerophyll Forests

Related TEC: includes areas of Pittwater Spotted Gum Forest EEC (TSC).

Illawarra Wet Gully Forest (WSF p99) is equivalent to WSF 99 identified by Tindall *et al.* (2004). This unit is a tall eucalypt forest with a moist open understorey, primarily distributed from the Hacking River catchment along the Illawarra scarp south to Mt Keira, on coastal lowlands near Berry and scattered through coastal foothills and lowlands from Nowra south to Batemans Bay. A disjunct occurrence is recorded in the north at Pittwater. Within this distribution Illawarra Wet Gully Forest occurs on sheltered slopes and gullies with loamy soils with an annual rainfall in the range of 1000-1700mm. On the northern Illawarra escarpment, Illawarra Wet Gully Forest occupies elevations up to 400m ASL however south of Nowra it rarely exceeds 200m ASL. With increasing soil fertility Illawarra Wet Gully Forest grades into Warm Temperate Layered Forest (WSF p110) and may be replaced by rainforest units (RF p112 and RF p113) in areas long protected from fire.

Illawarra Wet Gully Forest is related to Central Coast Wet Forest (WSF p599), but lacks several taxa restricted to the north coast forests. More than a third of its original range has been cleared, mainly in the Illawarra lowlands. Highly fragmented stands amongst the suburbs at its disjunct north-east limit include an abundance of *Corymbia maculata* (spotted gum) and are identified as Pittwater Spotted Gum Forest listed on Schedule 1 of the NSW *Threatened Species Conservation Act* (1995).

Floristic Summary:

Trees: *Livistona australis*, *Syncarpia glomulifera*, *Eucalyptus pilularis*, *E. paniculata*. **Shrubs:** *Synoum glandulosum*, *Breynia oblongifolia*, *Notelaea longifolia*. **Climbers:** *Eustrephus latifolius*, *Tylophora barbata*, *Hibbertia scandens*, *Glycine clandestina*, *Hibbertia dentata*, *Geitonoplesium cymosum*. **Groundcover:** *Lomandra longifolia*, *Pteridium esculentum*, *Dianella caerulea*, *Entolasia stricta*, *Oplismenus imbecillis*, *Imperata cylindrica*, *Pseuderanthemum variabile*.

Vegetation structure:

Stratum	Frequency (n=58)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	98	26.2 (7.4)	37.3 (15.6)
Small tree	90	10 (5.1)	29.1 (21.5)
Shrub	28	2.3 (0.6)	18.1 (20)
Ground cover	97	1 (0.4)	49.9 (33.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 19 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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 19 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	2(1-2)	38	1(1-2)	2
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1(1-3)	17	1(1-1)	2
<i>Acacia maidenii</i>	1(1-2)	36	1(1-1)	2
<i>Acmena smithii</i>	1(1-1)	20	2(1-3)	9
<i>Adiantum aethiopicum</i>	1(1-1)	24	1(1-2)	9
<i>Allocasuarina torulosa</i>	3(1-3)	16	1(1-3)	5
<i>Alphitonia excelsa</i>	1(1-2)	7	1(1-1)	1
<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	3(1-3)	9	1(1-1)	2
<i>Billardiera scandens</i>	1(1-1)	43	1(1-1)	27
<i>Blechnum cartilagineum</i>	1(1-2)	24	1(1-2)	11
<i>Brachychiton acerifolius</i>	1(1-1)	6	1(1-1)	1
<i>Breynia oblongifolia</i>	1(1-1)	45	1(1-1)	12
<i>Calochlaena dubia</i>	2(1-4)	40	1(1-3)	9
<i>Centella asiatica</i>	1(1-1)	11	1(1-1)	4
<i>Cissus hypoglauca</i>	1(1-2)	41	1(1-2)	9
<i>Clerodendrum tomentosum</i>	1(1-1)	34	1(1-1)	4
<i>Commelina cyanea</i>	1(1-1)	17	1(1-1)	4
<i>Desmodium rhytidophyllum</i>	1(1-1)	14	1(1-1)	1
<i>Dianella caerulea</i>	1(1-1)	70	1(1-1)	28
<i>Dichondra</i> spp.	1(1-1)	46	1(1-2)	25
<i>Diospyros australis</i>	1(1-1)	9	1(1-2)	3
<i>Doodia aspera</i>	1(1-2)	43	1(1-2)	11
<i>Doryanthes excelsa</i>	2(1-2)	8	1(1-2)	1
<i>Duboisia myoporoides</i>	1(1-1)	6	1(1-1)	<1
<i>Elaeocarpus reticulatus</i>	1(1-1)	25	1(1-1)	12
<i>Endiandra sieberi</i>	2(2-4)	6	1(1-3)	<1
<i>Entolasia marginata</i>	1(1-1)	39	1(1-1)	11
<i>Entolasia stricta</i>	1(1-2)	57	1(1-2)	33
<i>Eucalyptus botryoides</i>	3(1-3)	31	1(1-3)	3
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	26	1(1-2)	3
<i>Eucalyptus pilularis</i>	3(2-4)	55	2(1-3)	4
<i>Eucalyptus saligna</i> X <i>botryoides</i>	2(1-3)	28	2(1-3)	2
<i>Eustrephus latifolius</i>	1(1-1)	68	1(1-1)	19

<i>Gahnia melanocarpa</i>	1(1-2)	26	1(1-1)	5
<i>Gahnia sieberiana</i>	1(1-2)	15	1(1-1)	4
<i>Geitonoplesium cymosum</i>	1(1-1)	54	1(1-1)	16
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-1)	21	1(1-1)	2
<i>Glycine clandestina</i>	1(1-1)	56	1(1-1)	26
<i>Goodenia ovata</i>	2(1-2)	18	1(1-1)	7
<i>Gymnostachys anceps</i>	1(1-1)	18	1(1-2)	3
<i>Helichrysum elatum</i>	1(1-1)	14	1(1-1)	2
<i>Hibbertia dentata</i>	1(1-2)	60	1(1-1)	6
<i>Hibbertia scandens</i>	1(1-1)	63	1(1-1)	4
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	54	1(1-2)	9
<i>Indigofera australis</i>	1(1-1)	22	1(1-1)	9
<i>Kennedia rubicunda</i>	1(1-1)	32	1(1-1)	6
<i>Lepidosperma laterale</i>	1(1-1)	45	1(1-1)	28
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	38	1(1-1)	23
<i>Livistona australis</i>	1(1-1)	62	1(1-1)	5
<i>Lomandra longifolia</i>	2(1-3)	90	1(1-1)	43
<i>Marsdenia rostrata</i>	1(1-1)	26	1(1-2)	12
<i>Morinda jasminoides</i>	1(1-1)	21	1(1-2)	9
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	34	1(1-1)	7
<i>Notelaea venosa</i>	1(1-1)	28	1(1-1)	12
<i>Nyssanthes diffusa</i>	1(1-2)	6	1(1-1)	<1
<i>Oplismenus imbecillis</i>	1(1-2)	55	1(1-2)	14
<i>Parsonsia straminea</i>	1(1-1)	22	1(1-1)	7
<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	1(1-1)	7	1(1-1)	1
<i>Phyllanthus gunnii</i>	1(1-1)	7	1(1-1)	2
<i>Pittosporum revolutum</i>	1(1-1)	32	1(1-1)	8
<i>Pittosporum undulatum</i>	1(1-2)	28	1(1-1)	14
<i>Plectranthus parviflorus</i>	1(1-1)	20	1(1-1)	8
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-3)	28	1(1-2)	12
<i>Pseuderanthemum variabile</i>	1(1-1)	48	1(1-2)	8
<i>Pteridium esculentum</i>	1(1-2)	77	1(1-2)	37
<i>Pultenaea blakelyi</i>	1(1-3)	8	1(1-2)	<1
<i>Rapanea variabilis</i>	1(1-1)	34	1(1-1)	3
<i>Rhodamnia rubescens</i>	1(1-3)	8	1(1-1)	1
<i>Rubus moluccanus</i> var. <i>trilobus</i>	1(1-1)	14	1(1-1)	2
<i>Rubus parvifolius</i>	1(1-1)	29	1(1-1)	9
<i>Santalum obtusifolium</i>	1(1-1)	7	1(1-1)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	21	1(1-1)	4
<i>Schelhammera undulata</i>	1(1-2)	33	1(1-1)	7
<i>Smilax australis</i>	1(1-1)	44	1(1-1)	16
<i>Smilax glyciphylla</i>	1(1-1)	37	1(1-1)	8
<i>Stenocarpus salignus</i>	1(1-2)	8	1(1-1)	2
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	39	1(1-1)	6
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(2-3)	55	2(1-3)	7
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-1)	53	1(1-2)	6

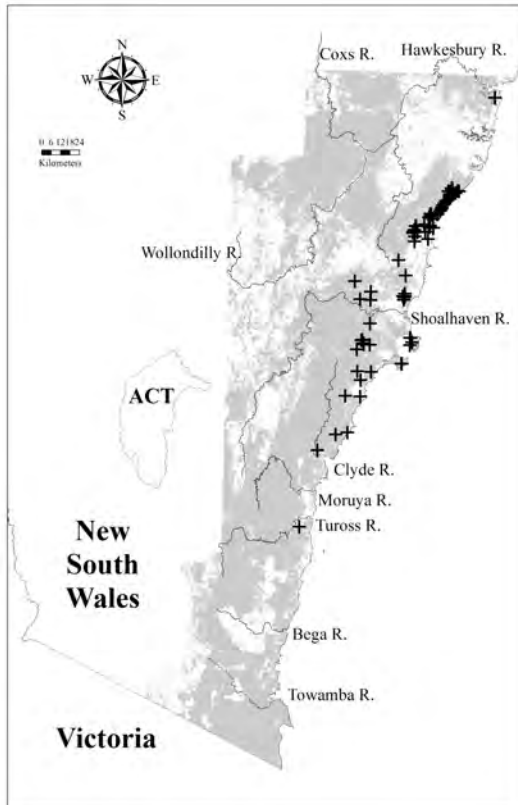
<i>Tristaniopsis collina</i>	2(1-2)	11	1(1-2)	2
<i>Trochocarpa laurina</i>	1(1-2)	9	1(1-1)	1
<i>Tylophora barbata</i>	1(1-2)	68	1(1-1)	16
<i>Zieria smithii</i>	1(1-1)	26	1(1-1)	2

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	1(1-1)	31	1(1-1)	20
<i>Desmodium varians</i>	1(1-1)	31	1(1-1)	21
<i>Microlaena stipoides</i>	1(1-2)	36	1(1-2)	36
<i>Persoonia linearis</i>	1(1-1)	41	1(1-1)	29
<i>Viola hederacea</i>	1(1-1)	31	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-2)	15	1(1-3)	7
<i>Angophora floribunda</i>	1(1-3)	15	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-2)	8	2(1-2)	16
<i>Corymbia maculata</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	2(1-2)	2	2(1-2)	10
<i>Eucalyptus elata</i>	2(2-2)	1	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	5	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-2)	3	2(1-2)	12
<i>Eucalyptus longifolia</i>	2(2-2)	1	1(1-2)	2
<i>Eucalyptus muelleriana</i>	3(2-4)	5	2(1-2)	6
<i>Eucalyptus piperita</i>	2(1-3)	15	2(1-3)	9
<i>Eucalyptus quadrangulata</i>	2(1-2)	2	3(1-3)	1
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-3)	3	1(1-2)	1
<i>Eucalyptus smithii</i>	2(2-2)	1	1(1-2)	2
<i>Eucalyptus tereticornis</i>	1(1-1)	1	2(1-3)	7



Locations of survey sites allocated to WSF p99. Grey shading indicates extant native vegetation cover within the study area.

WSF p100: Escarpment Foothills Wet Forest



Plate p100. Escarpment Foothills Wet Forest (Map Unit p100) at Kembla Heights, near the intersection of Harry Graham Drive and Morans Road. A very tall canopy dominated by *Eucalyptus cypellocarpa*, *E. smithii* and *E. saligna* *X botryoides*, overlies a small tree layer of *Acacia binervata*, with shrubs including *Trochocarpa laurina*, *Tristaniopsis collina* and *Notelaea venosa*, and groundcover dominated by *Microlaena stipoides* var. *stipoides* and *Lomandra longifolia*.

Sample Sites: 35

Area Extant (ha): 31500

Estimated % remaining: >90%

Area in conservation reserves (ha): 12000

Estimated % of pre-clearing area in conservation reserves: 25-40%

No. taxa (total / unique): 263 / 1
 No. taxa per plot (\pm sd): 39.1 (10.6)
 Class: South Coast Wet Sclerophyll Forests
 Related TEC: n/a

Escarpment Foothills Wet Forest (WSF p100) represents a revision and contraction of WSF 100 identified by Tindall *et al.* (2004). Of the sites originally allocated to WSF 100, those generally north of the Turpentine Range are retained as WSF p100 while those few to the south joined with new units WSF n183 (South Coast Hinterland Wet Forest) or WSF n184 (Clyde-Tuross Hinterland Forest). As a result the revised WSF p100 has a reduced range.

WSF p100 is a eucalypt forest with a mesophyll shrub/small tree stratum and an understorey of vines & ferns. This unit is distributed from Lake Cataract south to the Morton Plateau, occupying moist sheltered escarpment slopes between 100m and 650m ASL. South from Macquarie Pass this unit follows scarp slopes around the edges of the Southern highlands and Morton plateaux through Kangaroo Valley west to Bundanoon and south to Yarramunmun and Danjera. Over most of this range, mean annual rainfall typically varies between 1000 and 1200mm, though it reaches up to 1800mm in the Illawarra-Kangaroo Valley region.

Escarpment Foothills Wet Forest shares several species with Illawarra Gully Wet Forest (WSF p99), but where their distributions overlap Escarpment Foothills Wet Forest occupies higher elevations and more southerly aspects. South of the Morton plateau, Escarpment Foothills Wet Forest is replaced by South Coast Hinterland Wet Forest (WSF n183) or Clyde-Tuross Hinterland Forest (WSF n184) along the Budawang-Deua escarpment and the slopes and foothills south from Corang peak.

Extensive areas of Escarpment Foothills Wet Forest occur in conservation reserves and protected catchment areas.

Floristic Summary:

Trees: *Livistona australis*, *Eucalyptus smithii*, *E. piperita*. **Shrubs:** *Synoum glandulosum*, *Notelaea venosa*, *Elaeocarpus reticulatus*. **Climbers:** *Smilax australis*, *Tylophora barbata*, *Eustrephus latifolius*, *Geitonoplesium cymosum*, *Hibbertia dentata*, *Pandorea pandorana*. **Groundcover:** *Pteridium esculentum*, *Microlaena stipoides*, *Dianella caerulea*, *Oplismenus imbecillis*.

Vegetation structure:

Stratum	Frequency (n=32)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	94	32.7 (8.5)	36.7 (12.9)
Small tree	94	9.8 (4.3)	31.9 (20.6)
Shrub	16	1.9 (1.2)	21 (16.4)
Ground cover	100	1.1 (0.4)	42.4 (27)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 15 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 31 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 15 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	2(2-3)	60	1(1-2)	2
<i>Acmena smithii</i>	1(1-1)	31	2(1-3)	9
<i>Astrotricha latifolia</i>	1(1-1)	26	1(1-1)	2
<i>Calochlaena dubia</i>	2(1-3)	40	1(1-3)	9
<i>Cissus hypoglauca</i>	1(1-1)	40	1(1-2)	10
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	29	1(1-1)	10
<i>Clerodendrum tomentosum</i>	1(1-2)	46	1(1-1)	5
<i>Commersonia fraseri</i>	1(1-1)	23	1(1-1)	1
<i>Cryptocarya glaucescens</i>	1(1-1)	23	2(1-3)	3
<i>Dianella caerulea</i>	1(1-1)	60	1(1-1)	28
<i>Diospyros australis</i>	1(1-1)	20	1(1-2)	3
<i>Doodia aspera</i>	1(1-1)	31	1(1-2)	12
<i>Elaeocarpus reticulatus</i>	1(1-1)	46	1(1-1)	12
<i>Entolasia marginata</i>	1(1-2)	34	1(1-1)	11
<i>Eucalyptus muelleriana</i>	3(3-4)	26	2(1-2)	6

<i>Eucalyptus piperita</i>	2(1-2)	40	2(1-3)	9
<i>Eucalyptus smithii</i>	2(1-3)	51	1(1-2)	2
<i>Eustrephus latifolius</i>	1(1-1)	94	1(1-1)	19
<i>Gahnia melanocarpa</i>	1(1-1)	23	1(1-1)	5
<i>Galium binifolium</i>	1(1-1)	26	1(1-1)	3
<i>Geitonoplesium cymosum</i>	1(1-1)	69	1(1-1)	16
<i>Goodenia ovata</i>	1(1-2)	40	1(1-1)	7
<i>Gymnostachys anceps</i>	1(1-1)	26	1(1-2)	3
<i>Helichrysum elatum</i>	1(1-1)	23	1(1-1)	2
<i>Hibbertia dentata</i>	1(1-2)	71	1(1-1)	6
<i>Hibbertia scandens</i>	1(1-1)	46	1(1-1)	5
<i>Hydrocotyle peduncularis</i>	1(1-1)	40	1(1-1)	9
<i>Kennedia rubicunda</i>	1(1-1)	29	1(1-1)	6
<i>Livistona australis</i>	1(1-1)	57	1(1-1)	6
<i>Lomandra longifolia</i>	2(1-3)	69	1(1-1)	44
<i>Marsdenia rostrata</i>	1(1-1)	46	1(1-2)	12
<i>Morinda jasminoides</i>	1(1-1)	40	1(1-2)	9
<i>Notelaea venosa</i>	1(1-1)	63	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-1)	54	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	63	1(1-1)	18
<i>Pellaea falcata</i>	1(1-2)	31	1(1-1)	10
<i>Plectranthus parviflorus</i>	1(1-1)	31	1(1-1)	8
<i>Pteridium esculentum</i>	1(1-1)	77	1(1-2)	37
<i>Pyrrhosia rupestris</i>	1(1-1)	23	1(1-2)	6
<i>Sarcopetalum harveyanum</i>	1(1-1)	34	1(1-1)	4
<i>Smilax australis</i>	1(1-1)	89	1(1-1)	16
<i>Stellaria flaccida</i>	1(1-2)	40	1(1-1)	10
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	26	1(1-1)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-3)	31	2(1-3)	7
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-2)	77	1(1-2)	7
<i>Tristaniopsis collina</i>	1(1-2)	31	1(1-2)	2
<i>Tylophora barbata</i>	1(1-2)	94	1(1-1)	16
<i>Zieria smithii</i>	1(1-1)	26	1(1-1)	2

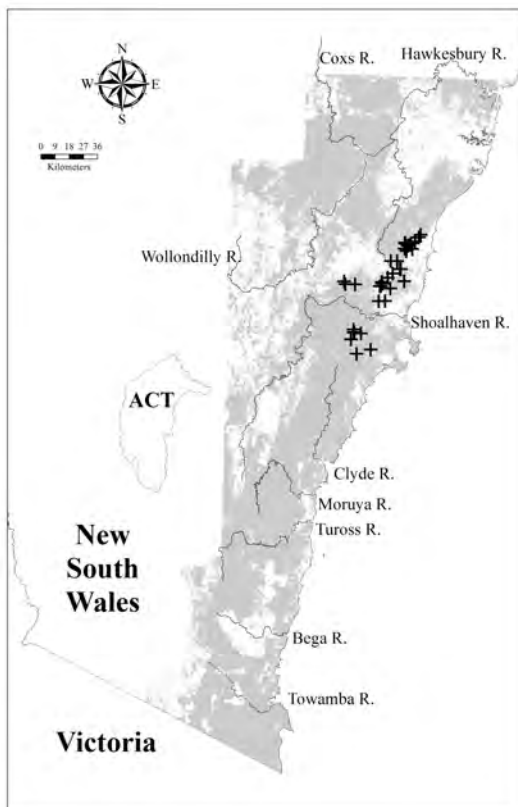
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	1(1-1)	40	1(1-1)	20
<i>Lepidosperma laterale</i>	1(1-1)	40	1(1-1)	29
<i>Microlaena stipoides</i>	1(1-1)	57	1(1-2)	36
<i>Viola hederacea</i>	1(1-1)	40	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	3(1-3)	6	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-1)	3	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-1)	3	2(1-3)	7
<i>Eucalyptus cypellocarpa</i>	3(2-3)	17	2(1-2)	10

<i>Eucalyptus elata</i>	3(1-3)	9	2(1-3)	5
<i>Eucalyptus eugenioides</i>	3(3-3)	3	2(1-3)	4
<i>Eucalyptus fastigata</i>	4(3-4)	14	2(1-3)	6
<i>Eucalyptus fibrosa</i>	1(1-1)	3	2(1-3)	3
<i>Eucalyptus obliqua</i>	3(3-3)	3	2(1-3)	4
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	14	1(1-2)	3
<i>Eucalyptus quadrangulata</i>	2(1-4)	14	3(1-3)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(3-3)	3	2(1-3)	6
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(1-3)	17	2(1-3)	2



Locations of survey sites allocated to WSF p100. Grey shading indicates extant native vegetation cover within the study area.

WSF p102: Lower Blue Mountains Wet Forest

Plate p102. Lower Blue Mountains Wet Forest (Map Unit p102) on Wild Goat Plateau, northern Nattai Tableland. A tall canopy of *Eucalyptus deanei* is present with a sub canopy of *Acacia elata*, *Ceratopetalum gummiferum* and *C. apetalum* and a tall shrub layer of *Stenocarpus salignus* and *Elaeocarpus reticulatus*. The dense ferny groundcover is dominated by *Calochlaena dubia*, *Pteridium esculentum* and *Blechnum cartilagineum*.

Sample Sites: 83

Area Extant (ha): 23400

Estimated % remaining: >95%

Area in conservation reserves (ha): 19800

Estimated % of pre-clearing area in conservation reserves: 75-90%

No. taxa (total / unique): 456 / 3

No. taxa per plot (\pm sd): 43.2 (10.7)

Class: North Coast Wet Sclerophyll Forests

Related TEC: n/a

Lower Blue Mountains Wet Forest (WSF p102) is equivalent to WSF 102 identified by Tindall *et al.* (2004), and is a tall eucalypt forest with a moist open understorey of shrubs, climbers and ferns. This unit is widely distributed in the sheltered sandstone slopes and gullies of the Greater Blue Mountains, with localised occurrences in tributaries of the Hawkesbury River north of Sydney and the upper Georges River. Typically, it occurs up to 700m ASL, where mean annual rainfall varies from 850 to 1200mm, and is likely to extend north of the study area into sandstone country in the Colo and Macdonald River catchments. Lower Blue Mountains Wet Forest shares closer floristic relationships to wet forests of the south coast (Clyde Gully Wet Forest WSF p103 and Southern Lowland Wet Forest WSF p104) than to those on the lowlands immediately to the east (WSF p99, WSF p100 and WSF p110). In smaller gullies and with decreasing soil depth and shelter, Lower Blue Mountains Wet Forest is typically replaced by Hinterland Sandstone Gully Forest (DSF p142) or Wingecarribee-Burraborang Sandstone Forest (DSF p144).

Most of the original distribution of Lower Blue Mountains Wet Forest remains intact, and substantial areas are represented within conservation reserves.

Floristic Summary:

Trees: *Syncarpia glomulifera*, *Angophora costata*, *Acacia elata*, *Eucalyptus deanei*, *Allocasuarina torulosa*. **Shrubs:** *Elaeocarpus reticulatus*, *Leucopogon lanceolatus*, *Persoonia linearis*. **Climbers:** *Cissus hypoglauca*, *Smilax glycyphylla*, *Eustrephus latifolius*, *Tylophora barbata*, *Clematis aristata*, *Billardiera scandens*, *Geitonoplesium cymosum*, *Pandorea pandorana*. **Groundcover:** *Lomandra longifolia*, *Calochlaena dubia*, *Blechnum cartilagineum*, *Dianella caerulea*, *Pteridium esculentum*, *Viola hederacea*, *Lepidosperma laterale*.

Vegetation structure:

Stratum	Frequency (n=60)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	2	40 (-)	10 (-)
Tree canopy	100	28.7 (6.8)	33.9 (14.6)
Small tree	90	12.7 (5.1)	38.1 (25.7)
Shrub	30	2.6 (0.5)	24.8 (20.2)
Ground cover	97	1.1 (0.3)	54.6 (26.7)

Diagnostic Species:

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

Positive Diagnostic Species:

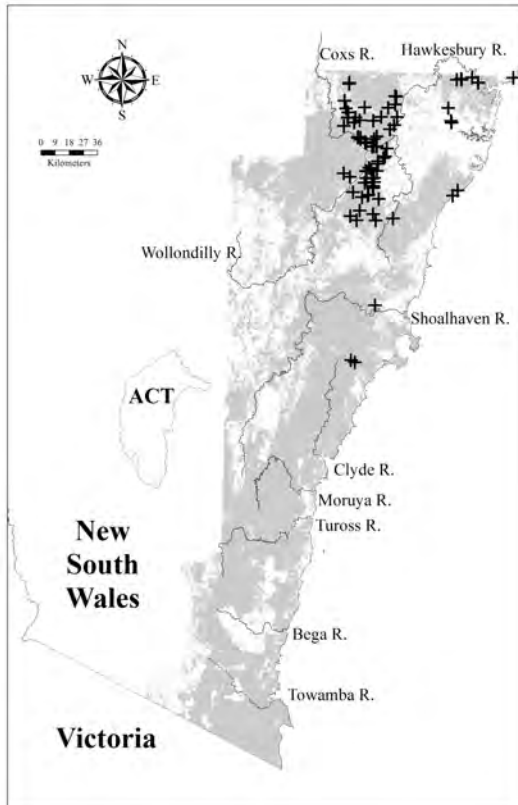
Species	C/A	Freq	C/A O	Freq O
<i>Acacia elata</i>	1(1-3)	49	1(1-2)	1
<i>Acmena smithii</i>	1(1-1)	29	2(1-3)	9
<i>Acrotriche divaricata</i>	1(1-2)	22	1(1-1)	1
<i>Adiantum aethiopicum</i>	1(1-1)	35	1(1-2)	9
<i>Adiantum hispidulum</i>	1(1-1)	11	1(1-1)	2
<i>Allocasuarina torulosa</i>	2(1-3)	43	1(1-3)	4
<i>Angophora costata</i>	2(1-3)	49	1(1-3)	7
<i>Angophora floribunda</i>	2(1-3)	19	1(1-2)	9
<i>Astrotricha floccosa</i>	1(1-1)	6	1(1-2)	1
<i>Astrotricha latifolia</i>	1(1-1)	33	1(1-1)	2
<i>Austromyrtus tenuifolia</i>	1(1-2)	6	1(1-3)	<1
<i>Backhousia myrtifolia</i>	2(1-2)	17	2(1-3)	5
<i>Billardiera scandens</i>	1(1-1)	51	1(1-1)	27
<i>Blechnum cartilagineum</i>	2(1-3)	80	1(1-2)	11
<i>Breynia oblongifolia</i>	1(1-1)	29	1(1-1)	12
<i>Callicoma serratifolia</i>	1(1-3)	39	1(1-2)	2
<i>Calochlaena dubia</i>	3(2-4)	83	1(1-3)	9
<i>Ceratopetalum apetalum</i>	2(1-3)	28	3(1-4)	3
<i>Ceratopetalum gummiferum</i>	2(1-3)	35	1(1-2)	3
<i>Cissus hypoglauca</i>	1(1-2)	58	1(1-2)	9
<i>Clematis aristata</i>	1(1-1)	49	1(1-1)	20
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	25	1(1-1)	10
<i>Cyathea australis</i>	1(1-2)	27	1(1-1)	8
<i>Cymbidium suave</i>	1(1-1)	16	1(1-1)	2
<i>Dendrobium speciosum</i>	1(1-1)	8	1(1-1)	1
<i>Dianella caerulea</i>	1(1-1)	80	1(1-1)	28
<i>Dodonaea triquetra</i>	1(1-2)	22	1(1-2)	6
<i>Dracophyllum secundum</i>	1(1-1)	10	1(1-1)	<1
<i>Elaeocarpus reticulatus</i>	1(1-2)	77	1(1-1)	11
<i>Entolasia stricta</i>	1(1-1)	59	1(1-2)	33
<i>Eucalyptus deanei</i>	3(1-3)	45	3(1-3)	1
<i>Eucalyptus piperita</i>	2(1-3)	41	2(1-3)	9
<i>Eustrephus latifolius</i>	1(1-1)	55	1(1-1)	19

<i>Galium binifolium</i>	1(1-1)	20	1(1-1)	3
<i>Geitonoplesium cymosum</i>	1(1-1)	52	1(1-1)	16
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-1)	7	1(1-1)	2
<i>Glycine microphylla</i>	1(1-1)	14	1(1-2)	5
<i>Gompholobium latifolium</i>	1(1-1)	13	1(1-1)	3
<i>Goodenia ovata</i>	1(1-2)	22	1(1-1)	7
<i>Grevillea arenaria</i> subsp. <i>arenaria</i>	1(1-1)	7	1(1-1)	1
<i>Hakea salicifolia</i>	1(1-1)	17	1(1-2)	1
<i>Helichrysum elatum</i>	1(1-1)	11	1(1-1)	2
<i>Hibbertia dentata</i>	1(1-2)	36	1(1-1)	6
<i>Hymenophyllum cupressiforme</i>	1(1-1)	17	1(1-1)	1
<i>Lepidosperma laterale</i>	1(1-1)	59	1(1-1)	28
<i>Leptospermum polygalifolium</i>	1(1-1)	24	1(1-2)	8
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	64	1(1-1)	23
<i>Libertia paniculata</i>	1(1-1)	10	1(1-1)	2
<i>Lindsaea microphylla</i>	1(1-1)	22	1(1-1)	5
<i>Liparis reflexa</i>	1(1-2)	6	1(1-1)	<1
<i>Lissanthe sapida</i>	1(1-1)	17	1(1-1)	1
<i>Logania albiflora</i>	1(1-1)	8	1(1-1)	1
<i>Lomandra longifolia</i>	1(1-2)	86	1(1-1)	43
<i>Lomatia silaifolia</i>	1(1-1)	31	1(1-1)	10
<i>Marsdenia suaveolens</i>	1(1-1)	16	1(1-1)	2
<i>Melaleuca linariifolia</i>	1(1-2)	6	1(1-2)	1
<i>Morinda jasminoides</i>	1(1-1)	33	1(1-2)	9
<i>Nematolepis squamea</i> subsp. <i>squamea</i>	1(1-1)	7	1(1-1)	<1
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	42	1(1-1)	7
<i>Olearia tomentosa</i>	1(1-1)	10	1(1-1)	1
<i>Opercularia aspera</i>	1(1-2)	18	1(1-1)	8
<i>Opercularia hispida</i>	1(1-1)	11	1(1-1)	3
<i>Pandorea pandorana</i>	1(1-1)	45	1(1-1)	18
<i>Persoonia linearis</i>	1(1-1)	58	1(1-1)	28
<i>Persoonia mollis</i> subsp. <i>mollis</i>	1(1-1)	11	1(1-1)	1
<i>Pittosporum revolutum</i>	1(1-1)	25	1(1-1)	8
<i>Platylobium formosum</i>	1(1-1)	13	1(1-1)	3
<i>Poa affinis</i>	1(1-1)	7	1(1-2)	2
<i>Pomaderris ferruginea</i>	1(1-4)	6	1(1-1)	1
<i>Pratia purpurascens</i>	1(1-1)	33	1(1-1)	17
<i>Pteridium esculentum</i>	1(1-2)	71	1(1-2)	37
<i>Pterostylis longifolia</i>	1(1-1)	17	1(1-1)	1
<i>Pultenaea flexilis</i>	1(1-2)	14	1(1-2)	2
<i>Rapanea variabilis</i>	1(1-2)	36	1(1-1)	3
<i>Rubus moluccanus</i> var. <i>trilobus</i>	1(1-1)	12	1(1-1)	2
<i>Schoenus melanostachys</i>	1(1-2)	19	1(1-2)	2
<i>Smilax australis</i>	1(1-2)	42	1(1-1)	16
<i>Smilax glyciphylla</i>	1(1-1)	57	1(1-1)	8
<i>Stenocarpus salignus</i>	1(1-1)	12	1(1-1)	2

<i>Sticherus flabellatus</i> var. <i>flabellatus</i>	1(1-2)	17	1(1-2)	1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(2-4)	61	2(1-3)	7
<i>Todea barbara</i>	1(1-1)	12	1(1-2)	1
<i>Tristaniopsis collina</i>	1(1-2)	39	1(1-2)	2
<i>Tristaniopsis laurina</i>	1(1-3)	7	1(1-3)	2
<i>Tylophora barbata</i>	1(1-2)	53	1(1-1)	16
<i>Viola hederacea</i>	1(1-1)	63	1(1-1)	21
<i>Xanthorrhoea arborea</i>	2(1-2)	10	1(1-2)	1
<i>Zieria smithii</i>	1(1-1)	14	1(1-1)	2

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora euryphylla</i>	3(3-3)	1	0(0-0)	0
<i>Corymbia gummifera</i>	1(1-2)	8	2(1-2)	16
<i>Eucalyptus agglomerata</i>	2(1-3)	7	2(1-3)	7
<i>Eucalyptus beyeriana</i>	2(2-2)	1	2(1-2)	<1
<i>Eucalyptus blaxlandii</i>	1(1-1)	1	1(1-3)	1
<i>Eucalyptus botryoides</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus consideniiana</i>	3(3-3)	1	1(1-2)	2
<i>Eucalyptus cypellocarpa</i>	3(1-3)	10	2(1-2)	10
<i>Eucalyptus elata</i>	2(1-3)	8	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus notabilis</i>	1(1-1)	2	1(1-2)	1
<i>Eucalyptus pilularis</i>	1(1-2)	4	2(1-3)	5
<i>Eucalyptus punctata</i>	3(1-3)	12	2(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(3-3)	1	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus tereticornis</i>	1(1-1)	1	2(1-3)	7
<i>Eucalyptus umbra</i>	2(1-2)	4	1(1-2)	<1



Locations of survey sites allocated to WSF p102. Grey shading indicates extant native vegetation cover within the study area.

WSF p103: Clyde Gully Wet Forest



Plate p103. Clyde Gully Wet Forest (Map Unit p103) at Benandarah north of Batemans Bay. *Corymbia maculata* dominates the tall canopy, with a sub canopy of *Synoum glandulosum*, *Acmena smithii*, *Acacia mabellae*, weighed down with dense shrouds of *Cissus hypoglauca*. Groundcover is dominated by ferns including *Calochlaena dubia*, *Blechnum cartilagineum* and *Doodia aspera*.

Sample Sites: 31
 Area Extant (ha): 17900
 Estimated % remaining: >90%
 Area in conservation reserves (ha): 6600
 Estimated % of pre-clearing area in conservation reserves: 25-40%
 No. taxa (total / unique): 253 / 0

No. taxa per plot (\pm sd): 37 (11.9)
 Class: Southern Lowland Wet Sclerophyll Forests
 Related TEC: n/a

Clyde Gully Wet Forest (WSF p103) represents a revision of WSF 103 identified by Tindall *et al.* (2004), including a contraction in the range of this unit. A number of sites originally allocated to WSF 103 joined additional sites to the south to form a new unit WSF n183 (South Coast Hinterland Wet Forest), and as a result the revised WSF p103 has a reduced range.

WSF p103 is a mixed forest of eucalypts and rainforest trees with mesophyll shrubs, vines and ferns. It is found predominantly below 200m ASL on sandy loams in moist sheltered gullies and slopes on the low coastal ranges east of the Clyde River between Ulladulla and Benandarah, where mean annual rainfall is between 1000 and 1300mm. A few outliers are recorded from the Yadboro and Endrick areas.

Further to the west and south this unit is replaced by the slightly drier, cooler WSF n183 (South Coast Hinterland Wet Forest). A related unit, Lower Blue Mountains Wet Forest (WSF p102), shares several species with Clyde Gully Wet Forest and occupies similar topographic positions within the same rainfall range further north.

Large stands of Clyde Gully Wet Forest occur in state forests and conservation reserves.

Floristic Summary:

Trees: *Acacia mabelliae*, *Livistona australis*, *Acmena smithii*, *Eucalyptus piperita*. **Shrubs:** *Elaeocarpus reticulatus*, *Callicoma serratifolia*, *Cyathea australis*, *Synoum glandulosum*, *Tristaniopsis collina*. **Climbers:** *Cissus hypoglauca*, *Smilax australis*, *Hibbertia dentata*, *Pandorea pandorana*, *Eustrephus latifolius*, *Tylophora barbata*. **Groundcover:** *Blechnum cartilagineum*, *Calochlaena dubia*, *Lomandra longifolia*, *Pteridium esculentum*, *Dianella caerulea*, *Schelhammera undulata*, *Oplismenus imbecillis*.

Vegetation structure:

Stratum	Frequency (n=25)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	8	32.5 (3.5)	4.5 (0.7)
Tree canopy	96	33.9 (13.3)	33.3 (14.2)
Small tree	92	14.5 (6.7)	50 (22)
Shrub	28	2.3 (0.8)	24.3 (20.3)
Ground cover	92	1.1 (0.4)	36.3 (22.8)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 15 positive diagnostic species (95% confidence interval) provided that 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
<i>Acacia mabelliae</i>	1(1-2)	55	1(1-2)	1
<i>Acmena smithii</i>	1(1-1)	61	2(1-3)	9
<i>Backhousia myrtifolia</i>	3(2-3)	29	2(1-3)	5
<i>Blechnum cartilagineum</i>	2(1-3)	87	1(1-2)	11
<i>Callicoma serratifolia</i>	2(1-3)	71	1(1-2)	3
<i>Calochlaena dubia</i>	1(1-2)	90	1(1-3)	9
<i>Cissus hypoglauca</i>	1(1-2)	87	1(1-2)	9
<i>Clematis aristata</i>	1(1-1)	45	1(1-1)	20
<i>Clerodendrum tomentosum</i>	1(1-1)	23	1(1-1)	5
<i>Corymbia maculata</i>	2(1-3)	39	2(1-3)	3
<i>Cyathea australis</i>	1(1-1)	55	1(1-2)	8
<i>Doodia aspera</i>	1(1-1)	45	1(1-2)	11
<i>Elaeocarpus reticulatus</i>	1(1-2)	97	1(1-1)	12
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-2)	23	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(1-3)	26	2(1-3)	5
<i>Eucalyptus piperita</i>	2(1-2)	39	2(1-3)	9

<i>Eupomatia laurina</i>	1(1-1)	26	1(1-2)	4
<i>Eustrephus latifolius</i>	1(1-1)	61	1(1-1)	19
<i>Gahnia melanocarpa</i>	1(1-1)	32	1(1-1)	5
<i>Geitonoplesium cymosum</i>	1(1-1)	42	1(1-1)	16
<i>Hibbertia dentata</i>	1(1-1)	65	1(1-1)	6
<i>Hibbertia scandens</i>	1(1-1)	23	1(1-1)	5
<i>Lepidosperma urophorum</i>	1(1-2)	35	1(1-2)	7
<i>Livistona australis</i>	1(1-1)	71	1(1-1)	6
<i>Marsdenia rostrata</i>	1(1-1)	42	1(1-2)	12
<i>Morinda jasminoides</i>	1(1-1)	61	1(1-2)	9
<i>Notelaea longifolia forma longifolia</i>	1(1-1)	29	1(1-1)	8
<i>Notelaea venosa</i>	1(1-1)	35	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-1)	48	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	55	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	26	1(1-1)	7
<i>Pittosporum revolutum</i>	1(1-1)	26	1(1-1)	8
<i>Pseuderanthemum variabile</i>	1(1-1)	39	1(1-2)	9
<i>Psychotria loniceroides</i>	1(1-1)	52	1(1-1)	3
<i>Rhodamnia rubescens</i>	1(1-2)	26	1(1-1)	1
<i>Schelhammera undulata</i>	1(1-1)	52	1(1-1)	7
<i>Smilax australis</i>	1(1-1)	65	1(1-1)	16
<i>Smilax glycyphylla</i>	1(1-1)	55	1(1-1)	8
<i>Sticherus flabellatus var. flabellatus</i>	1(1-2)	23	1(1-2)	1
<i>Syncarpia glomulifera subsp. glomulifera</i>	2(1-2)	35	2(1-3)	7
<i>Synoum glandulosum subsp. glandulosum</i>	1(1-1)	68	1(1-2)	7
<i>Tristaniopsis collina</i>	1(1-3)	42	1(1-2)	2
<i>Tylophora barbata</i>	1(1-1)	48	1(1-1)	17

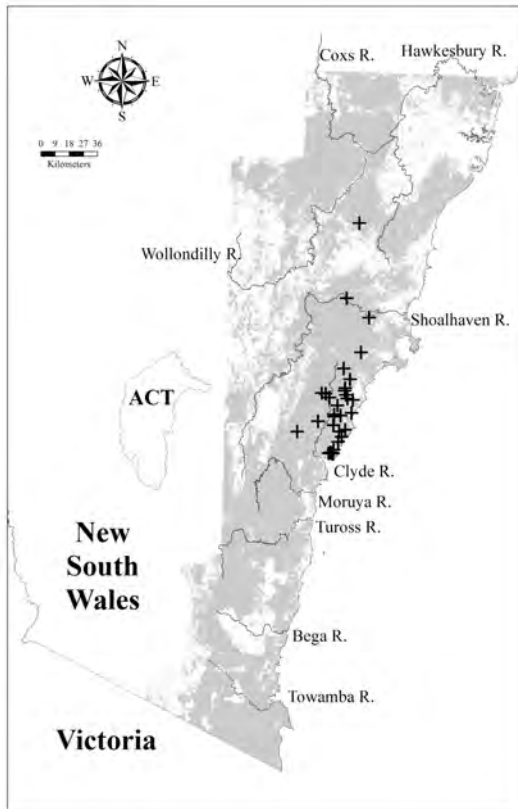
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Dianella caerulea</i>	1(1-1)	48	1(1-1)	28
<i>Entolasia stricta</i>	1(1-1)	35	1(1-2)	34
<i>Leucopogon lanceolatus var. lanceolatus</i>	1(1-1)	32	1(1-1)	24
<i>Lomandra longifolia</i>	1(1-1)	61	1(1-1)	44
<i>Persoonia linearis</i>	1(1-1)	35	1(1-1)	29
<i>Pteridium esculentum</i>	1(1-1)	42	1(1-2)	37

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	2(1-2)	10	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-2)	29	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-1)	3	2(1-3)	7
<i>Eucalyptus botryoides</i>	1(1-3)	16	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	3(3-3)	3	2(1-2)	10
<i>Eucalyptus elata</i>	2(2-2)	3	2(1-3)	5
<i>Eucalyptus globoidea</i>	1(1-2)	19	2(1-2)	12
<i>Eucalyptus longifolia</i>	1(1-1)	3	1(1-2)	2

<i>Eucalyptus muelleriana</i>	2(2-2)	3	2(1-2)	6
<i>Eucalyptus quadrangulata</i>	1(1-1)	3	3(1-3)	1
<i>Eucalyptus saligna X botryoides</i>	1(1-1)	19	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	2(2-2)	19	1(1-2)	1
<i>Eucalyptus sclerophylla</i>	1(1-1)	3	2(1-3)	4



Locations of survey sites allocated to WSF p103. Grey shading indicates extant native vegetation cover within the study area.

WSF p104: Southern Lowland Wet Forest

Plate p104. Southern Lowland Wet Forest (Map Unit p104) beside Mill Fire Break Road in Boyne State Forest between Benandarah and East Lynne. The canopy is dominated by *Corymbia maculata* and *C. gummifera*, with a sub canopy of *Allocasuarina littoralis*, a sparse shrub layer including *Persoonia linearis*, *Acacia mabellae*, and groundcover dominated by *Lomandra longifolia* and *Lepidosperma urophorum* with occasional *Macrozamia communis*.

Sample Sites: 88
 Area Extant (ha): 25900
 Estimated % remaining: >85%
 Area in conservation reserves (ha): 9200
 Estimated % of pre-clearing area in conservation reserves: 25-45%
 No. taxa (total / unique): 365 / 1
 No. taxa per plot (\pm sd): 41.8 (10.1)
 Class: Southern Lowland Wet Sclerophyll Forests
 Related TEC: n/a

Southern Lowland Wet Forest (WSF p104) is equivalent to WSF 104 identified by Tindall *et al.* (2004). This unit is a rather dense eucalypt forest with an understorey of shrubs and grasses, and is distributed from Conjola to Batemans Bay, predominantly east of the Clyde River, with northern outliers at Tapitallee and Colymea. Within this distribution Southern Lowland Wet Forest occurs below 250m ASL on open hillslopes and gullies with loamy soils where mean annual rainfall ranges from 1000 to 1300mm. On more sheltered slopes, Southern Lowland Wet Forest grades into Clyde Gully Wet Forest (WSF p103), which generally occupies sheltered gullies of more elevated terrain to the west. Most of the original distribution of Southern Lowland Wet Forest is included within state forests and conservation reserves.

Floristic Summary:

Trees: *Corymbia maculata*, *Eucalyptus pilularis*, *E. paniculata*. **Shrubs:** *Elaeocarpus reticulatus*, *Persoonia linearis*, *Leucopogon lanceolatus*, *Macrozamia communis*, *Breynia oblongifolia*, *Notelaea longifolia*, *Hibbertia aspera*, *Synoum glandulosum*. **Climbers:** *Cissus hypoglauca*, *Eustrephus latifolius*, *Tylophora barbata*, *Pandorea pandorana*. **Groundcover:** *Dianella caerulea*, *Entolasia stricta*, *Lomandra longifolia*, *Pteridium esculentum*, *Schelhammera undulata*, *Lepidosperma urophorum*.

Vegetation structure:

Stratum	Frequency (n=79)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	3	45 (-)	5 (-)
Tree canopy	99	28.7 (7)	35.3 (14.7)
Small tree	91	11.2 (5.1)	25.2 (18.2)
Shrub	48	2.3 (0.6)	21.6 (17.6)
Ground cover	96	1 (0.3)	36.4 (23.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 22 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 34 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 22 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia irrorata</i> subsp. <i>irrorata</i>	1(1-2)	24	1(1-1)	2
<i>Acacia longifolia</i>	1(1-1)	23	1(1-2)	9
<i>Acacia longissima</i>	1(1-2)	9	1(1-1)	1
<i>Acacia mabelliae</i>	2(1-2)	43	1(1-2)	1
<i>Acacia obtusifolia</i>	1(1-1)	22	1(1-2)	9
<i>Allocasuarina littoralis</i>	1(1-3)	31	1(1-2)	17
<i>Astrotricha latifolia</i>	1(1-2)	8	1(1-1)	2
<i>Babingtonia pluriflora</i>	1(1-2)	11	1(1-1)	1
<i>Billardiera scandens</i>	1(1-1)	43	1(1-1)	27
<i>Blechnum cartilagineum</i>	1(1-2)	45	1(1-2)	11
<i>Breynia oblongifolia</i>	1(1-1)	60	1(1-1)	12
<i>Brunoniella pumilio</i>	1(1-1)	25	1(1-1)	4
<i>Calochlaena dubia</i>	1(1-2)	38	1(1-3)	9
<i>Cissus hypoglauca</i>	1(1-2)	78	1(1-2)	9
<i>Clematis aristata</i>	1(1-1)	44	1(1-1)	20
<i>Corymbia gummifera</i>	1(1-2)	38	2(1-2)	15
<i>Corymbia maculata</i>	2(1-3)	78	2(1-3)	2
<i>Cryptostylis erecta</i>	1(1-1)	6	1(1-1)	1
<i>Cymbidium suave</i>	1(1-1)	20	1(1-1)	2
<i>Desmodium varians</i>	1(1-1)	39	1(1-1)	21
<i>Deyeuxia nudiflora</i>	1(1-1)	6	1(1-1)	<1
<i>Dianella caerulea</i>	1(1-1)	86	1(1-1)	28
<i>Dodonaea triquetra</i>	1(1-2)	18	1(1-2)	6
<i>Doodia aspera</i>	1(1-1)	33	1(1-2)	11
<i>Elaeocarpus reticulatus</i>	1(1-1)	84	1(1-1)	11
<i>Entolasia stricta</i>	1(1-1)	84	1(1-2)	33
<i>Eucalyptus globoidea</i>	1(1-2)	34	2(1-2)	12
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-2)	45	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(1-2)	59	2(1-3)	4
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-2)	11	2(1-3)	2
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-3)	6	1(1-2)	1
<i>Eustrephus latifolius</i>	1(1-1)	65	1(1-1)	19
<i>Gahnia clarkei</i>	1(1-1)	10	1(1-2)	2
<i>Gahnia melanocarpa</i>	1(1-1)	41	1(1-1)	5
<i>Geitonoplesium cymosum</i>	1(1-1)	49	1(1-1)	16
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-2)	9	1(1-1)	2
<i>Gonocarpus teucroides</i>	1(1-1)	32	1(1-1)	17
<i>Hardenbergia violacea</i>	1(1-1)	33	1(1-1)	17
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	58	1(1-1)	10
<i>Hibbertia dentata</i>	1(1-1)	40	1(1-1)	6

<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	23	1(1-1)	6
<i>Hibbertia scandens</i>	1(1-1)	31	1(1-1)	4
<i>Howittia trilocularis</i>	1(1-2)	7	1(1-1)	1
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-1)	49	1(1-2)	9
<i>Lepidosperma laterale</i>	1(1-1)	47	1(1-1)	28
<i>Lepidosperma urophorum</i>	2(1-3)	64	1(1-1)	6
<i>Leptospermum polygalifolium</i>	1(1-1)	22	1(1-2)	8
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	78	1(1-1)	23
<i>Livistona australis</i>	1(1-1)	25	1(1-1)	6
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-2)	15	1(1-1)	4
<i>Lomandra confertifolia</i> subsp. <i>similis</i>	1(1-2)	10	1(1-1)	2
<i>Lomandra longifolia</i>	1(1-1)	75	1(1-1)	43
<i>Macrozamia communis</i>	1(1-2)	66	1(1-2)	4
<i>Marsdenia suaveolens</i>	1(1-1)	16	1(1-1)	2
<i>Morinda jasminoides</i>	1(1-1)	33	1(1-2)	9
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	59	1(1-1)	7
<i>Notelaea venosa</i>	1(1-1)	34	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-1)	36	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	50	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	41	1(1-1)	6
<i>Persoonia linearis</i>	1(1-1)	80	1(1-1)	28
<i>Pittosporum revolutum</i>	1(1-1)	32	1(1-1)	8
<i>Platylobium formosum</i>	1(1-1)	9	1(1-1)	3
<i>Pseuderanthemum variabile</i>	1(1-1)	33	1(1-2)	9
<i>Psychotria loniceroides</i>	1(1-1)	34	1(1-1)	3
<i>Pteridium esculentum</i>	1(1-2)	75	1(1-2)	37
<i>Pultenaea villosa</i>	1(1-1)	10	1(1-2)	1
<i>Rapanea howittiana</i>	1(1-1)	14	1(1-1)	5
<i>Santalum obtusifolium</i>	1(1-1)	9	1(1-1)	1
<i>Schelhammera undulata</i>	1(1-1)	70	1(1-1)	7
<i>Smilax australis</i>	1(1-1)	41	1(1-1)	16
<i>Smilax glycyphylla</i>	1(1-1)	42	1(1-1)	8
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-2)	20	2(1-3)	7
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-1)	50	1(1-2)	6
<i>Tristaniopsis collina</i>	1(1-2)	11	1(1-2)	2
<i>Tylophora barbata</i>	1(1-1)	57	1(1-1)	16
<i>Viola hederacea</i>	1(1-1)	39	1(1-1)	22
<i>Zieria smithii</i>	1(1-1)	10	1(1-1)	2

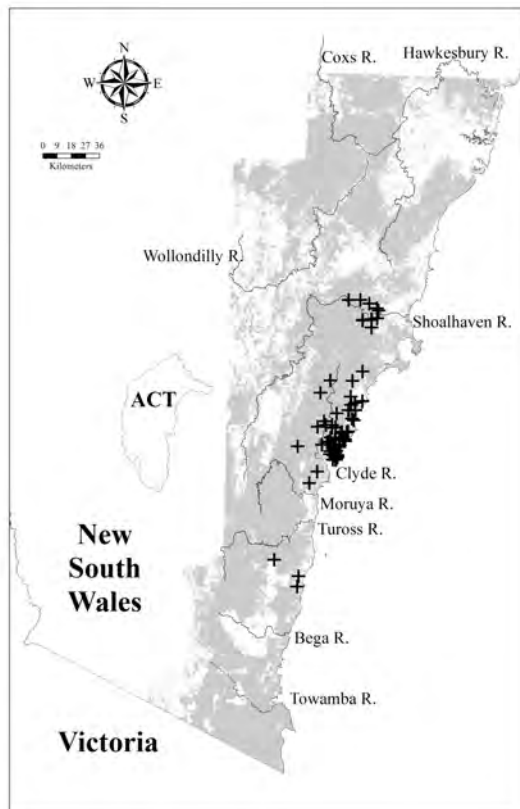
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Glycine clandestina</i>	1(1-1)	40	1(1-1)	26

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-2)	13	1(1-2)	9
<i>Eucalyptus agglomerata</i>	2(1-2)	5	2(1-3)	7

<i>Eucalyptus bosistoana</i>	1(1-1)	1	1(1-2)	3
<i>Eucalyptus botryoides</i>	1(1-2)	9	2(1-3)	3
<i>Eucalyptus consideniana</i>	2(1-2)	2	2(1-2)	2
<i>Eucalyptus cypellocarpa</i>	1(1-3)	3	2(1-2)	10
<i>Eucalyptus eugenioides</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	6	2(1-3)	3
<i>Eucalyptus longifolia</i>	3(1-3)	2	1(1-2)	2
<i>Eucalyptus macrorhyncha</i>	2(2-2)	1	2(1-3)	3
<i>Eucalyptus muelleriana</i>	1(1-2)	8	2(1-2)	6
<i>Eucalyptus piperita</i>	2(1-3)	17	2(1-3)	9
<i>Eucalyptus sieberi</i>	1(1-3)	6	2(1-3)	16



Locations of survey sites allocated to WSF p104. Grey shading indicates extant native vegetation cover within the study area.

FoW p105: Floodplain Swamp Forest

Plate p105. Floodplain Swamp Forest (Map Unit p105) at Rocklow Creek, Dunmore. The canopy is dominated by *Casuarina glauca*, frequently supporting the woody climber *Parsonsia straminea*. Dense grassy groundcover is dominated by *Microlaena stipoides* interspersed with tussocks of *Lomandra longifolia* and *Commelina cyanea*.

Sample Sites: 29

Area Extant (ha): 2400

Estimated % remaining: 5-20%

Area in conservation reserves (ha): 480

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

No. taxa (total / unique): 160 / 2

No. taxa per plot (\pm sd): 17.6 (7.1)

Class: Coastal Floodplain Wetlands

Related TECs: includes areas of Swamp Oak Forest on Coastal Floodplains EEC and River Flat Eucalypt Forest on Coastal Floodplains EEC (TSC).

Floodplain Swamp Forest (FoW p105) represents a revision and extension of FoW 105 identified by Tindall *et al.* (2004), based on additional samples over a larger study area. It includes unit 63 (Estuarine Wetland Scrub) of Keith & Bedward (1999) and some recent sites classified by Beukers (undated) as Coastal She-Oak Swamp Forest and as Estuarine Tea Tree Scrub. This unit is a low, rather dense forest characterised by a non-eucalypt tree canopy, an open shrub layer and a semi-continuous groundcover dominated by taxa tolerant of brackish groundwater. This Map Unit is scattered throughout the coast and is likely to extend further to the north and south of the study area. Floodplain Swamp Forest is found on the floodplains of the Towamba, Bega, Bermagui, Clyde, Shoalhaven, Georges and Hawkesbury Rivers, and smaller alluvial plains adjacent to coastal lakes, lagoons and inlets such as Wallaga Lake, Lake Conjola, St Georges Basin and Lake Illawarra. Though typically coastal, this forest may occur some distance inland along floodplains of larger river estuaries in brackish drainage lines and depressions below 10m ASL. Floodplain Swamp Forest is closely related to, and grades into Estuarine Fringe Forest (FoW p106) below 5m ASL with increasing groundwater salinity.

The distribution of Floodplain Swamp Forest has been greatly reduced by coastal development and remaining stands are threatened by further clearing, fragmentation, weed invasion and grazing.

Floristic Summary:

Trees: *Casuarina glauca*. **Climbers:** *Parsonsia straminea*. **Groundcover:** *Commelina cyanea*, *Phragmites australis*, *Alternanthera denticulata*, *Carex appressa*, *Centella asiatica*, *Cynodon dactylon*, *Juncus kraussii*.

Vegetation structure:

Stratum	Frequency (n=16)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	15.6 (4.5)	41.6 (14.5)
Small tree	25	11 (2.6)	35 (10)
Shrub	50	2 (1)	26.9 (20.5)
Ground cover	100	0.8 (0.4)	45.8 (33)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 3 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 12 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 3 positive diagnostic species.

Positive Diagnostic Species:

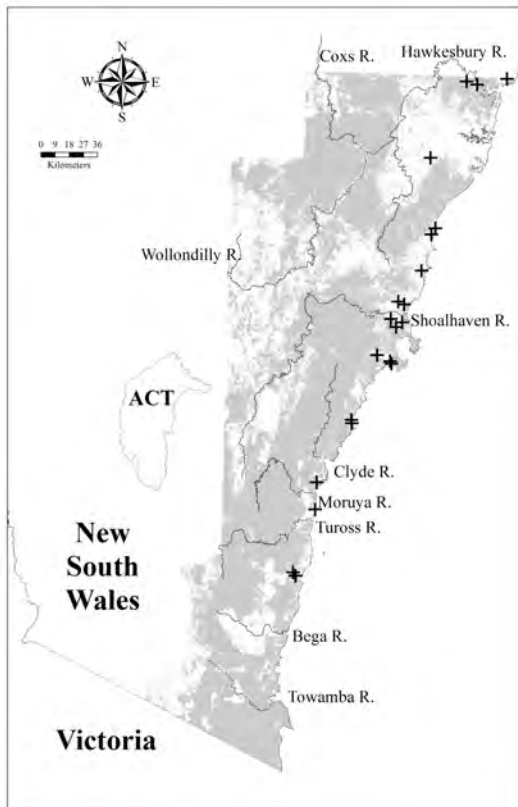
Species	C/A	Freq	C/A O	Freq O
<i>Alternanthera denticulata</i>	1(1-1)	41	1(1-1)	<1
<i>Carex appressa</i>	1(1-2)	48	1(1-1)	4
<i>Casuarina glauca</i>	3(3-4)	79	1(1-3)	1
<i>Centella asiatica</i>	1(1-1)	38	1(1-1)	4
<i>Commelina cyanea</i>	1(1-1)	55	1(1-1)	4
<i>Cynodon dactylon</i>	1(1-2)	31	1(1-2)	1
<i>Entolasia marginata</i>	1(1-1)	38	1(1-1)	11
<i>Gahnia clarkei</i>	2(1-3)	24	1(1-2)	2
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	1(1-1)	24	2(1-3)	1
<i>Juncus usitatus</i>	1(1-1)	21	1(1-1)	2
<i>Lobelia anceps</i>	1(1-1)	28	1(1-1)	1
<i>Melaleuca ericifolia</i>	2(1-3)	28	2(1-4)	1
<i>Oplismenus imbecillis</i>	1(1-1)	38	1(1-2)	14
<i>Parsonsia straminea</i>	1(1-2)	86	1(1-1)	6
<i>Phragmites australis</i>	1(1-2)	41	1(1-2)	1
<i>Rumex brownii</i>	1(1-1)	21	1(1-1)	5
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	31	1(1-1)	7

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Microlaena stipoides</i>	1(1-2)	45	1(1-2)	36
<i>Viola hederacea</i>	1(1-1)	34	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	3(3-3)	3	2(1-3)	1
<i>Eucalyptus bosistoana</i>	1(1-1)	7	1(1-2)	3
<i>Eucalyptus botryoides</i>	3(1-3)	14	2(1-3)	3
<i>Eucalyptus robusta</i>	2(1-3)	10	3(1-3)	<1
<i>Eucalyptus tereticornis</i>	1(1-1)	3	2(1-3)	7



Locations of survey sites allocated to FoW p105. Grey shading indicates extant native vegetation cover within the study area.

FoW p106: Estuarine Fringe Forest



Plate p106. Estuarine Fringe Forest (Map Unit 106) beside Captain Cook Drive at Towra Point, with a dense canopy of *Casuarina glauca* above a continuous groundcover of *Juncus kraussii* subsp. *australiensis*.

Sample Sites: 33
 Area Extant (ha): 840
 Estimated % remaining: 5-20%
 Area in conservation reserves (ha): 140
 Estimated % of pre-clearing area in conservation reserves: <5%
 No. taxa (total / unique): 58 / 0
 No. taxa per plot (\pm sd): 5.7 (4.5)
 Class: Coastal Floodplain Wetlands

Related TEC: included within the Swamp Oak Forest on Coastal Floodplains EEC (TSC).

Estuarine Fringe Forest (FoW p106) represents a revision and extension of FoW 106 identified by Tindall *et al.* (2004), based on additional samples over a larger study area. It includes some recent sites classified by Beukers (undated) as Estuarine Tea Tree Scrub. This unit is a low forest characterised by a rather dense non-eucalypt tree canopy, an open shrub stratum and a continuous groundcover tolerant of saline groundwater. This unit is restricted to sandy saline sediments fringing the high tide mark on the margins of tidal lakes, lagoons, inlets and river estuaries at elevations less than 5m ASL. It occurs in estuaries and tidal lakes along the length of the study area coastline, including the Hawkesbury, Georges, Hacking, Shoalhaven, Clyde, Moruya, Bermagui, Bega and Pambula rivers, and near the tidal mouths of St Georges Basin and Lake Illawarra. It is likely to also extend north and south of the study area. Estuarine Fringe Forest shares several species with Floodplain Swamp Forest (FoW p105), but occupies increasingly saline environments, indicated by its increased dominance of halophytic taxa.

Estuarine Fringe Forest has been greatly reduced by coastal development. It continues to be threatened by landfill and further clearing, weed invasion and recreational pressures.

Floristic Summary:

Trees: *Casuarina glauca*. **Shrubs:** *Myoporum australis*. **Groundcover:** *Juncus kraussii ssp australiensis*, *Samolus repens*, *Sarcocornia quinqueflora*, *Suaeda australis*, *Baumea juncea*, *Cynodon dactylon*.

Vegetation structure:

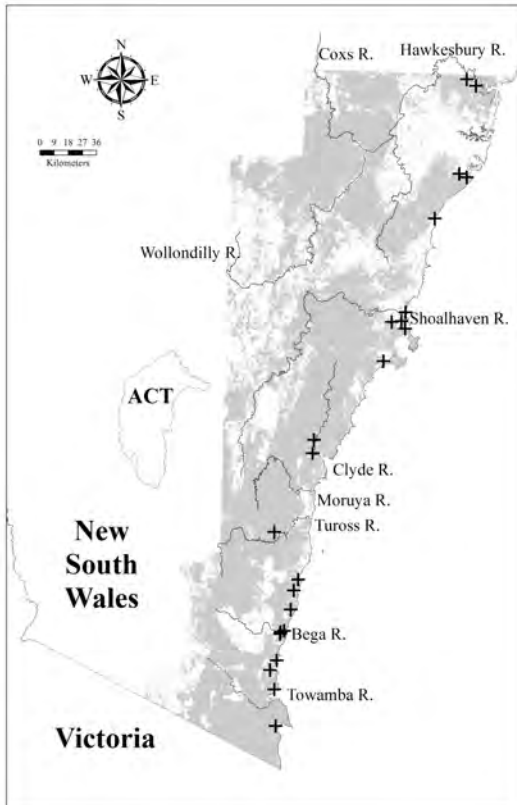
Stratum	Frequency (n=11)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	73	9.8 (7.9)	43.8 (29.1)
Small tree	18	7 (4.2)	25 (21.2)
Shrub	18	2.5 (0.7)	22 (25.5)
Ground cover	91	1 (0.4)	65.5 (21)

Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 1 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 2 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 1 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Baumea juncea</i>	2(1-2)	30	2(1-3)	1
<i>Casuarina glauca</i>	3(2-3)	42	2(1-3)	1
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	3(3-4)	100	1(1-2)	1
<i>Lobelia anceps</i>	1(1-1)	21	1(1-1)	1
<i>Myoporum acuminatum</i>	1(1-3)	21	1(1-2)	<1
<i>Phragmites australis</i>	2(2-4)	27	1(1-2)	1
<i>Samolus repens</i>	1(1-2)	61	1(1-2)	1
<i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i>	1(1-1)	36	2(1-4)	1



Locations of survey sites allocated to FoW p106. Grey shading indicates extant native vegetation cover within the study area.

FoW p107: Estuarine Creekflat Scrub



Plate p107. Estuarine Creek flat Scrub (Map Unit p107) at Brundee Swamp east of Nowra, where a dense thicket of *Melaleuca ericifolia* and *M. linariifolia* hides a sparse groundcover of sedges and salt-tolerant forbs.

Sample Sites: 35
 Area Extant (ha): 3700
 Estimated % remaining: 70-85%
 Area in conservation reserves (ha): 1200
 Estimated % of pre-clearing area in conservation reserves: 15-30%
 No. taxa (total / unique): 139 / 0
 No. taxa per plot (\pm sd): 10.5 (6.6)
 Class: Coastal Floodplain Wetlands

Related TEC: included within Swamp Oak Forest on Coastal Floodplains EEC (TSC).

Estuarine Creekflat Scrub (FoW p107) represents an extension of FoW 107 identified by Tindall *et al.* (2004), based on additional samples over a larger study area. It includes some recent sites classified by Beukers (undated) as Estuarine Tea Tree Scrub.

This unit is a dense scrub with a continuous groundcover of sedges and forbs, and is recorded from scattered localities along the entire study area coastline from Cockle Bay (Brisbane Water) in the north to Nadgee Lake in the south. Within this distribution Estuarine Creekflat Scrub is restricted to shores of estuarine lagoons and brackish lakes, wetlands and creek flats below 10m ASL. Other occurrences include Botany Bay, Lake Illawarra, Minnamurra estuary, Brundee Swamp and Comerong Island, Tabourie, Termiel, Meroo, Durras and Wallagoot lakes, and at Tathra and Merimbula, and at Pedro Swamp near Moruya. Estuarine Creekflat Scrub shares a number of species with Estuarine Fringe Forest (FoW p106) but is found at sites that are likely to have marginally lower soil salinity.

Estuarine Creekflat Scrub's naturally restricted distribution has been reduced by coastal development.

Floristic Summary:

Trees: *Melaleuca ericifolia*, *Casuarina glauca*. **Climbers:** *Parsonsia straminea*. **Groundcover:** *Baumea juncea*, *Lobelia alata*, *Baumea articulata*, *Leptinella longipes*, *Samolus repens*, *Selliera radicans*.

Vegetation structure:

Stratum	Frequency (n=10)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	10	12 (-)	5 (-)
Tree canopy	90	10.6 (7.1)	32 (26.6)
Small tree	50	8.2 (4)	44 (23.8)
Shrub	30	2.2 (0.8)	16.7 (5.8)
Ground cover	100	1.1 (0.2)	66 (27.9)

Diagnostic Species:

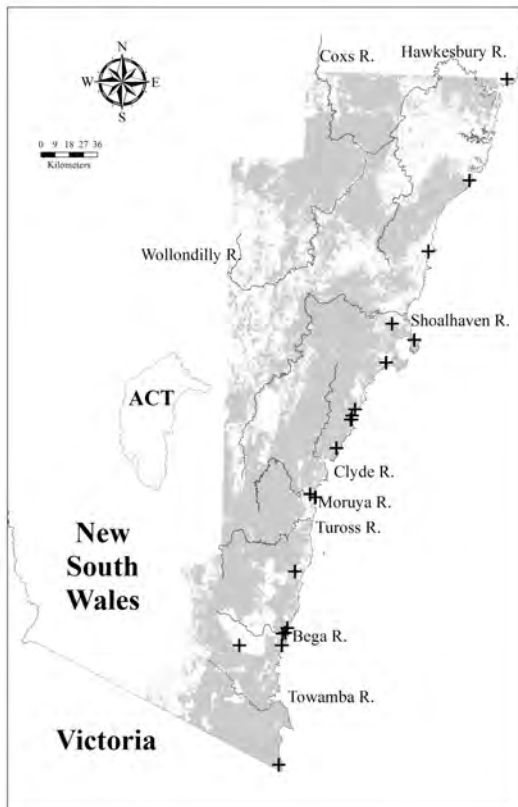
A 0.04ha plot located in this Map Unit is expected to contain at least 1 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 5 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit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

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Apium prostratum</i>	1(1-2)	31	1(1-1)	<1
<i>Baumea articulata</i>	1(1-2)	20	1(1-2)	<1
<i>Baumea juncea</i>	3(2-4)	69	1(1-2)	<1
<i>Casuarina glauca</i>	1(1-2)	40	2(1-3)	1
<i>Gahnia sieberiana</i>	1(1-1)	20	1(1-1)	5
<i>Isolepis nodosa</i>	1(1-1)	26	1(1-1)	1
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	1(1-1)	26	2(1-3)	1
<i>Lobelia anceps</i>	1(1-1)	37	1(1-1)	1
<i>Melaleuca ericifolia</i>	4(3-5)	71	2(1-3)	1
<i>Parsonsia straminea</i>	1(1-1)	31	1(1-1)	7
<i>Phragmites australis</i>	2(1-2)	31	1(1-2)	1
<i>Samolus repens</i>	1(1-2)	34	1(1-2)	1
<i>Selliera radicans</i>	1(1-2)	29	1(1-2)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus bosistoana</i>	1(1-1)	6	1(1-2)	3
<i>Eucalyptus botryoides</i>	2(1-4)	11	2(1-3)	3
<i>Eucalyptus tereticornis</i>	3(3-3)	3	2(1-3)	7



Locations of survey sites allocated to FoW p107. Grey shading indicates extant native vegetation cover within the study area.

SL p109: Estuarine Mangrove Forest



Plate p109. Estuarine Mangrove Forest (Map Unit p109), with *Avicennia marina* subsp. *australasica* on tidal mud flats at Narooma.

Sample Sites: 44
 Area Extant (ha): 3700
 Estimated % remaining: 50-75%
 Area in conservation reserves (ha): 740
 Estimated % of pre-clearing area in conservation reserves: <15%
 No. taxa (total / unique): 47 / 0
 No. taxa per plot (\pm sd): 4.3 (5.4)
 Class: Mangrove Forests

Related TEC: Protected Marine Vegetation under the *Fisheries Management Act 1994*.

Estuarine Mangrove Forest (SL p109) represents the merging of SL 109 of Tindall *et al.* (2004) with unit 66 (Estuarine Wetland - Grey Mangrove) of Keith & Bedward (1999), and some recent sites classified by Beukers (undated) as Mangrove Forest.

This map unit is a low forest characterised by a dense tree/scrub canopy over bare mud or a patchy herbaceous groundcover. It has a scattered coastal distribution extending the length of the study area and continuing to the north and south. Estuarine Mangrove Forest is restricted to mudflats exposed to daily tidal inundation. The largest occurrences are found in the estuaries of the Clyde and Shoalhaven Rivers and in Botany Bay, and smaller areas are dotted along the entire coastline in estuaries, sheltered bays and tidal lakes.

Estuarine Mangrove Forest shares some species with Estuarine Saltmarsh (SL p509), and these two units intergrade readily over short distances with small changes in elevation and soil salinity. Estuarine Mangrove Forest is readily distinguished from Estuarine Saltmarsh by its mangrove tree canopy.

Although relatively robust to disturbance, some mangrove areas have been lost to landfill and urban development., mostly in the Sydney-Illawarra region.

Floristic Summary:

Trees: *Avicennia marina* subsp. *australasica*, *Aegiceras corniculata*. **Groundcover:** *Sarcocornia quinqueflora*.

Vegetation structure:

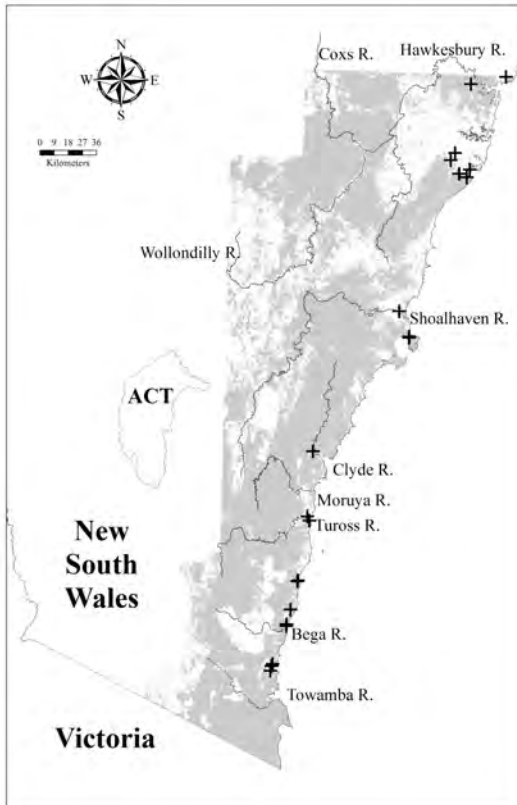
Stratum	Frequency (n=9)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	78	7 (4.6)	47.9 (27.2)
Small tree	-	- (-)	- (-)
Shrub	22	2 (1.4)	17.5 (3.5)
Ground cover	100	0.8 (0.6)	35.2 (29.7)

Diagnostic Species:

This unit is typically species-poor, therefore a 0.04ha sample plot may not contain any of the diagnostic species listed. In that case the characteristic mangrove tree or shrub canopy will usually be evident in adjacent areas and is distinctive enough that it is unlikely to be confused with other units.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Aegiceras corniculatum</i>	2(1-3)	55	2(2-2)	<1
<i>Avicennia marina</i> subsp. <i>australasica</i>	3(2-4)	89	2(1-2)	<1
<i>Samolus repens</i>	2(1-4)	45	1(1-2)	1
<i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i>	1(1-2)	66	3(2-4)	1
<i>Sclerostegia arbuscula</i>	3(3-4)	18	3(2-3)	<1



Locations of survey sites allocated to SL p109. Grey shading indicates extant native vegetation cover within the study area.

WSF p110: Warm Temperate Layered Forest



Plate p110. Warm Temperate Layered Forest (Map Unit p110) at Knights Hill on the Budderoo Plateau, showing a very tall canopy dominated by *Eucalyptus fastigata* and *E. smithii*, a dense sub canopy of *Acmena smithii*, *Doryphora sassafras* and emergent *Cyathea australis*. Vines including *Eustrephus latifolius*, *Smilax australis*, *Pandorea pandorana* and *Stephania japonica* are prolific. The sparse groundcover is dominated by small ferns and herbs such as *Doodia aspera*, *Pseuderanthemum variabile* and *Oplismenus imbecillis*.

Sample Sites: 103
 Area Extant (ha): 21500
 Estimated % remaining: 55-70%
 Area in conservation reserves (ha): 4500
 Estimated % of pre-clearing area in conservation reserves: 5-20%
 No. taxa (total / unique): 344 / 6
 No. taxa per plot (\pm sd): 41.3 (12.4)
 Class: North Coast Wet Sclerophyll Forests
 Related TEC: n/a

Warm Temperate Layered Forest (WSF p110) is equivalent to WSF 110 identified by Tindall *et al.* (2004). This unit is a tall eucalypt forest characterised by an open eucalypt canopy, a dense small tree subcanopy and a moist shrubby understorey. Warm Temperate Layered Forest occurs predominantly south from the Hacking River along the Illawarra scarp, to Nowra and throughout the Kangaroo Valley. Localised occurrences are also recorded from sites as far south as Durras Mountain and as far north as Ku-ring-gai Chase National Park. Within this area it is found below 400m on sheltered slopes in gullies and on escarpments with loamy soils where mean annual rainfall exceeds 1000mm. Warm Temperate Layered Forest frequently adjoins Subtropical and Warm Temperate rainforest map units, and contains several rainforest taxa below its eucalypt canopy.

About half of the original range of Warm Temperate Layered Forest has been cleared, mainly in the Illawarra lowlands, adjoining lower slopes of the escarpment and in the Kangaroo Valley.

Floristic Summary:

Trees: *Acmena smithii*, *Livistona australis*, *Synoum glandulosum*, *Pittosporum undulatum*, *Cryptocarya glaucescens*, *Eucalyptus saligna* X *botryoides*, *E. quadrangulata*. **Shrubs:** *Notelaea venosa*, *Clerodendrum tomentosum*, *Eupomatia laurina*. **Climbers:** *Eustrephus latifolius*, *Smilax australis*, *Pandorea pandorana*, *Geitonoplesium cymosum*, *Morinda jasminoides*, *Marsdenia rostrata*, *Tylophora barbata*, *Stephania japonica*. **Groundcover:** *Doodia aspera*, *Pseuderanthemum variabile*, *Oplismenus imbecillis*, *Gymnostachys anceps*, *Blechnum cartilagineum*.

Vegetation structure:

Stratum	Frequency (n=87)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	9	30.6 (9)	25 (13.2)
Tree canopy	100	29.7 (8.5)	40.9 (16.8)
Small tree	93	12.4 (5.1)	61.2 (26.4)
Shrub	14	2.4 (0.6)	30.8 (28.7)
Ground cover	97	1 (0.4)	29.4 (27.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 25 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 31 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 25 positive diagnostic species.

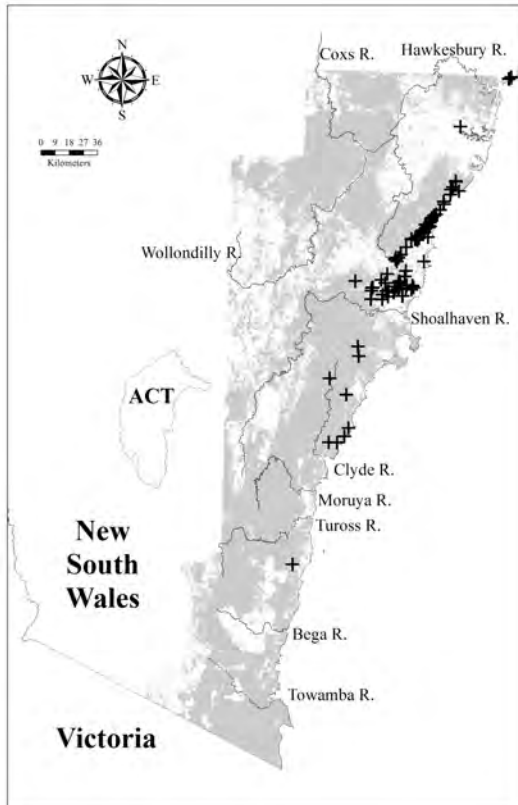
Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	2(1-3)	20	1(1-2)	2
<i>Acacia maidenii</i>	1(1-2)	28	1(1-1)	2
<i>Acmena smithii</i>	2(1-3)	81	2(1-3)	8
<i>Acronychia oblongifolia</i>	1(1-3)	15	1(1-3)	1
<i>Adiantum formosum</i>	2(1-3)	49	2(1-3)	2
<i>Adiantum hispidulum</i>	1(1-2)	13	1(1-1)	2
<i>Alectryon subcinereus</i>	1(1-1)	22	1(1-1)	2
<i>Alphitonia excelsa</i>	1(1-1)	16	1(1-2)	1
<i>Aneilema acuminatum</i>	1(1-1)	10	1(1-1)	<1
<i>Aneilema biflorum</i>	1(1-2)	5	1(1-1)	<1
<i>Aphanopetalum resinatum</i>	1(1-2)	15	2(1-3)	4
<i>Archontophoenix cunninghamiana</i>	1(1-1)	4	2(1-3)	<1
<i>Arthropteris tenella</i>	1(1-1)	12	2(1-2)	2
<i>Asplenium flabellifolium</i>	1(1-1)	33	1(1-1)	11

<i>Backhousia myrtifolia</i>	1(1-3)	23	2(1-3)	5
<i>Blechnum cartilagineum</i>	1(1-1)	50	1(1-2)	11
<i>Brachychiton acerifolius</i>	1(1-1)	15	1(1-1)	<1
<i>Breynia oblongifolia</i>	1(1-1)	42	1(1-1)	12
<i>Calochlaena dubia</i>	2(1-3)	44	1(1-3)	9
<i>Calystegia marginata</i>	1(1-1)	4	1(1-1)	<1
<i>Carex appressa</i>	1(1-1)	13	1(1-1)	4
<i>Carex brunnea</i>	2(1-3)	4	1(1-2)	<1
<i>Carex longebrachiata</i>	1(1-1)	14	1(1-2)	3
<i>Cassine australis</i> var. <i>australis</i>	1(1-2)	38	1(1-3)	2
<i>Cayratia clematidea</i>	1(1-1)	16	1(1-1)	2
<i>Ceratopetalum apetalum</i>	1(1-3)	17	3(1-3)	3
<i>Cinnamomum oliveri</i>	1(1-3)	4	1(1-4)	<1
<i>Cissus antarctica</i>	1(1-1)	33	1(1-2)	2
<i>Cissus hypoglauca</i>	1(1-1)	48	1(1-2)	9
<i>Claoxylon australe</i>	1(1-2)	36	1(1-2)	3
<i>Clerodendrum tomentosum</i>	1(1-1)	64	1(1-1)	4
<i>Commersonia fraseri</i>	1(1-1)	10	1(1-1)	1
<i>Coprosma quadrifida</i>	1(1-1)	22	1(1-1)	9
<i>Croton verreauxii</i>	2(1-3)	13	2(1-3)	1
<i>Cryptocarya glaucescens</i>	3(1-3)	51	2(1-2)	2
<i>Cryptocarya microneura</i>	2(1-3)	44	1(1-2)	1
<i>Cyathea australis</i>	1(1-2)	26	1(1-2)	8
<i>Cyperus imbecillis</i>	1(1-1)	4	1(1-1)	<1
<i>Cyperus tetraphyllus</i>	1(1-1)	9	1(1-1)	<1
<i>Davallia solida</i> var. <i>pyxidata</i>	1(1-1)	4	1(1-1)	<1
<i>Diospyros australis</i>	1(1-1)	44	1(1-2)	2
<i>Dioscorea transversa</i>	1(1-1)	11	1(1-1)	<1
<i>Diploglottis australis</i>	1(1-1)	25	1(1-1)	1
<i>Doodia aspera</i>	2(1-2)	72	1(1-2)	11
<i>Doryphora sassafras</i>	2(1-3)	42	3(2-3)	3
<i>Duboisia myoporoides</i>	1(1-1)	6	1(1-1)	<1
<i>Ehretia acuminata</i> var. <i>acuminata</i>	1(1-1)	11	1(1-1)	1
<i>Elaeocarpus kirtonii</i>	1(1-1)	4	1(1-3)	<1
<i>Eucalyptus acmenoides</i>	2(1-2)	7	2(1-3)	<1
<i>Eucalyptus pilularis</i>	3(2-3)	24	2(1-3)	5
<i>Eucalyptus quadrangulata</i>	3(2-3)	29	3(1-3)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(2-4)	45	2(1-3)	2
<i>Eucalyptus smithii</i>	3(1-4)	8	1(1-2)	2
<i>Eupomatia laurina</i>	1(1-2)	54	1(1-2)	3
<i>Eustrephus latifolius</i>	1(1-1)	88	1(1-1)	18
<i>Ficus coronata</i>	1(1-2)	28	1(1-2)	3
<i>Flagellaria indica</i>	1(1-2)	4	1(1-2)	<1
<i>Gahnia melanocarpa</i>	1(1-1)	15	1(1-1)	5
<i>Geitonoplesium cymosum</i>	1(1-1)	76	1(1-1)	15
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-3)	17	1(1-1)	2

<i>Glochidion ferdinandi</i> var. <i>pubens</i>	1(1-1)	4	1(1-2)	<1
<i>Guioa semiglauca</i>	1(1-3)	27	1(1-2)	1
<i>Gymnostachys anceps</i>	1(1-1)	56	1(1-2)	2
<i>Hedycarya angustifolia</i>	1(1-2)	12	1(1-3)	4
<i>Hibbertia dentata</i>	1(1-1)	17	1(1-1)	6
<i>Hibbertia scandens</i>	1(1-1)	22	1(1-1)	5
<i>Hypolepis muelleri</i>	1(1-1)	6	1(1-2)	1
<i>Lastreopsis decomposita</i>	2(1-2)	27	2(1-3)	3
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	1(1-3)	15	2(1-3)	4
<i>Litsea reticulata</i>	1(1-1)	6	1(1-3)	<1
<i>Livistona australis</i>	1(1-2)	79	1(1-1)	5
<i>Maclura cochinchinensis</i>	1(1-1)	8	1(1-2)	1
<i>Marsdenia flavescens</i>	1(1-1)	11	1(1-2)	2
<i>Marsdenia rostrata</i>	1(1-2)	65	1(1-2)	11
<i>Melicope micrococca</i>	1(1-2)	31	1(1-1)	1
<i>Melodinus australis</i>	1(1-1)	8	1(1-2)	<1
<i>Morinda jasminoides</i>	1(1-2)	74	1(1-2)	9
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	20	1(1-1)	7
<i>Notelaea venosa</i>	1(1-3)	65	1(1-1)	11
<i>Omalanthus populifolius</i>	1(1-1)	20	1(1-1)	1
<i>Oplismenus imbecillis</i>	1(1-2)	61	1(1-2)	14
<i>Oxalis chnoodes</i>	1(1-1)	10	1(1-1)	1
<i>Palmeria scandens</i>	1(1-2)	19	2(1-2)	2
<i>Pandorea pandorana</i>	1(1-1)	77	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	28	1(1-1)	6
<i>Pellaea falcata</i>	1(1-1)	45	1(1-1)	10
<i>Pennantia cunninghamii</i>	1(1-1)	7	1(1-3)	1
<i>Piper novae-hollandiae</i>	1(1-1)	6	2(1-3)	1
<i>Pittosporum multiflorum</i>	1(1-2)	46	1(1-2)	3
<i>Pittosporum revolutum</i>	1(1-1)	38	1(1-1)	8
<i>Pittosporum undulatum</i>	1(1-3)	64	1(1-1)	14
<i>Polystichum australiense</i>	1(1-2)	15	1(1-2)	1
<i>Polyscias murrayi</i>	1(1-1)	7	1(1-1)	1
<i>Pseuderanthemum variabile</i>	1(1-2)	63	1(1-2)	8
<i>Psychotria loniceroides</i>	1(1-1)	32	1(1-1)	3
<i>Pteris tremula</i>	1(1-2)	4	1(1-1)	1
<i>Pyrrosia rupestris</i>	1(1-1)	26	1(1-2)	6
<i>Rapanea howittiana</i>	1(1-1)	22	1(1-1)	5
<i>Rapanea variabilis</i>	1(1-1)	31	1(1-1)	3
<i>Rhodamnia rubescens</i>	1(1-1)	36	1(1-1)	1
<i>Ripogonum fawcettianum</i>	1(1-1)	8	1(1-1)	<1
<i>Rubus moluccanus</i> var. <i>trilobus</i>	1(1-1)	17	1(1-1)	2
<i>Rubus nebulosus</i>	1(1-1)	15	1(1-1)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	34	1(1-1)	4
<i>Schizomeria ovata</i>	1(1-3)	15	1(1-2)	1
<i>Scolopia braunii</i>	1(1-1)	4	1(1-1)	<1

<i>Smilax australis</i>	1(1-2)	86	1(1-1)	15
<i>Stenocarpus salignus</i>	1(1-2)	22	1(1-1)	1
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	50	1(1-1)	6
<i>Streblus brunonianus</i>	1(1-1)	12	2(1-3)	1
<i>Symplocos thwaitesii</i>	1(1-1)	8	1(1-1)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(1-3)	41	2(1-3)	7
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-2)	77	1(1-2)	6
<i>Tetrastigma nitens</i>	1(1-1)	6	1(1-1)	<1
<i>Toona ciliata</i>	1(1-3)	14	3(1-3)	1
<i>Tristaniopsis collina</i>	1(1-1)	11	1(1-2)	2
<i>Trochocarpa laurina</i>	1(1-2)	20	1(1-1)	<1
<i>Tylophora barbata</i>	1(1-1)	55	1(1-1)	16
<i>Wilkiea huegeliana</i>	1(1-1)	30	1(1-1)	1
<i>Zieria smithii</i>	1(1-1)	11	1(1-1)	2
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-1)	40	1(1-1)	44
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-1)	5	1(1-2)	9
<i>Corymbia maculata</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus botryoides</i>	3(1-3)	8	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	3(1-3)	2	2(1-2)	10
<i>Eucalyptus elata</i>	3(3-3)	2	2(1-2)	5
<i>Eucalyptus fastigata</i>	3(2-4)	8	2(1-3)	6
<i>Eucalyptus muelleriana</i>	3(3-4)	7	2(1-2)	6
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	2	1(1-2)	3
<i>Eucalyptus punctata</i>	2(1-2)	3	1(1-3)	9
<i>Eucalyptus siderophloia</i>	1(1-1)	1	3(2-3)	<1



Locations of survey sites allocated to WSF p110. Grey shading indicates extant native vegetation cover within the study area.

RF p111: Subtropical Dry Rainforest



Plate p111. Subtropical Dry Rainforest (Map Unit p111) at the end of Emperor's Crescent in Berkeley, with a highly modified, dense, low canopy of *Dendrocnide excelsa* and *Backhousia myrtifolia*. The sub canopy and groundcover contain a mix of species including *Pittosporum revolutum*, *Melicope micrococca*, *Adiantum formosum* and *Geitonoplesium cymosum*.

Sample Sites: 55
 Area Extant (ha): 2400
 Estimated % remaining: 10-20%
 Area in conservation reserves (ha): 130
 Estimated % of pre-clearing area in conservation reserves: <2%
 No. taxa (total / unique): 234 / 6

No. taxa per plot (\pm sd): 40.1 (8.5)

Class: Subtropical Rainforests

Related TECs: Illawarra Subtropical Rainforest EEC and Milton Ulladulla Subtropical Rainforest EEC (TSC).

Subtropical Dry Rainforest (RF p111) is equivalent to RF 111 identified by Tindall *et al.* (2004), and represents a low closed forest characterised by a dense tree canopy, a prominent small tree/shrub stratum and a sparse groundcover. This rainforest occurs on coastal lowlands between Mt Kiera and Nowra with a southern occurrence near Milton. Within this range it is largely restricted to dry slopes on fertile soils associated with Gerringong volcanics, Milton Monzonite or Cordeaux Crinanite at altitudes less than 350m ASL and with a mean annual rainfall of 1000-1600mm.

Subtropical Dry Rainforest is closely related to Subtropical Complex Rainforest (RF p112), both occurring on fertile soils in the Kiama and Milton areas, however Subtropical Dry Rainforest replaces Complex rainforest in sites experiencing lower moisture availability due to either rainfall, aspect, topographic position and soil depth or some combination of these factors.

The original distribution of Subtropical Dry Rainforest is now highly fragmented by land clearing. Remaining fragments tend to be degraded and continue to be threatened by weed invasion, grazing, fire and urban expansion.

Floristic Summary:

Trees: *Streblus brunonianus*, *Alectryon subcinereus*, *Pittosporum undulatum*, *Diospyros australis*. **Shrubs:** *Notelaea venosa*, *Cassine australis*, *Clerodendrum tomentosum*, *Pittosporum multiflorum*, *Breynia oblongifolia*, *Croton verreauxii*, *Rapanea variabilis*, *Maclura cochinchinensis*, *Pittosporum revolutum*. **Climbers:** *Geitonoplesium cymosum*, *Eustrephus latifolius*, *Pandorea pandorana*, *Parsonia straminea*, *Marsdenia rostrata*, *Smilax australis*. **Groundcover:** *Oplismenus imbecillis*, *Pellaea falcata*, *Pseuderanthemum variabile*, *Asplenium flabellifolium*, *Gymnostachys anceps*, *Doodia aspera*.

Vegetation structure:

Stratum	Frequency (n=51)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	14	23.4 (6.5)	15.8 (9.7)
Tree canopy	98	20.6 (7.2)	48 (23.8)
Small tree	82	11.2 (3.7)	68.7 (27.9)
Shrub	29	2.4 (0.7)	15.5 (14.1)
Ground cover	96	0.9 (0.3)	24.4 (19)

Diagnostic Species:

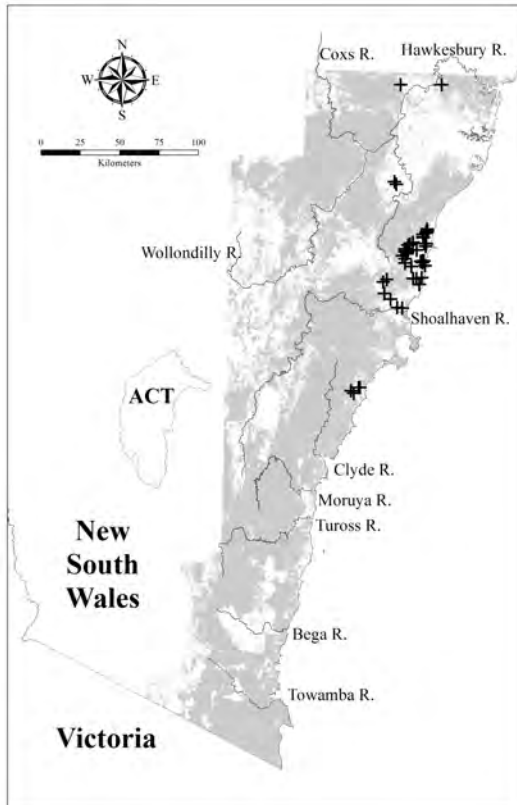
A 0.04ha plot located in this Map Unit is expected to contain at least 25 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 33 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 25 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Abutilon oxycarpum</i> var. <i>oxycarpum</i>	1(1-1)	20	1(1-1)	<1
<i>Acacia maidenii</i>	1(1-1)	40	1(1-1)	2
<i>Acmena smithii</i>	1(1-3)	35	2(1-3)	9
<i>Acronychia oblongifolia</i>	3(1-3)	20	1(1-2)	1
<i>Adiantum aethiopicum</i>	2(1-2)	29	1(1-1)	9
<i>Adiantum formosum</i>	2(1-3)	44	2(1-3)	3
<i>Adiantum hispidulum</i>	1(1-2)	18	1(1-1)	2
<i>Alectryon subcinereus</i>	1(1-2)	75	1(1-1)	2
<i>Alphitonia excelsa</i>	1(1-3)	42	1(1-1)	1
<i>Aneilema acuminatum</i>	1(1-1)	20	1(1-1)	<1
<i>Aphanopetalum resinosum</i>	1(1-2)	49	2(1-3)	4
<i>Arthropteris tenella</i>	1(1-2)	31	2(1-2)	2
<i>Asplenium australasicum</i> forma <i>australasicum</i>	1(1-1)	18	1(1-2)	2
<i>Asplenium flabellifolium</i>	1(1-2)	71	1(1-1)	11
<i>Backhousia myrtifolia</i>	3(3-4)	31	2(1-3)	5
<i>Baloghia inophylla</i>	3(3-3)	15	3(1-3)	1

<i>Breynia oblongifolia</i>	1(1-1)	65	1(1-1)	12
<i>Callistemon salignus</i>	1(1-3)	24	1(1-3)	<1
<i>Carex longebrachiata</i>	2(1-2)	40	1(1-2)	3
<i>Cassine australis</i> var. <i>australis</i>	3(2-3)	80	1(1-2)	2
<i>Cayratia clematidea</i>	1(1-1)	42	1(1-1)	2
<i>Celastrus australis</i>	1(1-2)	36	1(1-1)	2
<i>Cissus antarctica</i>	2(1-2)	24	1(1-1)	3
<i>Claoxylon australe</i>	1(1-1)	36	1(1-2)	3
<i>Clerodendrum tomentosum</i>	1(1-1)	71	1(1-1)	4
<i>Commelina cyanea</i>	1(1-1)	25	1(1-1)	4
<i>Croton verreauxii</i>	3(1-3)	53	1(1-3)	<1
<i>Cryptocarya microneura</i>	2(1-3)	29	1(1-2)	2
<i>Cynanchum elegans</i>	1(1-1)	18	2(1-2)	<1
<i>Cyperus laevis</i>	1(1-1)	13	1(1-1)	1
<i>Cyperus tetraphyllus</i>	1(1-1)	25	1(1-1)	<1
<i>Dendrocide excelsa</i>	2(1-3)	18	2(1-3)	1
<i>Diospyros australis</i>	1(1-3)	60	1(1-2)	3
<i>Doodia aspera</i>	2(1-3)	60	1(1-2)	11
<i>Ehretia acuminata</i> var. <i>acuminata</i>	1(1-3)	25	1(1-1)	1
<i>Eucalyptus quadrangulata</i>	3(2-4)	25	3(1-3)	1
<i>Eucalyptus tereticornis</i>	3(1-4)	27	2(1-3)	7
<i>Eustrephus latifolius</i>	1(1-1)	91	1(1-1)	19
<i>Ficus coronata</i>	2(1-3)	18	1(1-2)	4
<i>Geitonoplesium cymosum</i>	1(1-1)	93	1(1-1)	15
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-3)	13	1(1-1)	2
<i>Guioa semiglauca</i>	1(1-2)	47	1(1-2)	1
<i>Gymnostachys anceps</i>	1(1-2)	64	1(1-2)	3
<i>Hibiscus heterophyllus</i> subsp. <i>heterophyllus</i>	1(1-1)	24	1(1-1)	<1
<i>Hymenanthera dentata</i>	1(1-2)	33	1(1-1)	6
<i>Lastreopsis decomposita</i>	1(1-3)	16	2(1-3)	3
<i>Legnephora moorei</i>	1(1-1)	22	1(1-1)	<1
<i>Maclura cochinchinensis</i>	1(1-2)	49	1(1-1)	<1
<i>Marsdenia flavescens</i>	1(1-2)	35	1(1-1)	2
<i>Marsdenia rostrata</i>	1(1-1)	62	1(1-2)	12
<i>Melaleuca styphelioides</i>	3(3-4)	18	2(1-3)	1
<i>Melicope micrococca</i>	1(1-3)	36	1(1-1)	1
<i>Morinda jasminoides</i>	1(1-2)	40	1(1-2)	9
<i>Notelaea venosa</i>	3(1-3)	82	1(1-1)	11
<i>Oplismenus aemulus</i>	1(1-3)	16	1(1-2)	5
<i>Oplismenus imbecillis</i>	2(1-2)	78	1(1-2)	14
<i>Pandorea pandorana</i>	1(1-1)	87	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-2)	64	1(1-1)	6
<i>Pellaea falcata</i>	1(1-2)	75	1(1-1)	10
<i>Pittosporum multiflorum</i>	2(1-2)	69	1(1-2)	3
<i>Pittosporum revolutum</i>	1(1-1)	53	1(1-1)	8
<i>Pittosporum undulatum</i>	1(1-3)	64	1(1-1)	14

<i>Plectranthus parviflorus</i>	1(1-1)	33	1(1-1)	7
<i>Pouteria australis</i>	3(1-3)	38	2(1-3)	<1
<i>Pseuderanthemum variabile</i>	1(1-2)	75	1(1-2)	8
<i>Pyrrosia rupestris</i>	1(1-1)	24	1(1-2)	6
<i>Rapanea variabilis</i>	1(1-3)	53	1(1-1)	3
<i>Rhodamnia rubescens</i>	1(1-1)	20	1(1-1)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	20	1(1-1)	4
<i>Sarcomelicope simplicifolia</i> subsp. <i>simplicifolia</i>	1(1-3)	18	1(1-2)	<1
<i>Scolopia braunii</i>	1(1-3)	16	1(1-1)	<1
<i>Smilax australis</i>	1(1-2)	53	1(1-1)	16
<i>Stellaria flaccida</i>	1(1-2)	33	1(1-1)	10
<i>Stenocarpus salignus</i>	1(1-3)	15	1(1-1)	2
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	44	1(1-1)	6
<i>Streblus brunonianus</i>	3(1-3)	87	1(1-2)	1
<i>Toona ciliata</i>	2(1-3)	25	3(1-3)	1
<i>Trophis scandens</i> subsp. <i>scandens</i>	1(1-2)	27	1(1-2)	1
<i>Wilkiea huegeliana</i>	1(1-2)	35	1(1-1)	1
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	3(1-3)	5	1(1-2)	9
<i>Corymbia maculata</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus bosistoana</i>	3(3-3)	2	1(1-2)	3
<i>Eucalyptus botryoides</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus deanei</i>	2(2-2)	2	3(1-3)	1
<i>Eucalyptus eugenioides</i>	3(3-3)	2	2(1-3)	4
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	4(3-4)	4	1(1-2)	3
<i>Eucalyptus pilularis</i>	1(1-1)	2	2(1-3)	5
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(3-3)	11	2(1-3)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	4(3-4)	7	2(1-3)	8



Locations of survey sites allocated to RF p111. Grey shading indicates extant native vegetation cover within the study area.

RF p112: Subtropical Complex Rainforest



Plate p112. Subtropical Complex Rainforest (Map Unit p112) at Thirroul below Bulli Lookout. *Ficus obliqua*, *Pittosporum undulatum* and *Ceratopetalum apetalum* dominate the canopy, decorated by numerous lianes such as *Palmeria scandens*, and *Pandorea pandorana*, with a groundcover dominated by palms and ferns including *Livistona australis*, *Calochlaena dubia* and *Microsorium scandens*.

Sample Sites: 62
 Area Extant (ha): 4100
 Estimated % remaining: 50-65%
 Area in conservation reserves (ha): 440
 Estimated % of pre-clearing area in conservation reserves: <10%
 No. taxa (total / unique): 188 / 0

No. taxa per plot (\pm sd): 38.7 (8.3)

Class: Subtropical Rainforests

Related TEC: includes areas of Illawarra Subtropical Rainforest EEC and Milton Ulladulla Subtropical Rainforest EEC (TSC).

Subtropical Complex Rainforest (RF p112) is equivalent to RF 112 identified by Tindall *et al.* (2004). This unit is a complex closed forest characterised by a dense and diverse tree canopy supporting various lianas, a subcanopy layer of small trees, a sparse shrub layer, an open fern dominated groundcover and occasional large trees emerging above the closed canopy. This unit is distributed in the Illawarra between Scarborough and Cambewarra, with a disjunct occurrence further south at Milton. Within this distribution Subtropical Complex Rainforest is restricted to soils derived from Gerringong Volcanics near Kiama, soils derived from monzonite in gullies around Milton, and slopes and benches of the Illawarra scarp from 0 - 300m ASL where latite, shale and coal seams are exposed and annual rainfall is greater than 1300mm. With decreasing moisture availability Subtropical Complex Rainforest intergrades with the closely related Subtropical Dry Rainforest (RF p111). On poorer soils Subtropical Complex Rainforest is replaced by Coastal Warm Temperate Rainforest (RF p113).

Being restricted to moist, fertile lowland sites, much of the original extent of Subtropical Complex Rainforest has been cleared for agriculture, and remaining fragments tend to be degraded and continue to be threatened by weed invasion, grazing, fire and urban expansion.

Floristic Summary:

Trees: *Livistona australis*, *Doryphora sassafras*, *Acmena smithii*, *Diospyros australis*, *Claoxylon australe*, *Dendrocnide excelsa*, *Pittosporum undulatum*, *Streblus brunonianus*, *Diploglottis australis*, *Ficus coronata*, *Alectryon subcinereus*, *Toona ciliata*. **Small Trees:** *Cassine australis*, *Clerodendrum tomentosum*, *Pennantia cunninghamii*, *Eupomatia laurina*. **Shrubs:** *Pittosporum multiflorum*. **Climbers:** *Eustrephus latifolius*, *Arthropteris tenella*, *Marsdenia rostrata*, *Microsorium scandens*, *Pandorea pandorana*, *Piper novae-hollandiae*, *Smilax australis*. **Groundcover:** *Gymnostachys anceps*, *Adiantum formosum*, *Pseuderanthemum variabile*, *Doodia aspera*.

Vegetation structure:

Stratum	Frequency (n=58)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	17	32.8 (7.1)	12 (14.3)
Tree canopy	100	27.2 (9.2)	65.9 (19.8)
Small tree	79	15.3 (7.4)	53.4 (32.5)
Shrub	26	2.2 (0.7)	18.4 (21.6)
Ground cover	98	0.9 (0.3)	26 (19.2)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 27 positive diagnostic species (95% confidence interval) provided that 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 27 positive diagnostic species.

Positive Diagnostic Species:

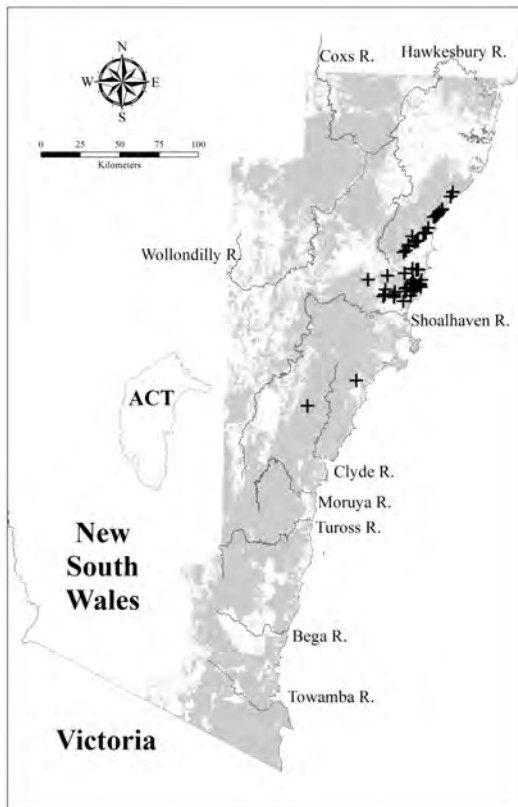
Species	C/A	Freq	C/A O	Freq O
<i>Acacia maidenii</i>	1(1-1)	11	1(1-1)	3
<i>Acmena smithii</i>	3(1-3)	74	2(1-3)	8
<i>Acronychia oblongifolia</i>	3(1-3)	13	1(1-3)	1
<i>Adiantum formosum</i>	2(1-3)	76	2(1-3)	2
<i>Adiantum hispidulum</i>	1(1-1)	10	1(1-1)	2
<i>Alectryon subcinereus</i>	1(1-1)	52	1(1-1)	2
<i>Alphitonia excelsa</i>	1(1-3)	11	1(1-1)	1
<i>Aneilema biflorum</i>	1(1-1)	11	1(1-1)	<1
<i>Aphanopetalum resinatum</i>	1(1-2)	19	2(1-3)	4
<i>Arthropteris tenella</i>	2(1-2)	87	1(1-2)	2
<i>Asplenium australasicum forma australasicum</i>	1(1-2)	39	1(1-2)	2
<i>Asplenium flabellifolium</i>	1(1-1)	32	1(1-1)	11
<i>Baloghia inophylla</i>	3(1-3)	44	3(2-3)	<1
<i>Blechnum patersonii</i> subsp. <i>patersonii</i>	1(1-2)	13	1(1-2)	2
<i>Brachychiton acerifolius</i>	1(1-3)	32	1(1-1)	<1

<i>Cassine australis</i> var. <i>australis</i>	1(1-2)	63	1(1-3)	2
<i>Celastrus australis</i>	1(1-2)	27	1(1-1)	2
<i>Cephalalaria cephalobotrys</i>	1(1-1)	10	1(1-1)	<1
<i>Ceratopetalum apetalum</i>	3(3-3)	26	3(1-3)	3
<i>Cinnamomum oliveri</i>	1(1-4)	15	1(1-3)	<1
<i>Cissus antarctica</i>	1(1-2)	37	1(1-2)	2
<i>Cissus hypoglauca</i>	1(1-3)	35	1(1-2)	9
<i>Citronella moorei</i>	1(1-3)	23	1(1-2)	1
<i>Claoxylon australe</i>	1(1-2)	61	1(1-2)	3
<i>Clerodendrum tomentosum</i>	1(1-1)	55	1(1-1)	4
<i>Croton verreauxii</i>	1(1-3)	11	2(1-3)	1
<i>Cryptocarya glaucescens</i>	2(1-3)	47	2(1-3)	3
<i>Cryptocarya microneura</i>	1(1-3)	48	1(1-2)	2
<i>Dendrocide excelsa</i>	3(1-3)	61	1(1-3)	1
<i>Diospyros australis</i>	1(1-1)	71	1(1-2)	2
<i>Diospyros pentamera</i>	1(1-3)	15	1(1-2)	<1
<i>Diploglottis australis</i>	1(1-1)	53	1(1-1)	1
<i>Doodia aspera</i>	1(1-2)	53	1(1-2)	11
<i>Doryphora sassafras</i>	3(3-4)	81	3(1-3)	3
<i>Ehretia acuminata</i> var. <i>acuminata</i>	1(1-3)	32	1(1-1)	1
<i>Elaeocarpus kirtonii</i>	3(1-3)	18	1(1-1)	<1
<i>Eucalyptus quadrangulata</i>	3(2-3)	18	3(1-3)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(3-3)	10	2(1-3)	2
<i>Eupomatia laurina</i>	1(1-2)	52	1(1-2)	4
<i>Eustrephus latifolius</i>	1(1-1)	84	1(1-1)	19
<i>Ficus coronata</i>	3(1-3)	53	1(1-2)	3
<i>Ficus macrophylla</i> subsp. <i>macrophylla</i>	4(1-4)	13	1(1-3)	<1
<i>Ficus obliqua</i>	3(1-4)	13	1(1-1)	<1
<i>Geitonoplesium cymosum</i>	1(1-1)	50	1(1-1)	16
<i>Guioa semiglauca</i>	1(1-3)	44	1(1-2)	1
<i>Gymnostachys anceps</i>	1(1-2)	92	1(1-1)	2
<i>Lastreopsis acuminata</i>	1(1-1)	10	1(1-2)	2
<i>Lastreopsis decomposita</i>	3(2-3)	34	2(1-3)	3
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	1(1-3)	31	2(1-3)	4
<i>Legnephora moorei</i>	1(1-2)	27	1(1-1)	<1
<i>Litsea reticulata</i>	1(1-3)	23	1(1-1)	<1
<i>Livistona australis</i>	2(1-3)	87	1(1-1)	5
<i>Maclura cochinchinensis</i>	1(1-2)	16	1(1-2)	1
<i>Marsdenia flavescens</i>	1(1-1)	40	1(1-2)	2
<i>Marsdenia rostrata</i>	1(1-1)	77	1(1-2)	12
<i>Melicope micrococca</i>	1(1-1)	23	1(1-2)	1
<i>Melodinus australis</i>	2(1-2)	10	1(1-2)	<1
<i>Microsorium scandens</i>	2(1-2)	77	2(1-3)	3
<i>Morinda jasminoides</i>	1(1-2)	65	1(1-2)	9
<i>Notelaea venosa</i>	1(1-1)	34	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-1)	34	1(1-2)	14

<i>Palmeria scandens</i>	1(1-2)	45	1(1-2)	1
<i>Pandorea pandorana</i>	2(1-3)	74	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	27	1(1-1)	7
<i>Pellaea falcata</i>	1(1-2)	31	1(1-1)	10
<i>Pennantia cunninghamii</i>	3(1-3)	53	1(1-1)	<1
<i>Piper novae-hollandiae</i>	1(1-3)	66	1(1-2)	<1
<i>Pittosporum multiflorum</i>	1(1-2)	65	1(1-2)	3
<i>Pittosporum undulatum</i>	1(1-3)	61	1(1-1)	14
<i>Podocarpus elatus</i>	1(1-3)	19	1(1-2)	<1
<i>Polyosma cunninghamii</i>	1(1-1)	34	1(1-2)	1
<i>Pouteria australis</i>	3(1-3)	35	1(1-3)	<1
<i>Pseuderanthemum variabile</i>	1(1-2)	66	1(1-2)	8
<i>Pteris umbrosa</i>	1(1-2)	34	2(1-3)	2
<i>Pyrrhosia rupestris</i>	1(1-1)	21	1(1-2)	6
<i>Rapanea howittiana</i>	1(1-1)	19	1(1-1)	5
<i>Sarcopetalum harveyanum</i>	1(1-1)	19	1(1-1)	4
<i>Schizomeria ovata</i>	1(1-4)	11	1(1-2)	1
<i>Sloanea australis</i>	3(1-3)	19	1(1-3)	<1
<i>Smilax australis</i>	1(1-1)	66	1(1-1)	16
<i>Stenocarpus salignus</i>	1(1-1)	24	1(1-1)	2
<i>Streblus brunonianus</i>	1(1-3)	60	1(1-3)	1
<i>Symplocos thwaitesii</i>	1(1-1)	11	1(1-1)	<1
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-1)	19	1(1-2)	7
<i>Syzygium australe</i>	3(1-3)	29	1(1-1)	<1
<i>Toona ciliata</i>	3(1-4)	52	1(1-3)	<1
<i>Trophis scandens</i> subsp. <i>scandens</i>	1(1-2)	42	1(1-2)	1
<i>Wilkiea huegeliana</i>	1(1-2)	47	1(1-1)	1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus botryoides</i>	3(1-3)	5	2(1-3)	3
<i>Eucalyptus fastigata</i>	3(3-3)	2	2(1-3)	6
<i>Eucalyptus pilularis</i>	1(1-1)	2	2(1-3)	5
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(3-3)	3	2(1-3)	8



Locations of survey sites allocated to RF p112. Grey shading indicates extant native vegetation cover within the study area.

RF p113: Coastal Warm Temperate Rainforest



Plate p113. Coastal Warm Temperate Rainforest (Map Unit p113) below Jamberoo Mountain Road at Dhruwalgha Mountain. Canopy includes *Ceratopetalum apetalum* and *Cryptocarya glaucescens*, while species visible in the understorey include *Gymnostachys anceps*, *Cyathea australis*, *Backhousia myrtifolia* and *Todea barbara*.

Sample Sites: 149
 Area Extant (ha): 15200
 Estimated % remaining: 85-95%
 Area in conservation reserves (ha): 7900
 Estimated % of pre-clearing area in conservation reserves: 35-50%
 No. taxa (total / unique): 285 / 2
 No. taxa per plot (\pm sd): 39.3 (16)

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

Coastal Warm Temperate Rainforest (RF p113) is equivalent to RF 113 identified by Tindall *et al.* (2004). This unit is a closed forest with a dense tree canopy, a subcanopy of small trees, lianas, an open layer of mesic shrubs and a fern-dominated groundcover. This rainforest is widely distributed across the study area in small patches, with local concentrations along the Illawarra scarp north from Cambewarra, along the escarpment in the Clyde district and along the Murramarang Range on the coast north of Durras. It is found in moist sheltered gullies and on sheltered escarpment slopes on loam to clay loam soils from 0 - 400m ASL with a mean annual rainfall greater than 900mm. Coastal Warm Temperate Rainforest is related to Sandstone Scarp Warm Temperate Rainforest (RF p114) which can be differentiated from this unit by its restriction to higher elevations (above 400m ASL), and the absence of lowland taxa (e.g. *Livistona*). Much of Coastal Warm Temperate Rainforest's original distribution remains extant and it is represented within several large conservation reserves. Repeated fires may pose a threat to some stands.

Floristic Summary:

Trees: *Acmena smithii*, *Livistona australis*, *Ceratopetalum apetalum*, *Cryptocarya glaucescens*, *Synoum glandulosum*.
Small Trees: *Tasmannia insipida*, *Eupomatia laurina*, *Ficus coronata*, *Psychotria loniceroides*. **Shrubs:** *Cyathea australis*. **Climbers:** *Morinda jasminoides*, *Smilax australis*, *Microsorium scandens*, *Marsdenia rostrata*, *Palmeria scandens*, *Pandorea pandorana*, *Parsonsia straminea*, *Cissus hypoglauca*, *Pyrrosia rupestris*, *Arthropteris tenella*, *Eustrephus latifolius*. **Groundcover:** *Lastreopsis microsora*, *Blechnum cartilagineum*, *B. patersonii*, *Asplenium australasicum*, *Doodia aspera*.

Vegetation structure:

Stratum	Frequency (n=63)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	8	23.6 (7.2)	13.8 (7.5)
Tree canopy	100	28.2 (9.2)	63.3 (22.8)
Small tree	78	12 (5.6)	47.4 (30.3)
Shrub	33	2.5 (0.6)	13.8 (10.2)
Ground cover	97	1 (0.5)	22.3 (18.5)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 27 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 26 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 27 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Abrophyllum ornans</i>	1(1-1)	3	1(1-1)	<1
<i>Acacia binervata</i>	1(1-2)	7	1(1-2)	2
<i>Acacia trachyphloia</i>	1(1-1)	5	1(1-1)	<1
<i>Acmena smithii</i>	3(1-3)	97	2(1-3)	7
<i>Acronychia oblongifolia</i>	1(1-2)	5	1(1-3)	1
<i>Adiantum formosum</i>	3(1-3)	17	2(1-3)	3
<i>Adiantum hispidulum</i>	1(1-1)	8	1(1-1)	2
<i>Alectryon subcinereus</i>	1(1-1)	12	1(1-1)	2
<i>Alectryon subdentatus forma subdentatus</i>	1(1-2)	11	1(1-2)	1
<i>Alphitonia excelsa</i>	1(1-1)	5	1(1-2)	1
<i>Aphanopetalum resinatum</i>	2(1-3)	31	2(1-3)	3
<i>Archontophoenix cunninghamiana</i>	2(1-3)	9	1(1-1)	<1
<i>Arthropteris beckleri</i>	1(1-1)	6	1(1-3)	<1
<i>Arthropteris tenella</i>	1(1-2)	53	2(1-2)	2
<i>Asplenium australasicum forma australasicum</i>	1(1-2)	63	1(1-2)	1
<i>Asplenium flabellifolium</i>	1(1-2)	32	1(1-1)	11
<i>Asplenium polyodon</i>	1(1-2)	12	1(1-2)	<1
<i>Australina pusilla</i>	1(1-1)	6	1(1-2)	2

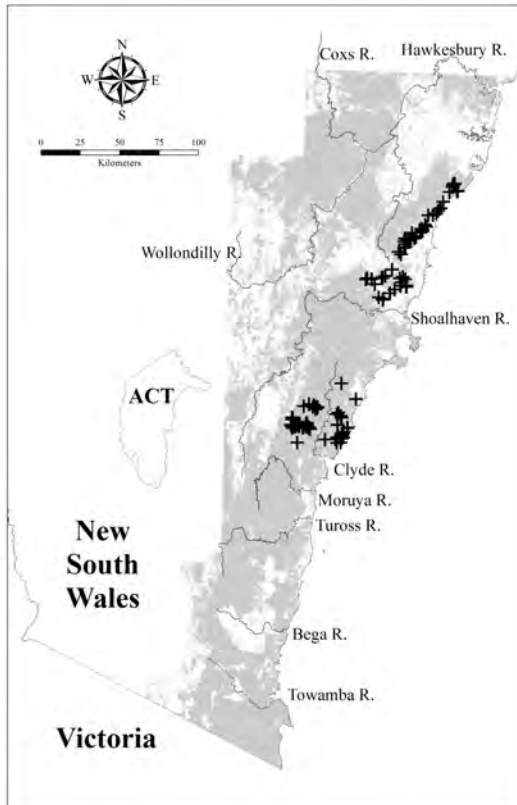
<i>Backhousia myrtifolia</i>	1(1-2)	30	3(1-3)	5
<i>Baloghia inophylla</i>	2(1-3)	5	3(2-3)	1
<i>Blechnum cartilagineum</i>	1(1-2)	67	1(1-2)	10
<i>Blechnum nudum</i>	1(1-1)	10	1(1-2)	3
<i>Blechnum patersonii</i> subsp. <i>patersonii</i>	2(1-2)	50	1(1-2)	2
<i>Blechnum wattsi</i>	2(1-2)	9	1(1-2)	2
<i>Bulbophyllum exiguum</i>	1(1-1)	7	1(1-2)	<1
<i>Callicoma serratifolia</i>	1(1-2)	32	1(1-2)	2
<i>Calochlaena dubia</i>	1(1-1)	23	1(1-3)	9
<i>Celastrus australis</i>	1(1-1)	7	1(1-1)	2
<i>Cephalalaria cephalobotrys</i>	1(1-1)	2	1(1-1)	<1
<i>Ceratopetalum apetalum</i>	3(2-4)	83	3(1-3)	2
<i>Cissus antarctica</i>	1(1-2)	27	1(1-2)	2
<i>Cissus hypoglauca</i>	2(1-2)	60	1(1-2)	9
<i>Citronella moorei</i>	2(1-2)	31	1(1-2)	<1
<i>Claoxylon australe</i>	1(1-2)	38	1(1-2)	3
<i>Clerodendrum tomentosum</i>	1(1-1)	15	1(1-1)	5
<i>Cryptocarya glaucescens</i>	2(1-2)	77	2(1-3)	2
<i>Cryptocarya microneura</i>	1(1-1)	30	1(1-3)	2
<i>Cyathea australis</i>	1(1-1)	58	1(1-2)	8
<i>Cyathea leichhardtiana</i>	1(1-3)	25	1(1-1)	<1
<i>Dendrocide excelsa</i>	1(1-2)	24	2(1-3)	1
<i>Dendrobium pugioniforme</i>	1(1-2)	15	1(1-2)	1
<i>Dennstaedtia davallioides</i>	1(1-2)	18	1(1-2)	1
<i>Dicksonia antarctica</i>	1(1-1)	40	2(1-3)	3
<i>Diospyros australis</i>	1(1-2)	32	1(1-2)	2
<i>Diplazium australe</i>	1(1-1)	19	1(1-2)	1
<i>Diploglottis australis</i>	1(1-1)	8	1(1-1)	1
<i>Doodia aspera</i>	1(1-2)	54	1(1-2)	11
<i>Doryphora sassafras</i>	3(2-3)	48	3(1-3)	3
<i>Ehretia acuminata</i> var. <i>acuminata</i>	1(1-1)	9	1(1-1)	1
<i>Elaeocarpus kirtonii</i>	1(1-1)	3	1(1-3)	<1
<i>Elatostema reticulatum</i>	1(1-3)	11	1(1-3)	<1
<i>Emmenosperma alphitonioides</i>	1(1-1)	3	1(1-3)	<1
<i>Eucalyptus quadrangulata</i>	2(1-2)	4	3(1-3)	1
<i>Eupomatia laurina</i>	2(1-2)	58	1(1-2)	3
<i>Eustrephus latifolius</i>	1(1-1)	52	1(1-1)	18
<i>Ficus coronata</i>	2(1-2)	50	1(1-2)	3
<i>Ficus obliqua</i>	1(1-1)	4	1(1-3)	<1
<i>Fieldia australis</i>	1(1-2)	19	2(1-3)	2
<i>Flagellaria indica</i>	1(1-2)	2	1(1-2)	<1
<i>Gahnia aspera</i>	1(1-2)	14	1(1-1)	4
<i>Grammitis billardierei</i>	1(1-2)	6	1(1-1)	<1
<i>Guioa semiglauca</i>	1(1-2)	10	1(1-2)	1
<i>Gymnostachys anceps</i>	1(1-2)	28	1(1-2)	3
<i>Hedycarya angustifolia</i>	3(2-3)	47	1(1-2)	3

<i>Histiopteris incisa</i>	1(1-1)	7	1(1-1)	1
<i>Hymenophyllum cupressiforme</i>	1(1-1)	9	1(1-1)	1
<i>Hypolepis glandulifera</i>	1(1-1)	6	1(1-1)	1
<i>Lastreopsis acuminata</i>	1(1-2)	38	2(1-2)	1
<i>Lastreopsis decomposita</i>	2(1-3)	44	2(1-3)	2
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	3(2-3)	67	2(1-3)	3
<i>Livistona australis</i>	1(1-2)	89	1(1-1)	4
<i>Macroglena caudata</i>	1(1-1)	3	1(1-1)	<1
<i>Marsdenia flavescens</i>	1(1-2)	19	1(1-1)	2
<i>Marsdenia rostrata</i>	1(1-2)	70	1(1-1)	11
<i>Melodinus australis</i>	1(1-1)	5	1(1-2)	<1
<i>Microsorium pustulatum</i>	1(1-2)	9	1(1-2)	1
<i>Microsorium scandens</i>	2(1-3)	72	2(1-3)	3
<i>Morinda jasminoides</i>	2(1-3)	91	1(1-2)	8
<i>Nertera granadensis</i>	1(1-1)	2	1(1-1)	<1
<i>Notelaea venosa</i>	1(1-1)	44	1(1-1)	11
<i>Omalanthus populifolius</i>	1(1-1)	5	1(1-1)	1
<i>Palmeria scandens</i>	2(1-3)	64	1(1-2)	1
<i>Pandorea pandorana</i>	1(1-2)	66	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-2)	64	1(1-1)	6
<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	1(1-1)	5	1(1-1)	1
<i>Pellaea falcata</i>	1(1-1)	26	1(1-2)	10
<i>Pellaea nana</i>	1(1-1)	23	1(1-2)	1
<i>Pennantia cunninghamii</i>	1(1-2)	13	1(1-3)	1
<i>Peperomia tetraphylla</i>	1(1-1)	2	1(1-1)	<1
<i>Piper novae-hollandiae</i>	2(1-3)	11	1(1-3)	1
<i>Pittosporum multiflorum</i>	1(1-2)	37	1(1-2)	3
<i>Pittosporum revolutum</i>	1(1-1)	28	1(1-1)	8
<i>Pittosporum undulatum</i>	1(1-1)	40	1(1-1)	14
<i>Platynerium bifurcatum</i>	1(1-1)	11	1(1-1)	1
<i>Plectorrhiza tridentata</i>	1(1-1)	13	1(1-2)	1
<i>Polystichum australiense</i>	1(1-2)	8	1(1-2)	1
<i>Polyosma cunninghamii</i>	1(1-2)	40	1(1-1)	1
<i>Polyscias murrayi</i>	1(1-1)	15	1(1-1)	1
<i>Polyphlebium venosum</i>	1(1-1)	8	2(1-3)	1
<i>Pouteria australis</i>	1(1-3)	3	3(1-3)	1
<i>Pseuderanthemum variabile</i>	2(1-2)	42	1(1-2)	8
<i>Psychotria loniceroides</i>	1(1-2)	50	1(1-1)	3
<i>Pteris umbrosa</i>	2(1-3)	36	2(1-3)	1
<i>Pyrrosia rupestris</i>	1(1-2)	58	1(1-2)	5
<i>Quintinia sieberi</i>	1(1-2)	5	1(1-2)	<1
<i>Rapanea howittiana</i>	1(1-1)	29	1(1-1)	5
<i>Rhodamnia rubescens</i>	1(1-1)	7	1(1-1)	1
<i>Ripogonum album</i>	1(1-2)	18	1(1-2)	1
<i>Rubus moluccanus</i> var. <i>trilobus</i>	1(1-1)	13	1(1-1)	2
<i>Rubus nebulosus</i>	1(1-1)	30	1(1-1)	1

<i>Rubus rosifolius</i>	1(1-1)	16	1(1-1)	3
<i>Sambucus australasica</i>	1(1-1)	7	1(1-1)	1
<i>Sarcochilus falcatus</i>	1(1-1)	9	1(1-2)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	23	1(1-1)	4
<i>Sarcochilus olivaceus</i>	1(1-1)	2	1(1-2)	<1
<i>Schizomeria ovata</i>	1(1-2)	36	1(1-2)	1
<i>Scolopia braunii</i>	1(1-1)	3	1(1-1)	<1
<i>Sloanea australis</i>	1(1-3)	5	3(1-3)	<1
<i>Smilax australis</i>	1(1-2)	77	1(1-1)	15
<i>Smilax glyciphylla</i>	1(1-1)	22	1(1-1)	8
<i>Solanum aviculare</i>	1(1-1)	6	1(1-1)	1
<i>Stenocarpus salignus</i>	1(1-1)	19	1(1-1)	1
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	30	1(1-1)	6
<i>Sticherus flabellatus</i> var. <i>flabellatus</i>	1(1-1)	6	1(1-2)	1
<i>Symplocos thwaitesii</i>	1(1-1)	5	1(1-1)	<1
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-2)	59	1(1-2)	6
<i>Tasmania insipida</i>	1(1-2)	68	1(1-2)	1
<i>Tmesipteris parva</i>	1(1-1)	7	1(1-1)	<1
<i>Todea barbara</i>	1(1-3)	6	1(1-2)	1
<i>Tristaniopsis laurina</i>	1(1-1)	9	1(1-3)	1
<i>Trochocarpa laurina</i>	1(1-1)	14	1(1-1)	<1
<i>Trophis scandens</i> subsp. <i>scandens</i>	1(1-2)	22	1(1-2)	1
<i>Wilkiea huegeliana</i>	1(1-1)	13	1(1-1)	1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus botryoides</i>	1(1-2)	5	2(1-3)	3
<i>Eucalyptus fastigata</i>	3(1-3)	5	2(1-3)	6
<i>Eucalyptus pilularis</i>	1(1-1)	5	2(1-3)	5
<i>Eucalyptus robusta</i>	1(1-1)	1	3(1-3)	<1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(1-3)	3	2(1-3)	2
<i>Eucalyptus smithii</i>	2(2-2)	2	1(1-2)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-3)	9	2(1-3)	8



Locations of survey sites allocated to RF p113. Grey shading indicates extant native vegetation cover within the study area.

RF p114: Sandstone Scarp Warm Temperate Rainforest



Plate p114. Sandstone Scarp Warm Temperate Rainforest (Map Unit p114) southwest of Cedar Gap, Blue Mountains National Park. A dense canopy of *Backhousia myrtifolia*, *Ceratopetalum apetalum* and *Doryphora sassafras* is punctuated by emergent specimens of *Syncarpia glomulifera* subsp. *glomulifera*. The open shrub layer contains *Tasmannia insipida*, *Ficus coronata* and *Cyathea australis*, while the groundcover is dominated by *Blechnum cartilagineum*, *Doodia aspera* and *Carex brunnea*.

Sample Sites: 32
 Area Extant (ha): 6800
 Estimated % remaining: >95%
 Area in conservation reserves (ha): 5900
 Estimated % of pre-clearing area in conservation reserves: 80-95%
 No. taxa (total / unique): 209 / 3
 No. taxa per plot (\pm sd): 27.1 (7.7)
 Class: Northern Warm Temperate Rainforests
 Related TEC: n/a

Sandstone Scarp Warm Temperate Rainforest (RF p114) is equivalent to RF 114 identified by Tindall *et al.* (2004). This unit is a closed forest characterised by a dense tree canopy with occasional emergents, lianas, a mesic shrub and small tree stratum and an open fern-dominated groundcover. This unit is distributed as small occurrences within the dissected sandstone plateaux of the Sydney Basin, from 400 - 800m ASL, in areas receiving more than 850mm annual rainfall. These conditions are found mainly on the escarpments of the Blue Mountains, Budderoo and Morton plateaux. Within these areas Sandstone Scarp Warm Temperate Rainforest is restricted to moist gully heads and sheltered slopes below sandstone cliffines. Sandstone Scarp Warm Temperate Rainforest is related to Coastal Warm Temperate Rainforest (RF p113) which differs in being restricted to sandstone substrates below 400m ASL. Little of the original extent of Sandstone Scarp Warm Temperate Rainforest has been cleared and it is represented in several large conservation reserves.

Floristic Summary:

Trees: *Ceratopetalum apetalum*, *Acmena smithii*, *Doryphora sassafras*. **Shrubs:** *Cyathea australis*, *Todea barbara*, *Tasmannia insipida*. **Climbers:** *Morinda jasminoides*, *Smilax australis*. **Groundcover:** *Blechnum cartilagineum*.

Vegetation structure:

Stratum	Frequency (n=30)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	47	29.9 (4.9)	11.9 (9.4)
Tree canopy	93	24.3 (7.6)	65.2 (24)
Small tree	80	9.5 (5.5)	35.3 (30.5)
Shrub	23	2.9 (0.4)	11.7 (8.6)
Ground cover	100	1 (0.3)	22 (15.8)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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 10 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia elata</i>	1(1-3)	47	1(1-3)	1
<i>Acmena smithii</i>	3(1-3)	78	2(1-3)	9
<i>Adiantum hispidulum</i>	1(1-1)	28	1(1-1)	2
<i>Asplenium flabellifolium</i>	1(1-2)	41	1(1-1)	11
<i>Backhousia myrtifolia</i>	2(1-3)	44	2(1-3)	5
<i>Blechnum cartilagineum</i>	2(1-3)	97	1(1-2)	11
<i>Blechnum nudum</i>	1(1-2)	41	1(1-2)	3
<i>Blechnum patersonii</i> subsp. <i>patersonii</i>	1(1-1)	25	1(1-2)	2
<i>Callicoma serratifolia</i>	1(1-2)	47	1(1-2)	3
<i>Calochlaena dubia</i>	1(1-2)	28	1(1-3)	9
<i>Ceratopetalum apetalum</i>	4(3-4)	100	3(1-3)	3
<i>Cissus hypoglauca</i>	1(1-2)	44	1(1-2)	10
<i>Cyathea australis</i>	1(1-1)	72	1(1-2)	8
<i>Doryphora sassafras</i>	3(3-3)	69	3(1-3)	3
<i>Eustrephus latifolius</i>	1(1-1)	44	1(1-1)	19
<i>Geitonoplesium cymosum</i>	1(1-1)	38	1(1-1)	16

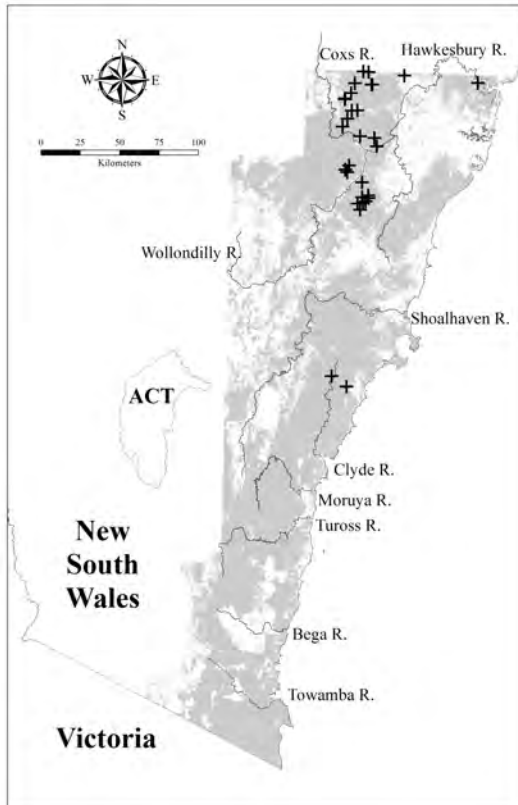
<i>Hymenophyllum cupressiforme</i>	1(1-2)	47	1(1-1)	1
<i>Morinda jasminoides</i>	1(1-2)	66	1(1-2)	9
<i>Pandorea pandorana</i>	1(1-2)	41	1(1-1)	18
<i>Parsonsia brownii</i>	1(1-1)	22	1(1-2)	2
<i>Parsonsia straminea</i>	1(1-2)	22	1(1-1)	7
<i>Pellaea nana</i>	1(1-1)	34	1(1-1)	2
<i>Pittosporum revolutum</i>	1(1-1)	41	1(1-1)	8
<i>Polystichum australiense</i>	1(1-2)	22	1(1-2)	1
<i>Pyrrhosia rupestris</i>	1(1-1)	38	1(1-2)	6
<i>Smilax australis</i>	1(1-2)	53	1(1-1)	16
<i>Smilax glycyphylla</i>	1(1-1)	50	1(1-1)	8
<i>Stenocarpus salignus</i>	1(1-1)	34	1(1-1)	2
<i>Sticherus flabellatus</i> var. <i>flabellatus</i>	2(1-3)	47	1(1-2)	1
<i>Tasmannia insipida</i>	2(1-3)	47	1(1-2)	2
<i>Todea barbara</i>	2(1-3)	63	1(1-1)	1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	1(1-1)	31	1(1-1)	20
<i>Viola hederacea</i>	1(1-1)	31	1(1-1)	22

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-1)	6	1(1-2)	9
<i>Eucalyptus cypellocarpa</i>	3(1-3)	13	2(1-2)	10
<i>Eucalyptus deanei</i>	3(1-3)	6	3(1-3)	1
<i>Eucalyptus elata</i>	1(1-1)	9	2(1-3)	5
<i>Eucalyptus hypostomatica</i>	1(1-1)	3	2(1-3)	<1
<i>Eucalyptus oreades</i>	3(3-3)	3	3(1-3)	<1
<i>Eucalyptus piperita</i>	1(1-3)	13	2(1-3)	9
<i>Eucalyptus punctata</i>	1(1-1)	3	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	3	2(1-3)	6
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-1)	3	1(1-2)	1
<i>Eucalyptus sieberi</i>	3(3-3)	3	2(1-3)	16
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-4)	16	2(1-3)	8



Locations of survey sites allocated to RF p114. Grey shading indicates extant native vegetation cover within the study area.

RF p116: Intermediate Temperate Rainforest



Plate p116. Intermediate Temperate Rainforest (Map Unit p116) in The Jungle at Mount Tomah Botanic Gardens, with *Doryphora sassafras*, *Ceratopetalum apetalum*, and *Acmena smithii* draped in a variety of lianes and a ferny understorey.

Sample Sites: 36

Area Extant (ha): 3000

Estimated % remaining: 75-90%

Area in conservation reserves (ha): 1600

Estimated % of pre-clearing area in conservation reserves: 35-50%

No. taxa (total / unique): 196 / 0

No. taxa per plot (\pm sd): 38.1 (15.8)

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

Intermediate Temperate Rainforest (RF p116) is modified from RF 116 identified by Tindall *et al.* (2004). This revised classification is based on a significantly larger pool of samples over a larger study area. The revised unit RF p116 includes retention of warmer northern sites originally assigned to RF 116 by Tindall *et al.* (2004), and addition of a large number of recent south coast sites classified by Beukers (undated) as Subtropical-Warm Temperate Rainforest.

RF p116 is a closed forest characterised by a dense tree canopy, lianas, a mesic shrub/small tree stratum and a sparse fern-dominated groundcover. This rainforest is scattered over a wide distribution as small occurrences on relatively fertile, moist sites between 10m ASL (in the far south) and 750m ASL (western Blue Mountains), where annual rainfall exceeds 900mm. Within this distribution this unit is restricted to moist sheltered gullies among foothills and scarps. Local concentrations occur on the footslopes of Mount Dromedary, along the southern escarpment in the Morton-Deua area, at Cambewarra and Barren Grounds, and in the western Blue Mountains.

RF p116 occupies similar altitudinal and rainfall zones to RF p114 (Sandstone Scarp Warm Temperate Rainforest), however RF p114 is restricted to lower-fertility sandstone substrates. The closely-related RF p516 (Yarra-temperate Rainforest) is restricted to basalt-derived soils on the Robertson plateau where annual rainfall exceeds 1300mm. In the south of the study area, RF p116 is increasingly restricted to the coast and lower elevations, replaced by RF e6e7 (Southeast Warm Temperate Rainforest) at intermediate elevations and RF p317 (Southeast Cool Temperate Rainforest) at higher, cooler sites.

Much of the original distribution of Intermediate Temperate Rainforest survives in conservation reserves and state forests. Frequent fires may be a threat in some areas.

Floristic Summary:

Trees: *Acmena smithii*, *Pittosporum undulatum*, *Ficus coronata*, *Doryphora sassafras*, *Dendrocnide excelsa*. **Shrubs:** *Cyathea australis*, *Coprosma quadrifida*, *Notelaea venosa*, *Rapanea howittiana*. **Climbers:** *Pandorea pandorana*, *Smilax australis*, *Marsdenia rostrata*, *Eustrephus latifolius*, *Tylophora barbata*, *Microsorium scandens*, *Morinda jasminoides*. **Groundcover:** *Asplenium flabellifolium*, *Lastreopsis acuminata*.

Vegetation structure:

Stratum	Frequency (n=15)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	40	31.3 (6.8)	7.5 (8.9)
Tree canopy	100	27.3 (8.7)	55 (23.1)
Small tree	87	11.4 (7)	33.3 (29.8)
Shrub	20	2.8 (0.3)	6.7 (7.2)
Ground cover	100	0.8 (0.5)	22 (20.2)

Diagnostic Species:

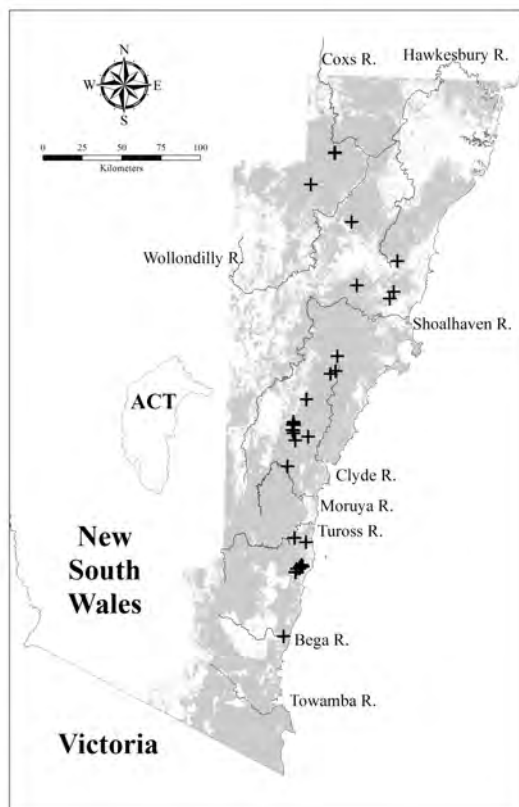
A 0.04ha plot located in this Map Unit is expected to contain at least 21 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 21 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxylon</i>	1(1-2)	33	1(1-1)	6
<i>Acmena smithii</i>	3(1-3)	86	2(1-3)	9
<i>Adiantum formosum</i>	3(2-3)	53	2(1-3)	3
<i>Alectryon subdentatus forma subdentatus</i>	1(1-2)	31	1(1-2)	1
<i>Aphanopetalum resinatum</i>	3(2-3)	67	2(1-3)	4
<i>Arthropteris tenella</i>	2(1-3)	58	1(1-2)	2
<i>Asplenium australasicum forma australasicum</i>	1(1-2)	56	1(1-2)	2
<i>Asplenium flabellifolium</i>	1(1-2)	58	1(1-1)	11
<i>Backhousia myrtifolia</i>	2(1-3)	22	2(1-3)	5
<i>Blechnum cartilagineum</i>	2(1-3)	39	1(1-2)	11
<i>Blechnum patersonii subsp. patersonii</i>	2(1-2)	22	1(1-2)	2
<i>Celastrus australis</i>	1(1-1)	39	1(1-1)	2
<i>Cissus antarctica</i>	1(1-2)	28	1(1-2)	3
<i>Cissus hypoglauca</i>	2(1-3)	53	1(1-2)	9

<i>Claoxylon australe</i>	2(1-3)	50	1(1-2)	3
<i>Coprosma quadrifida</i>	1(1-1)	36	1(1-1)	10
<i>Cryptocarya glaucescens</i>	2(2-2)	25	2(1-3)	3
<i>Cyathea australis</i>	1(1-2)	58	1(1-1)	8
<i>Dendrocide excelsa</i>	2(2-3)	50	1(1-3)	1
<i>Dendrobium pugioniforme</i>	1(1-2)	22	1(1-2)	1
<i>Dennstaedtia davallioides</i>	1(1-2)	28	1(1-2)	1
<i>Dicksonia antarctica</i>	1(1-2)	47	2(1-3)	4
<i>Diplazium australe</i>	1(1-2)	31	1(1-2)	1
<i>Doodia aspera</i>	2(1-2)	50	1(1-2)	11
<i>Doryphora sassafras</i>	3(3-4)	58	3(1-3)	3
<i>Ehretia acuminata</i> var. <i>acuminata</i>	1(1-2)	28	1(1-1)	1
<i>Eupomatia laurina</i>	2(2-2)	28	1(1-2)	4
<i>Eustrephus latifolius</i>	1(1-1)	72	1(1-1)	19
<i>Ficus coronata</i>	2(1-3)	64	1(1-2)	3
<i>Geitonoplesium cymosum</i>	1(1-1)	36	1(1-1)	16
<i>Hedycarya angustifolia</i>	3(1-3)	53	1(1-2)	4
<i>Hymenanthera dentata</i>	1(1-2)	44	1(1-1)	6
<i>Lastreopsis acuminata</i>	1(1-2)	36	1(1-2)	2
<i>Lastreopsis decomposita</i>	3(1-3)	53	2(1-3)	3
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	2(1-3)	64	2(1-3)	4
<i>Livistona australis</i>	1(1-1)	31	1(1-1)	6
<i>Marsdenia flavescens</i>	1(1-2)	28	1(1-1)	2
<i>Marsdenia rostrata</i>	2(1-3)	81	1(1-2)	12
<i>Microsorium scandens</i>	3(2-3)	61	2(1-3)	4
<i>Morinda jasminoides</i>	2(1-3)	83	1(1-2)	9
<i>Notelaea venosa</i>	1(1-2)	42	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-2)	42	1(1-2)	14
<i>Pandorea pandorana</i>	2(1-2)	86	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-2)	47	1(1-1)	7
<i>Pellaea falcata</i>	1(1-2)	64	1(1-1)	10
<i>Pellaea nana</i>	1(1-2)	33	1(1-1)	2
<i>Pittosporum undulatum</i>	1(1-1)	50	1(1-1)	14
<i>Pseuderanthemum variabile</i>	2(1-2)	28	1(1-2)	9
<i>Psychotria loniceroides</i>	1(1-2)	31	1(1-1)	4
<i>Pteris umbrosa</i>	2(2-3)	42	2(1-3)	2
<i>Pyrrosia rupestris</i>	2(1-2)	61	1(1-2)	6
<i>Rapanea howittiana</i>	1(1-2)	47	1(1-1)	5
<i>Ripogonum album</i>	2(1-2)	22	1(1-2)	1
<i>Rubus rosifolius</i>	1(1-2)	22	1(1-1)	3
<i>Sambucus australasica</i>	1(1-1)	25	1(1-1)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	22	1(1-1)	4
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-2)	25	1(1-1)	7
<i>Smilax australis</i>	2(1-2)	83	1(1-1)	16
<i>Stellaria flaccida</i>	2(1-2)	39	1(1-1)	10
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	36	1(1-1)	7

<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	2(1-3)	44	1(1-2)	7
<i>Urtica incisa</i>	1(1-2)	47	1(1-1)	5
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	1(1-1)	33	1(1-1)	20
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus bosistoana</i>	2(2-2)	3	1(1-2)	3
<i>Eucalyptus cypellocarpa</i>	1(1-1)	3	2(1-2)	10
<i>Eucalyptus elata</i>	2(2-2)	3	2(1-3)	5
<i>Eucalyptus fastigata</i>	3(1-3)	11	2(1-3)	6
<i>Eucalyptus quadrangulata</i>	3(3-3)	3	3(1-3)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	3	2(1-3)	2
<i>Eucalyptus sieberi</i>	3(3-3)	3	2(1-3)	16
<i>Eucalyptus smithii</i>	1(1-1)	6	1(1-2)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	3	2(1-3)	8



Locations of survey sites allocated to RF p116. Grey shading indicates extant native vegetation cover within the study area.

HL p117: Coastal Sandstone Plateau Heath

Plate p117. Coastal Sandstone Plateau Heath (Map Unit p117) near Garie Trig, Royal National Park. The dense shrub layer contains a diverse array of species including *Banksia ericifolia*, *Hakea teretifolia* and *Allocasuarina distyla*, with scattered individuals of *Banksia serrata*, *Angophora hispida* and the mallee *Eucalyptus obstans* emerging in places.

Sample Sites: 136

Area Extant (ha): 16100

Estimated % remaining: >90%

Area in conservation reserves (ha): 11300

Estimated % of pre-clearing area in conservation reserves: 50-70%

No. taxa (total / unique): 460 / 8

No. taxa per plot (\pm sd): 43.9 (12)

Class: Sydney Coastal Heaths

Related TEC: n/a

Coastal Sandstone Plateau Heath (HL p117) is equivalent to HL 117 identified by Tindall *et al.* (2004), and is characterised by an open to dense shrub canopy with emergent mallees and groundcover of sedges and forbs. This unit occurs as widespread but scattered occurrences across the Hornsby and Woronora plateaux, with southern outliers on Beecroft peninsula. Within this distribution Coastal Sandstone Plateau Heath is restricted to shallow damp sandy loams on coastal and near-coastal sandstone plateaux (Hawkesbury Sandstone and Conjola Sandstone) below 600m ASL, within a wide range of rainfall (mean 900-1600mm per annum). On Hawkesbury Sandstone this Map Unit commonly occurs as patches scattered within a matrix of Coastal Sandstone Ridgetop Woodland (DSF p131). On skeletal soils and rock outcrops Coastal Sandstone Plateau Heath is replaced by Coastal Rock Plate Heath (HL p126), and where drainage is impeded it is replaced by Coastal Upland Swamp (FrW p129). Coastal Sandstone Plateau Heath was generally not separable from surrounding vegetation using any of the available abiotic modelling variables, and consequently this unit was largely delineated by aerial photograph interpretation.

Much of the original distribution of Coastal Sandstone Plateau Heath remains intact, although substantial areas were cleared in the northern beaches and eastern suburbs of the Sydney metropolitan area.

Floristic Summary:

Trees: *Corymbia gummifera*. **Shrubs:** *Isopogon anemonifolius*, *Banksia ericifolia*, *Lambertia formosa*, *Epacris microphylla*, *Leptospermum trinervium*, *Hakea teretifolia*, *Pimelea linifolia*, *Hakea laevipes*, *Banksia oblongifolia*, *Pultenaea elliptica*, *Petrophile pulchella*, *Xanthorrhoea resinifera*. **Groundcover:** *Dampiera stricta*, *Lepyrodia scariosa*, *Actinotus minor*, *Cyathochaeta diandra*, *Lindsaea linearis*, *Lomandra obliqua*.

Vegetation structure:

Stratum	Frequency (n=34)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Tree canopy	100	7.1 (4.4)	13.4 (9.7)
Small tree	15	4.3 (0.5)	12.5 (3.5)
Shrub	85	1.7 (0.8)	31.6 (29.3)
Ground cover	94	0.7 (0.3)	49.6 (23.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 26 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 34 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 26 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia myrtifolia</i>	1(1-1)	28	1(1-1)	4
<i>Acacia suaveolens</i>	1(1-1)	46	1(1-1)	7
<i>Actinotus minor</i>	1(1-2)	57	1(1-1)	4
<i>Allocasuarina diminuta</i> subsp. <i>diminuta</i>	2(1-3)	2	0(0-0)	0
<i>Allocasuarina distyla</i>	1(1-1)	30	1(1-2)	2
<i>Allocasuarina paludosa</i>	1(1-2)	10	2(1-3)	1
<i>Amphipogon strictus</i> var. <i>strictus</i>	1(1-1)	6	1(1-2)	<1
<i>Angophora hispida</i>	2(1-2)	31	1(1-2)	1
<i>Anisopogon avenaceus</i>	1(1-2)	27	1(1-2)	5
<i>Austrostipa pubescens</i>	1(1-1)	14	1(1-2)	5
<i>Babingtonia densifolia</i>	1(1-1)	4	1(1-1)	<1
<i>Baeckea diosmifolia</i>	1(1-1)	11	1(1-1)	1
<i>Baeckea imbricata</i>	1(1-1)	21	1(1-1)	1
<i>Baloskion gracile</i>	1(1-2)	7	1(1-2)	<1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-2)	76	1(1-2)	6
<i>Banksia marginata</i>	1(1-2)	18	1(1-1)	3
<i>Banksia oblongifolia</i>	1(1-2)	51	1(1-1)	2
<i>Banksia paludosa</i>	1(1-2)	27	1(1-2)	2
<i>Banksia serrata</i>	1(1-1)	37	1(1-2)	9
<i>Baumea acuta</i>	1(1-1)	4	1(1-1)	<1
<i>Blandfordia nobilis</i>	1(1-1)	12	1(1-1)	<1
<i>Boronia barkeriana</i>	1(1-1)	10	1(1-1)	<1
<i>Boronia ledifolia</i>	1(1-1)	13	1(1-1)	3
<i>Boronia parviflora</i>	1(1-1)	2	1(1-1)	<1
<i>Boronia pinnata</i>	1(1-1)	14	1(1-1)	1
<i>Boronia serrulata</i>	1(1-1)	6	1(1-1)	<1
<i>Bossiaea ensata</i>	1(1-1)	28	1(1-1)	2
<i>Bossiaea heterophylla</i>	1(1-1)	21	1(1-1)	6
<i>Bossiaea scolopendria</i>	1(1-1)	13	1(1-1)	1
<i>Burchardia umbellata</i>	1(1-1)	23	1(1-1)	2
<i>Callistemon linearis</i>	2(1-3)	5	1(1-1)	<1
<i>Calytrix tetragona</i>	1(1-2)	13	1(1-2)	1
<i>Cassutha glabella</i>	1(1-1)	40	1(1-1)	7
<i>Caustis pentandra</i>	1(1-2)	13	1(1-1)	1
<i>Caustis recurvata</i>	1(1-1)	7	1(1-1)	<1
<i>Comesperma ericinum</i>	1(1-1)	9	1(1-1)	1
<i>Conospermum ellipticum</i>	2(1-3)	3	1(1-1)	<1
<i>Conospermum ericifolium</i>	1(1-1)	10	1(1-1)	<1
<i>Conospermum longifolium</i> subsp. <i>angustifolium</i>	1(1-1)	4	1(1-1)	<1
<i>Conospermum taxifolium</i>	1(1-2)	16	1(1-1)	1
<i>Corymbia gummifera</i>	1(1-2)	43	2(1-2)	15

<i>Cryptandra amara</i>	1(1-1)	5	1(1-1)	1
<i>Cryptandra ericoides</i>	1(1-2)	10	1(1-1)	<1
<i>Cryptostylis subulata</i>	1(1-1)	8	1(1-1)	1
<i>Cyathochaeta diandra</i>	1(1-2)	53	1(1-2)	7
<i>Dampiera stricta</i>	1(1-1)	71	1(1-1)	7
<i>Darwinia diminuta</i>	1(1-1)	4	1(1-1)	<1
<i>Darwinia fascicularis</i> subsp. <i>fascicularis</i>	1(1-2)	22	1(1-1)	<1
<i>Darwinia grandiflora</i>	1(1-1)	3	2(1-2)	<1
<i>Darwinia leptantha</i>	1(1-1)	18	1(1-1)	1
<i>Daviesia corymbosa</i>	1(1-1)	14	1(1-1)	2
<i>Dillwynia brunioides</i>	1(1-1)	2	1(1-1)	<1
<i>Dillwynia elegans</i>	1(1-1)	2	1(1-2)	<1
<i>Dillwynia floribunda</i>	1(1-2)	31	1(1-1)	1
<i>Dillwynia retorta</i>	1(1-1)	20	1(1-2)	6
<i>Drosera auriculata</i>	1(1-1)	4	1(1-1)	1
<i>Drosera peltata</i>	1(1-1)	26	1(1-1)	2
<i>Drosera pygmaea</i>	1(1-1)	4	1(1-1)	<1
<i>Drosera spatulata</i>	1(1-1)	9	1(1-1)	1
<i>Empodisma minus</i>	1(1-1)	12	2(1-2)	3
<i>Entolasia stricta</i>	1(1-1)	47	1(1-2)	33
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	65	1(1-1)	4
<i>Epacris obtusifolia</i>	1(1-1)	10	1(1-1)	1
<i>Epacris pulchella</i>	1(1-1)	16	1(1-1)	5
<i>Eriostemon australasius</i>	1(1-1)	20	1(1-1)	3
<i>Eucalyptus camfieldii</i>	1(1-1)	2	2(2-5)	<1
<i>Eucalyptus capitellata</i>	1(1-1)	2	3(2-3)	<1
<i>Eucalyptus haemastoma</i>	1(1-2)	15	1(1-2)	1
<i>Eucalyptus luehmanniana</i>	3(2-3)	6	3(1-3)	<1
<i>Eucalyptus oblonga</i>	1(1-1)	10	1(1-2)	2
<i>Eucalyptus obstans</i>	1(1-2)	15	1(1-2)	<1
<i>Eucalyptus racemosa</i>	2(1-2)	21	2(1-2)	1
<i>Eucalyptus squamosa</i>	1(1-2)	5	1(1-1)	<1
<i>Eurychorda complanata</i>	1(1-1)	6	1(1-1)	1
<i>Euryomyrtus ramosissima</i>	1(1-1)	9	1(1-1)	<1
<i>Glossodia minor</i>	1(1-2)	4	1(1-1)	<1
<i>Gompholobium glabratum</i>	1(1-1)	21	1(1-1)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	11	1(1-1)	3
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	21	1(1-1)	4
<i>Goodenia dimorpha</i> var. <i>angustifolia</i>	1(1-1)	4	1(1-1)	<1
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	11	1(1-1)	3
<i>Grevillea diffusa</i>	1(1-1)	10	1(1-1)	1
<i>Grevillea oleoides</i>	1(1-2)	31	1(1-1)	1
<i>Grevillea patulifolia</i>	1(1-1)	2	1(1-1)	<1
<i>Grevillea sericea</i>	1(1-1)	20	1(1-1)	2
<i>Grevillea speciosa</i>	2(1-2)	6	1(1-1)	<1
<i>Grevillea sphacelata</i>	1(1-2)	21	1(1-1)	1

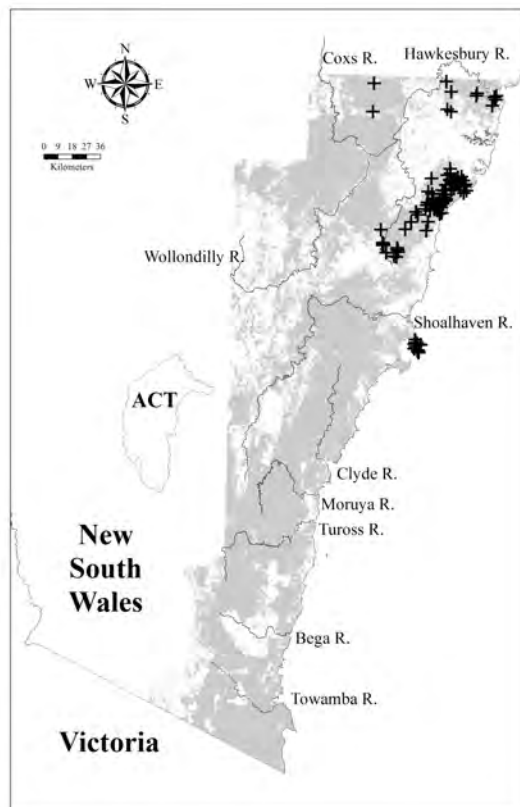
<i>Guringalia dimorpha</i>	2(1-2)	13	1(1-2)	1
<i>Haemodorum corymbosum</i>	1(1-2)	12	1(1-1)	1
<i>Haemodorum planifolium</i>	1(1-1)	6	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-2)	76	1(1-1)	11
<i>Hakea gibbosa</i>	1(1-1)	11	1(1-1)	1
<i>Hakea teretifolia</i>	1(1-2)	53	1(1-2)	4
<i>Hemigenia purpurea</i>	1(1-1)	21	1(1-1)	<1
<i>Hibbertia fasciculata</i>	1(1-1)	5	1(1-1)	<1
<i>Hibbertia riparia</i>	1(1-1)	28	1(1-1)	2
<i>Hibbertia rufa</i>	1(1-1)	4	1(1-1)	1
<i>Hibbertia serpyllifolia</i>	1(1-2)	23	1(1-1)	1
<i>Hybanthus monopetalus</i>	1(1-1)	10	1(1-1)	2
<i>Hypolaena fastigiata</i>	1(1-1)	5	1(1-1)	1
<i>Isopogon anemonifolius</i>	1(1-1)	64	1(1-1)	7
<i>Isopogon anethifolius</i>	1(1-2)	16	1(1-1)	2
<i>Kunzea capitata</i>	1(1-2)	38	1(1-1)	1
<i>Lambertia formosa</i>	1(1-1)	64	1(1-2)	8
<i>Lepidosperma filiforme</i>	2(1-3)	18	1(1-2)	2
<i>Lepidosperma neesii</i>	1(1-3)	9	1(1-2)	1
<i>Lepidosperma viscidum</i>	1(1-1)	4	1(1-2)	1
<i>Leptospermum squarrosum</i>	1(1-1)	11	1(1-1)	1
<i>Leptospermum arachnoides</i>	1(1-1)	35	1(1-1)	2
<i>Leptospermum epacridoideum</i>	1(1-2)	7	1(1-2)	<1
<i>Leptospermum juniperinum</i>	1(1-1)	17	1(1-2)	1
<i>Leptospermum parvifolium</i>	1(1-1)	4	1(1-1)	1
<i>Leptospermum polygalifolium</i>	1(1-1)	18	1(1-2)	8
<i>Leptocarpus tenax</i>	1(1-1)	28	2(1-2)	2
<i>Leptospermum trinervium</i>	1(1-2)	55	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-3)	55	1(1-2)	5
<i>Leucopogon esquamatus</i>	1(1-1)	32	1(1-1)	1
<i>Leucopogon microphyllus</i>	1(1-2)	33	1(1-1)	2
<i>Lindsaea linearis</i>	1(1-1)	55	1(1-1)	6
<i>Lomandra cylindrica</i>	1(1-1)	15	1(1-1)	4
<i>Lomandra glauca</i>	1(1-1)	36	1(1-1)	10
<i>Lomandra obliqua</i>	1(1-1)	54	1(1-1)	13
<i>Lomatia silaifolia</i>	1(1-1)	18	1(1-1)	10
<i>Lycopodiella lateralis</i>	1(1-1)	2	1(1-1)	<1
<i>Melaleuca thymifolia</i>	1(1-1)	10	1(1-1)	1
<i>Micrantheum hexandrum</i>	1(1-1)	4	1(1-1)	<1
<i>Micromyrtus ciliata</i>	1(1-1)	5	1(1-1)	<1
<i>Micrantheum ericoides</i>	1(1-1)	18	1(1-1)	2
<i>Mirbelia baueri</i>	1(1-1)	3	2(2-2)	<1
<i>Mirbelia rubiifolia</i>	1(1-1)	44	1(1-1)	2
<i>Mirbelia speciosa</i> subsp. <i>speciosa</i>	1(1-1)	7	1(1-1)	<1
<i>Mitrasacme polymorpha</i>	1(1-1)	35	1(1-1)	3
<i>Olox stricta</i>	1(1-1)	7	1(1-1)	1

<i>Patersonia glabrata</i>	1(1-1)	28	1(1-1)	10
<i>Patersonia sericea</i>	1(1-1)	42	1(1-1)	8
<i>Persoonia lanceolata</i>	1(1-1)	25	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	31	1(1-1)	13
<i>Persoonia pinifolia</i>	1(1-1)	19	1(1-1)	3
<i>Petrophile pulchella</i>	1(1-1)	49	1(1-1)	5
<i>Petrophile sessilis</i>	1(1-2)	17	1(1-1)	1
<i>Philotheca buxifolia</i>	1(1-1)	18	1(1-1)	<1
<i>Philotheca salsolifolia</i> subsp. <i>salsolifolia</i>	1(1-2)	4	1(1-2)	<1
<i>Phyllota phyllicoides</i>	1(1-2)	24	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	56	1(1-1)	13
<i>Platysace ericoides</i>	1(1-2)	9	1(1-1)	3
<i>Platysace linearifolia</i>	1(1-1)	35	1(1-1)	8
<i>Poranthera ericifolia</i>	1(1-1)	9	1(1-1)	1
<i>Prostanthera densa</i>	1(1-1)	4	1(1-1)	<1
<i>Ptilothrix deusta</i>	1(1-2)	34	1(1-2)	2
<i>Pultenaea aristata</i>	1(1-2)	4	1(1-1)	<1
<i>Pultenaea tuberculata</i>	1(1-2)	47	1(1-1)	2
<i>Pultenaea villifera</i> var. <i>villifera</i>	1(1-1)	4	1(1-3)	<1
<i>Rhytidosporum procumbens</i>	1(1-1)	9	1(1-1)	3
<i>Saropsis fastigiata</i>	1(1-3)	18	1(1-3)	<1
<i>Scaevola ramosissima</i>	1(1-1)	15	1(1-1)	3
<i>Schizaea bifida</i>	1(1-1)	5	1(1-1)	1
<i>Schoenus ericetorum</i>	1(1-2)	13	1(1-1)	1
<i>Schoenus imberbis</i>	1(1-1)	8	1(1-1)	1
<i>Schoenus lepidosperma</i> subsp. <i>pachylepis</i>	1(1-3)	7	1(1-2)	<1
<i>Schoenus paludosus</i>	1(1-1)	4	1(1-2)	<1
<i>Schoenus turbinatus</i>	1(1-1)	4	1(1-1)	<1
<i>Selaginella uliginosa</i>	1(1-1)	16	1(1-1)	2
<i>Sowerbaea juncea</i>	1(1-2)	7	1(1-1)	1
<i>Sphaerolobium vimineum</i>	1(1-1)	5	1(1-1)	<1
<i>Sprengelia incarnata</i>	1(1-1)	4	1(1-2)	1
<i>Stylidium lineare</i>	1(1-1)	25	1(1-1)	1
<i>Styphelia tubiflora</i>	1(1-1)	7	1(1-1)	1
<i>Tetradthea neglecta</i>	1(1-1)	13	1(1-1)	1
<i>Tetradthea shiressii</i>	2(1-2)	4	1(1-1)	<1
<i>Thelymitra ixiooides</i> var. <i>ixiooides</i>	1(1-1)	3	1(1-1)	<1
<i>Thelionema umbellatum</i>	1(1-1)	2	1(1-1)	<1
<i>Thysanotus juncifolius</i>	1(1-1)	4	1(1-1)	<1
<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	1(1-1)	15	1(1-1)	1
<i>Tricostularia pauciflora</i>	1(1-1)	10	1(1-1)	<1
<i>Tricoryne simplex</i>	1(1-1)	4	1(1-1)	<1
<i>Viminaria juncea</i>	1(1-1)	4	1(1-1)	<1
<i>Woollsia pungens</i>	1(1-1)	7	1(1-1)	2
<i>Xanthorrhoea media</i>	2(1-2)	21	1(1-2)	4
<i>Xanthorrhoea resinifera</i>	1(1-2)	43	1(1-1)	3

<i>Xanthosia tridentata</i>	1(1-1)	32	1(1-1)	5
<i>Xyris bracteata</i>	1(1-1)	11	1(1-1)	<1
<i>Xyris gracilis</i>	1(1-2)	16	1(1-1)	<1
<i>Zieria laevigata</i>	1(1-1)	3	1(1-1)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia eximia</i>	1(1-1)	1	1(1-2)	2
<i>Eucalyptus apiculata</i>	3(3-3)	1	2(1-3)	<1
<i>Eucalyptus multicaulis</i>	2(2-2)	1	1(1-3)	<1
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	1(1-1)	1	1(1-3)	<1
<i>Eucalyptus sclerophylla</i>	2(1-3)	5	2(1-3)	4
<i>Eucalyptus sieberi</i>	1(1-2)	15	2(1-3)	16
<i>Eucalyptus</i> sp. 'Cattai'	1(1-1)	1	0(0-0)	0
<i>Eucalyptus stricta</i>	2(1-2)	3	1(1-2)	1



Locations of survey sites allocated to HL p117. Grey shading indicates extant native vegetation cover within the study area.

HL p120: Kanangra-Ti Willa Montane Heath



Plate p120. Kanangra-Ti Willa Montane Heath (Map Unit p120) on the Ti Willa Plateau dominated by a dense shrub layer *Allocasuarina nana* and *Leptospermum trinervium* with occasional individuals of *Banksia ericifolia* and *Eucalyptus stricta* emergent. The sparse ground cover is dominated by sedges and rushes such as *Lepyrodia scariosa* and *Schoenus villosus*.

Sample Sites: 8

Area Extant (ha): 1100

Estimated % remaining: >95%

Area in conservation reserves (ha): 1100

Estimated % of pre-clearing area in conservation reserves: >95%

No. taxa (total / unique): 94 / 0

No. taxa per plot (\pm sd): 26.5 (8.4)

Class: Sydney Montane Heaths

Related TEC: n/a

Kanangra-Ti Willa Montane Heath (HL p120) is equivalent to HL 120 identified by Tindall *et al.* (2004), and has an open to dense shrub canopy with scattered emergent mallees and a thick groundcover of sedges and forbs. This unit is restricted to high exposed plateaux on residual Permian sediments (Berry Formation and Illawarra Coal Measures) and underlying Devonian Lambie Group sediments in the Kanangra area. The main occurrences are on Gangerang Plateau, Ti Willa Tops, Thurat Tops, Kanangra Tops, Mount Merrimerrigal and Mount Guouogang. All of these areas are remote locations within conservation reserves, beyond the influence of major threats. Within this distribution Kanangra-Ti Willa Montane Heath occurs on damp shallow sandy loams at altitudes generally between 800m and 1150m ASL, where mean annual rainfall is 1000-1150mm.

Floristic Summary:

Trees: *Eucalyptus stricta*. **Shrubs:** *Baeckea brevifolia*, *Allocasuarina nana*, *Isopogon anemonifolius*, *Platysace linearifolia*, *Banksia ericifolia*, *Brachyloma daphnoides*, *Epacris microphylla*, *Hakea laevipes*, *Isopogon anethifolius*, *Mirbelia rubiifolia*, *Platysace lanceolata*. **Groundcover:** *Dampiera stricta*, *Lepyrodia scariosa*, *Drosera peltata*, *Schoenus villosus*, *Goodenia bellidifolia*, *Amphipogon strictus*, *Gahnia microstachya*, *Lindsaea linearis*.

Vegetation structure:

Stratum	Frequency (n=6)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	50	3.2 (0.8)	7 (5.2)
Small tree	100	2.8 (1.6)	56.7 (34.6)
Shrub	50	2 (-)	40.7 (18.3)
Ground cover	100	0.5 (0.1)	42.5 (26.6)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 13 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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:

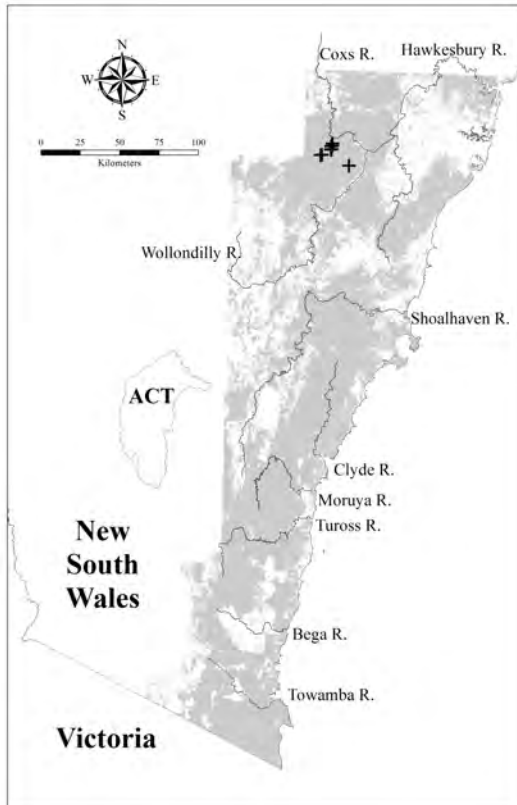
Species	C/A	Freq	C/A O	Freq O
<i>Allocasuarina nana</i>	5(3-5)	75	2(1-4)	1
<i>Amphipogon strictus</i> var. <i>strictus</i>	2(1-2)	50	1(1-1)	<1
<i>Baeckea brevifolia</i>	3(2-4)	100	1(1-2)	<1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	3(1-4)	50	1(1-2)	7
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	63	1(1-2)	15
<i>Brachyloma daphnoides</i>	2(1-2)	50	1(1-1)	7
<i>Dampiera stricta</i>	1(1-1)	88	1(1-1)	8
<i>Dillwynia brunioides</i>	1(1-2)	38	1(1-1)	<1
<i>Drosera peltata</i>	2(1-2)	75	1(1-1)	2
<i>Epacris microphylla</i> var. <i>microphylla</i>	3(1-3)	50	1(1-1)	5
<i>Eucalyptus stricta</i>	1(1-2)	50	1(1-2)	1
<i>Gahnia microstachya</i>	1(1-3)	50	1(1-2)	1
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-2)	63	1(1-1)	4
<i>Hakea dactyloides</i>	3(1-3)	75	1(1-1)	12
<i>Hibbertia riparia</i>	1(1-2)	38	1(1-1)	2
<i>Isopogon anemonifolius</i>	1(1-1)	75	1(1-1)	8
<i>Isopogon anethifolius</i>	1(1-1)	50	1(1-1)	2
<i>Lepidosperma viscidum</i>	2(1-4)	38	1(1-2)	1
<i>Leptospermum trinervium</i>	2(1-3)	63	1(1-2)	16
<i>Lepyrodia scariosa</i>	3(1-3)	88	1(1-2)	6
<i>Lindsaea linearis</i>	2(1-3)	50	1(1-1)	7
<i>Lomandra glauca</i>	1(1-1)	50	1(1-1)	10
<i>Mirbelia rubiifolia</i>	2(2-2)	50	1(1-1)	3
<i>Patersonia longifolia</i>	2(1-2)	25	1(1-1)	2
<i>Phyllota squarrosa</i>	1(1-1)	25	1(1-2)	<1
<i>Platysace linearifolia</i>	1(1-1)	63	1(1-1)	8
<i>Prostanthera saxicola</i>	2(1-2)	25	1(1-1)	<1
<i>Pseudanthus divaricatissimus</i>	1(1-1)	25	1(1-1)	<1
<i>Schoenus melanostachys</i>	4(1-4)	25	1(1-2)	2
<i>Schoenus moorei</i>	3(2-3)	38	1(1-2)	<1
<i>Schoenus villosus</i>	3(3-3)	75	1(1-1)	<1
<i>Sphaerolobium vimineum</i>	2(2-2)	25	1(1-1)	<1
<i>Tetratheca bauerifolia</i>	1(1-1)	25	1(1-1)	1
<i>Thelymitra ixioides</i> var. <i>ixioides</i>	1(1-1)	38	1(1-1)	<1
<i>Xanthorrhoea resinifera</i>	1(1-1)	38	1(1-2)	4

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Leptospermum polygalifolium</i>	3(2-3)	38	1(1-2)	8
<i>Platysace lanceolata</i>	1(1-2)	50	1(1-1)	13

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	1(1-1)	13	2(1-2)	16
<i>Eucalyptus burgessiana</i>	1(1-1)	13	1(1-3)	0



Locations of survey sites allocated to HL p120. Grey shading indicates extant native vegetation cover within the study area.

HL p121: Loombah Plateau Heath



Plate p121. Loombah Plateau Heath (Map Unit p121) on the Murrain Range east of Mount Werrong. Scattered clumps of the mallee *Eucalyptus stricta* are shown interspersed with large shrub species such as *Leptospermum grandifolium*, *Banksia marginata* and *Hakea laevipes* subsp. *laevipes* and smaller species such as *Kunzea cambagei*, *Epacris microphylla* var. *microphylla* and *Gahnia filifolia*.

Sample Sites: 4

Area Extant (ha): 340

Estimated % remaining: >95%

Area in conservation reserves (ha): 330

Estimated % of pre-clearing area in conservation reserves: >95%

No. taxa (total / unique): 76 / 1

No. taxa per plot (\pm sd): 35 (6.7)
Class: Sydney Montane Heaths
Related TEC: n/a

Loombah Plateau Heath (HL p121) is equivalent to HL 121 identified by Tindall *et al.* (2004). This unit is characterised by an open shrub canopy with scattered patches of emergent mallees and a thick groundcover of sedges and forbs. This unit was only sampled on the Loombah Plateau in the western Blue Mountains, where it occupies damp, shallow to skeletal sandy loams with mean annual rainfall of 1050mm and elevations of 1100m to 1200m ASL. Loombah Plateau Heath appears to be associated with the Thurat Tops soil landscape, characterised by gently inclined plateau crests and sideslopes on Devonian Lambie Group metasediments (King 1994). In areas of poor drainage Loombah Plateau Heath may grade into Tableland Bog (FrW p53). The surrounding forest is Cool Montane Wet Forest (WSF p73) in sheltered areas or Tableland Ridge Forest (DSF p8) on drier slopes and ridges. Loombah Plateau Heath occurs within a relatively remote part of Blue Mountains National Park beyond the influence of major threats.

Floristic Summary:

Trees: *Eucalyptus dalrympleana*, *Eucalyptus stricta*. **Shrubs:** *Banksia marginata*, *Epacris microphylla*, *Hibbertia serpyllifolia*, *Leptospermum continentale*, *Lomatia silaifolia*, *Platysace linearifolia*, *Kunzea cambagei*, *Leucopogon microphyllus*, *Lomatia ilicifolia*, *Rhytidosporum procumbens*. **Groundcover:** *Gahnia filifolia*, *Grevillea laurifolia*, *Lepyrodia scariosa*, *Drosera peltata*, *Goodenia bellidifolia*, *Lindsaea linearis*, *Patersonia fragilis*, *Sowerbaea juncea*, *Sphaerolobium minus*, *Stackhousia viminea*, *Thelymitra ixioides*.

Vegetation structure:

Stratum	Frequency (n=4)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	25	6.5 (-)	1 (-)
Tree canopy	100	9 (6.1)	23.3 (10.4)
Small tree	50	7.5 (0.7)	24.5 (29)
Shrub	75	1.5 (0.5)	48.3 (62.1)
Ground cover	100	0.4 (0.1)	35 (35.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 17 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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 17 positive diagnostic species.

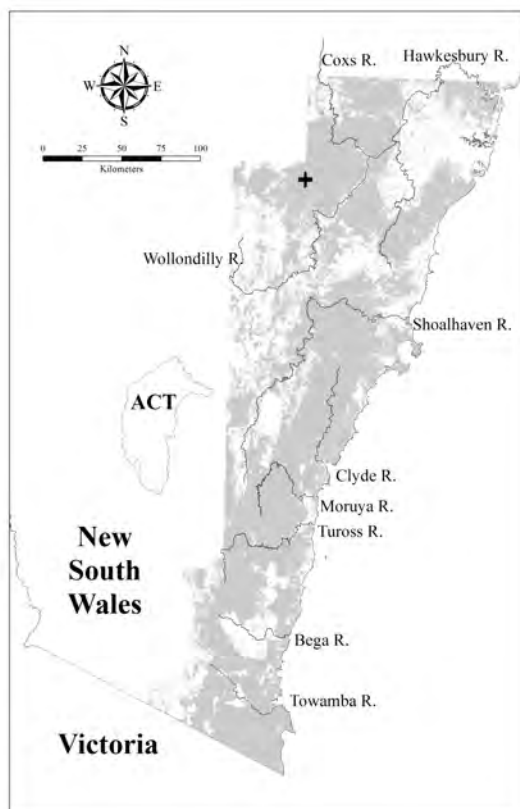
Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Arrhenechthites mixta</i>	1(1-1)	25	1(1-1)	1
<i>Baloskion australe</i>	2(2-2)	25	1(1-2)	<1
<i>Banksia cunninghamii</i> subsp. <i>cunninghamii</i>	1(1-1)	25	1(1-1)	<1
<i>Banksia marginata</i>	3(3-4)	75	1(1-1)	3
<i>Baumea acuta</i>	1(1-1)	25	1(1-1)	<1
<i>Choretrum pauciflorum</i>	1(1-1)	25	1(1-1)	1
<i>Cryptostylis erecta</i>	1(1-1)	25	1(1-1)	1
<i>Dillwynia brunioides</i>	1(1-1)	25	1(1-1)	<1
<i>Drosera peltata</i>	1(1-1)	50	1(1-1)	2
<i>Epacris microphylla</i> var. <i>microphylla</i>	2(1-3)	75	1(1-1)	5
<i>Epacris purpurascens</i> var. <i>onosmiflora</i>	2(1-2)	50	1(1-1)	<1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	1(1-2)	100	1(1-2)	3
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(3-3)	50	2(1-3)	6
<i>Eucalyptus stricta</i>	3(1-4)	100	1(1-2)	1
<i>Gahnia filifolia</i>	3(1-3)	75	1(1-1)	<1
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	2(1-2)	50	1(1-1)	4
<i>Grevillea laurifolia</i>	1(1-2)	100	1(1-1)	<1
<i>Hakea dactyloides</i>	2(1-2)	100	1(1-1)	12
<i>Hibbertia serpyllifolia</i>	2(1-2)	100	1(1-1)	1
<i>Kunzea cambagei</i>	5(5-5)	50	1(1-2)	<1
<i>Lepidosperma tortuosum</i>	1(1-1)	25	1(1-1)	<1
<i>Leptospermum continentale</i>	1(1-1)	75	1(1-1)	3
<i>Leptospermum grandifolium</i>	2(2-2)	25	1(1-2)	1
<i>Leptospermum macrocarpum</i>	1(1-1)	25	0(0-0)	0
<i>Lepyrodia scariosa</i>	2(2-3)	75	1(1-2)	6
<i>Leucopogon microphyllus</i>	1(1-2)	75	1(1-1)	3
<i>Lomatia ilicifolia</i>	1(1-1)	75	1(1-1)	6
<i>Lomatia silaifolia</i>	2(1-2)	100	1(1-1)	10
<i>Patersonia fragilis</i>	1(1-1)	50	1(1-1)	<1
<i>Persoonia microphylla</i>	1(1-1)	25	1(1-1)	<1
<i>Persoonia oxycoccoides</i>	1(1-1)	25	1(1-2)	<1
<i>Platysace linearifolia</i>	1(1-1)	75	1(1-1)	8
<i>Plinthanthesis paradoxa</i>	1(1-1)	25	1(1-1)	<1

<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-2)	75	1(1-2)	11
<i>Rhytidosporum procumbens</i>	1(1-1)	75	1(1-1)	3
<i>Sowerbaea juncea</i>	1(1-1)	50	1(1-1)	1
<i>Sphaerolobium minus</i>	1(1-1)	50	1(1-1)	<1
<i>Stackhousia viminea</i>	1(1-1)	75	1(1-1)	3
<i>Thelymitra ixioides</i> var. <i>ixioides</i>	1(1-1)	50	1(1-1)	<1
<i>Thelymitra pauciflora</i>	1(1-1)	25	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	50	1(1-2)	15
<i>Dampiera stricta</i>	1(1-1)	50	1(1-1)	8
<i>Dianella caerulea</i>	1(1-1)	50	1(1-1)	28
<i>Eucalyptus sieberi</i>	3(3-3)	50	2(1-3)	16
<i>Gonocarpus tetragynus</i>	1(1-1)	75	1(1-1)	20
<i>Joycea pallida</i>	1(1-1)	50	1(1-2)	8
<i>Leptospermum polygalifolium</i>	3(1-3)	50	1(1-2)	8
<i>Lindsaea linearis</i>	1(1-1)	50	1(1-1)	7
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	2(1-2)	50	1(1-2)	10
<i>Lomandra glauca</i>	1(1-1)	50	1(1-1)	10
<i>Lomandra longifolia</i>	2(1-2)	50	1(1-1)	44
<i>Monotoca scoparia</i>	2(1-2)	50	1(1-1)	12
<i>Stylidium graminifolium</i>	1(1-1)	50	1(1-1)	9
<i>Xanthosia pilosa</i>	1(1-1)	50	1(1-1)	8



Locations of survey sites allocated to HL p121. Grey shading indicates extant native vegetation cover within the study area.

HL p122: Morton Mallee-Heath

Plate p122. Morton Mallee-Heath (Map Unit p122) near Tolwong, Moreton National Park, shown in the early stages of post-fire recovery. Scattered resprouting species such as mallee Eucalypts and *Leptospermum trinervium* are shown interspersed with a diverse array of juvenile or smaller resprouting shrubs including *Isopogon anemonifolius*, *Allocasuarina distyla*, *Banksia ericifolia* and *Hakea teretifolia*. The diverse ground layer, soon to be over-topped, includes *Lepyrodia scariosa*, *Goodenia bellidifolia*, *Entolasia stricta* and *Patersonia sericea*.

Sample Sites: 47

Area Extant (ha): 37600

Estimated % remaining: >95%

Area in conservation reserves (ha): 33700

Estimated % of pre-clearing area in conservation reserves: 80-95%

No. taxa (total / unique): 361 / 8

No. taxa per plot (\pm sd): 45.7 (15.8)

Class: transitional between the Sydney Montane Heaths and Sydney Montane Dry Sclerophyll Forests.

Related TEC: n/a

Morton Mallee-Heath (HL p122) is equivalent to HL 122 identified by Tindall *et al.* (2004), and has an open to dense shrub canopy with emergent mallees and a thick groundcover of sedges and forbs. This unit occurs on damp shallow sandy loams on sandstone, at elevations from 10m to 750m, where mean annual rainfall varies from 900-1400mm. Morton Mallee-Heath is widespread on Permian Shoalhaven Group sandstones on the Morton plateau from Tallong south to Wog Wog and east to Yerrilyong and Porters Creek, extending east to the coast, where it is scattered from Booderee to Meroo Point on Shoalhaven Conjola Formation sandstones.

Much of Morton Mallee-Heath's original distribution is within conservation reserves, where altered fire regimes and unauthorised use of off-road vehicles pose the main threats.

Floristic Summary:

Trees: *Eucalyptus sclerophylla*, *Corymbia gummifera*. **Shrubs:** *Leptospermum trinervium*, *Hakea teretifolia*, *Banksia ericifolia*, *B. spinulosa*, *Epacris microphylla*, *Hakea laevipes*, *Banksia paludosa*, *Isopogon anemonifolius*, *Lambertia formosa*, *Persoonia mollis ssp leptophylla*. **Groundcover:** *Lepyrodia scariosa*, *Patersonia sericea*, *Lindsaea linearis*, *Gonocarpus tetragynus*, *Goodenia bellidifolia*, *Ptilothrix deusta*.

Vegetation structure:

Stratum	Frequency (n=35)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	-	- (-)	- (-)
Tree canopy	97	10.2 (4.4)	15.7 (12.6)
Small tree	31	4.5 (0.7)	24.3 (21.3)
Shrub	80	2.2 (0.7)	39.8 (20.3)
Ground cover	97	0.8 (0.3)	48.1 (26.8)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 19 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 33 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 19 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia elongata</i>	1(1-1)	28	1(1-1)	1
<i>Acacia suaveolens</i>	1(1-1)	21	1(1-1)	7
<i>Acacia ulicifolia</i>	1(1-1)	26	1(1-1)	10
<i>Actinotus minor</i>	1(1-1)	40	1(1-1)	4
<i>Allocasuarina distyla</i>	2(1-3)	30	1(1-1)	2
<i>Allocasuarina paludosa</i>	1(1-3)	17	2(1-3)	1
<i>Anisopogon avenaceus</i>	1(1-1)	21	1(1-2)	5
<i>Aotus ericoides</i>	1(1-1)	28	1(1-1)	3
<i>Austrostipa pubescens</i>	1(1-1)	21	1(1-2)	5
<i>Baeckea brevifolia</i>	1(1-3)	17	1(1-3)	<1
<i>Baeckea diosmifolia</i>	1(1-1)	26	1(1-1)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	2(1-2)	62	1(1-2)	6
<i>Banksia paludosa</i>	1(1-2)	55	1(1-2)	2
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	60	1(1-2)	15
<i>Bossiaea ensata</i>	1(1-1)	23	1(1-1)	2
<i>Bossiaea heterophylla</i>	1(1-1)	23	1(1-1)	6
<i>Burchardia umbellata</i>	1(1-1)	30	1(1-1)	2
<i>Cassutha glabella</i>	1(1-1)	38	1(1-1)	8
<i>Corymbia gummifera</i>	2(1-2)	53	2(1-2)	15
<i>Cyathochaeta diandra</i>	2(1-3)	26	1(1-2)	8
<i>Dampiera stricta</i>	1(1-1)	43	1(1-1)	8
<i>Dillwynia brunioides</i>	1(1-1)	19	1(1-1)	<1
<i>Dillwynia ramosissima</i>	1(1-1)	17	1(1-1)	<1
<i>Drosera peltata</i>	1(1-1)	17	1(1-1)	2
<i>Drosera spatulata</i>	1(1-1)	23	1(1-1)	1
<i>Empodisma minus</i>	2(2-3)	17	1(1-2)	3
<i>Entolasia stricta</i>	1(1-1)	64	1(1-2)	34
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-2)	53	1(1-1)	4
<i>Eucalyptus consideniiana</i>	1(1-3)	28	2(1-2)	2
<i>Eucalyptus obstans</i>	2(1-2)	17	1(1-2)	<1
<i>Eucalyptus sclerophylla</i>	1(1-2)	64	2(1-3)	3
<i>Gompholobium glabratum</i>	1(1-1)	28	1(1-1)	2
<i>Gonocarpus tetragynus</i>	1(1-2)	53	1(1-1)	20
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	55	1(1-1)	4
<i>Grevillea patulifolia</i>	1(1-1)	19	1(1-1)	<1
<i>Hakea dactyloides</i>	1(1-2)	70	1(1-1)	12
<i>Hakea teretifolia</i>	1(1-2)	64	1(1-2)	4
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	19	1(1-1)	6
<i>Hibbertia riparia</i>	1(1-1)	28	1(1-1)	2
<i>Isopogon anemonifolius</i>	1(1-1)	53	1(1-1)	8
<i>Isopogon anethifolius</i>	1(1-2)	43	1(1-1)	2

<i>Kunzea capitata</i>	1(1-1)	47	1(1-2)	1
<i>Lambertia formosa</i>	1(1-2)	47	1(1-2)	9
<i>Lepidosperma filiforme</i>	1(1-2)	21	1(1-2)	2
<i>Leptospermum squarrosus</i>	1(1-1)	26	1(1-1)	1
<i>Leptospermum continentale</i>	1(1-1)	23	1(1-1)	3
<i>Leptospermum polygalifolium</i>	2(1-2)	38	1(1-2)	8
<i>Leptospermum rotundifolium</i>	2(1-2)	32	1(1-2)	1
<i>Leptospermum trinervium</i>	1(1-2)	81	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-2)	72	1(1-2)	5
<i>Leucopogon esquamatus</i>	1(1-1)	28	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	64	1(1-1)	7
<i>Lomandra cylindrica</i>	1(1-2)	17	1(1-1)	4
<i>Lomandra glauca</i>	1(1-1)	55	1(1-1)	10
<i>Lomatia ilicifolia</i>	1(1-1)	43	1(1-1)	6
<i>Lomandra obliqua</i>	1(1-1)	43	1(1-1)	14
<i>Melaleuca capitata</i>	1(1-1)	19	1(1-1)	<1
<i>Mirbelia rubrifolia</i>	1(1-1)	36	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	32	1(1-1)	3
<i>Patersonia sericea</i>	1(1-1)	68	1(1-1)	9
<i>Persoonia levis</i>	1(1-1)	40	1(1-1)	13
<i>Persoonia mollis</i> subsp. <i>leptophylla</i>	1(1-1)	49	1(1-1)	1
<i>Persoonia mollis</i> subsp. <i>caleyi</i>	1(1-1)	19	1(1-1)	1
<i>Petrophile sessilis</i>	1(1-1)	49	1(1-1)	1
<i>Phyllota phyllicoides</i>	1(1-1)	23	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>collina</i>	1(1-1)	19	1(1-1)	1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	38	1(1-1)	13
<i>Ptilothrix deusta</i>	1(1-2)	53	1(1-2)	2
<i>Stylidium lineare</i>	1(1-1)	26	1(1-1)	2
<i>Xanthorrhoea concava</i>	1(1-1)	23	1(1-1)	4
<i>Xanthosia tridentata</i>	1(1-2)	28	1(1-1)	5

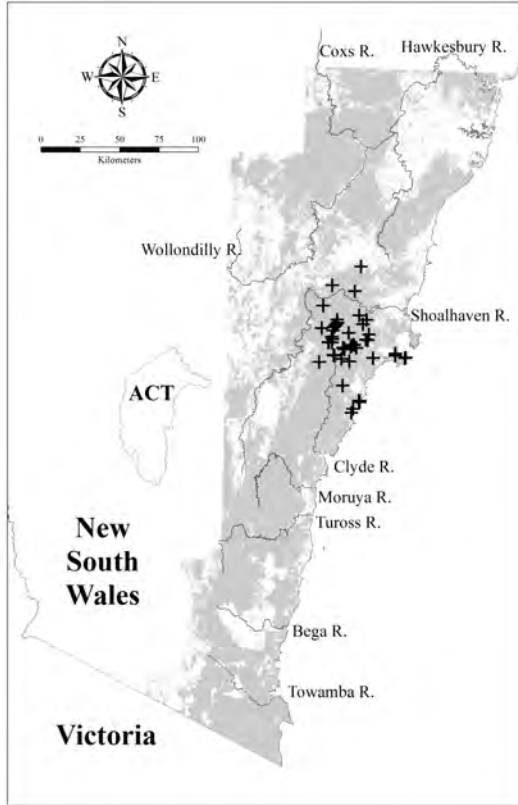
Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-1)	32	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	3(1-3)	6	2(1-3)	7
<i>Eucalyptus botryoides</i>	1(1-1)	4	2(1-3)	3
<i>Eucalyptus dives</i>	1(1-1)	2	2(1-3)	4
<i>Eucalyptus imitans</i>	3(3-3)	2	1(1-1)	<1
<i>Eucalyptus langleyi</i>	2(2-2)	2	0(0-0)	0
<i>Eucalyptus mannifera</i>	1(1-1)	9	2(1-3)	4
<i>Eucalyptus multicaulis</i>	1(1-1)	2	2(1-3)	<1
<i>Eucalyptus piperita</i>	1(1-2)	6	2(1-3)	9
<i>Eucalyptus punctata</i>	3(1-3)	9	2(1-3)	9
<i>Eucalyptus sieberi</i>	1(1-1)	17	2(1-3)	16

<i>Eucalyptus stricta</i>	1(1-2)	15	1(1-2)	1
<i>Eucalyptus sturgissiana</i>	2(1-2)	4	2(2-2)	<1
<i>Eucalyptus tenella</i>	1(1-1)	6	0(0-0)	0
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	2	2(1-3)	8



Locations of survey sites allocated to HL p122. Grey shading indicates extant native vegetation cover within the study area.

HL p124: Blue Mountains Heath



Plate p124. Blue Mountains Heath (Map Unit p124) in Glen Raphael Swamp, Narrow Neck Plateau, Blue Mountains National Park. The taller shrubs include *Banksia ericifolia* and *Leptospermum polygalifolium* subsp. *polygalifolium* interspersed with small species such as *Allocasuarina nana* and *Petrophile pulchella*. The mallee *Eucalyptus stricta* is also present while the groundcover is dominated by dense swards of *Saropsis fastigiata*.

Sample Sites: 25
 Area Extant (ha): 7900
 Estimated % remaining: >95%
 Area in conservation reserves (ha): 6200
 Estimated % of pre-clearing area in conservation reserves: 70-85%
 No. taxa (total / unique): 203 / 3
 No. taxa per plot (\pm sd): 37.3 (11.3)
 Class: Sydney Montane Heaths
 Related TEC: n/a

Blue Mountains Heath (HL p124) is equivalent to HL 124 identified by Tindall *et al.* (2004), and is characterised by an open to dense shrub canopy with emergent mallees and a groundcover of sedges and forbs. This unit has a widespread distribution as scattered patches across the upper Blue Mountains, from Hassans Walls to Bell, east to Linden Ridge and south to Narroneck Plateau and Kedumba Walls. It was also recorded from residual Triassic sandstone plateaux on the Tonalli Range. Blue Mountains Heath occupies areas of shallow, damp sandy loam on exposed Narrabeen sandstone plateaux at 600-1150m ASL, where mean annual rainfall varies from 1000 to 1350mm. Blue Mountains Heath is floristically related to Upper Shoalhaven Montane Heath (HL p123), however the two communities have clearly disjunct distributions. Blue Mountains Heath is commonly associated with a matrix of Blue Mountains Ridgetop Forest (DSF p136).

While some areas of Blue Mountains Heath have been cleared during the development of Blue Mountains towns, most of its distribution is within conservation reserves.

Floristic Summary:

Trees: *Eucalyptus stricta*. **Shrubs:** *Isopogon anemonifolius*, *Allocasuarina nana*, *Leptospermum trinervium*, *Lomandra glauca*, *Platysace linearifolia*, *Petrophile pulchella*, *Banksia ericifolia*, *Hakea laevipes*, *Brachyloma daphnoides*, *Conospermum taxifolium*, *Epacris microphylla*, *Leptospermum arachnoides*. **Groundcover:** *Dampiera stricta*, *Goodenia bellidifolia*, *Lepidosperma viscidum*, *Patersonia sericea*.

Vegetation structure:

Stratum	Frequency (n=2)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	50	4 (-)	5 (-)
Tree canopy	-	- (-)	- (-)
Small tree	-	- (-)	- (-)
Shrub	100	1.8 (0.4)	42.5 (3.5)
Ground cover	100	0.8 (0.4)	40 (14.1)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 17 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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 17 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Actinotus minor</i>	1(1-2)	20	1(1-1)	5
<i>Allocasuarina distyla</i>	1(1-2)	24	1(1-2)	2
<i>Allocasuarina nana</i>	2(1-3)	92	2(1-4)	1
<i>Amphipogon strictus</i> var. <i>strictus</i>	1(1-1)	24	1(1-2)	<1
<i>Austrostipa pubescens</i>	1(1-1)	24	1(1-2)	5
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-3)	68	1(1-2)	7
<i>Banksia serrata</i>	1(1-1)	32	1(1-2)	9
<i>Bossiaea heterophylla</i>	1(1-1)	28	1(1-1)	6
<i>Brachyloma daphnoides</i>	1(1-1)	56	1(1-1)	6
<i>Conospermum taxifolium</i>	1(1-1)	56	1(1-1)	1
<i>Dampiera stricta</i>	1(1-1)	96	1(1-1)	8
<i>Darwinia fascicularis</i> subsp. <i>oligantha</i>	1(1-3)	20	2(1-2)	<1
<i>Dillwynia bruniooides</i>	1(1-2)	20	1(1-1)	<1

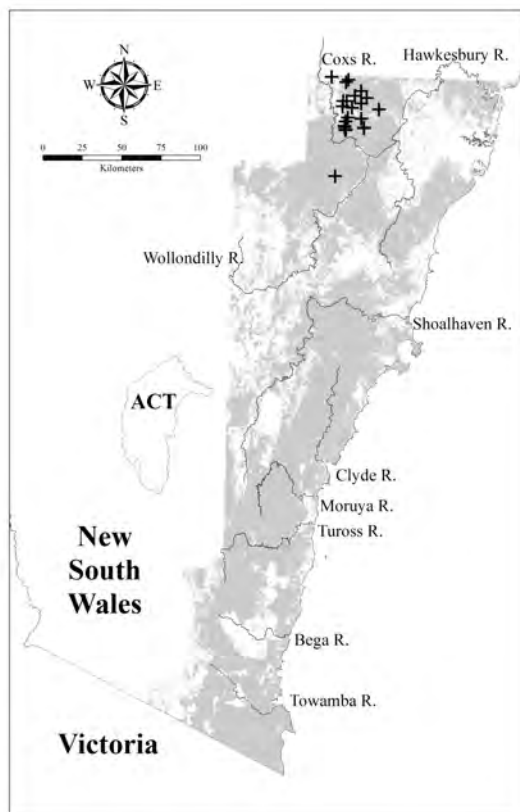
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	52	1(1-1)	5
<i>Epacris obtusifolia</i>	1(1-2)	20	1(1-1)	2
<i>Eucalyptus stricta</i>	1(1-2)	60	1(1-2)	<1
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	68	1(1-1)	4
<i>Haemodorum planifolium</i>	1(1-1)	24	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-1)	84	1(1-1)	12
<i>Hakea propinqua</i>	1(1-1)	28	1(1-1)	1
<i>Hakea teretifolia</i>	1(1-2)	44	1(1-2)	4
<i>Hibbertia cistiflora</i> subsp. <i>cistiflora</i>	1(1-1)	36	1(1-1)	<1
<i>Isopogon anemonifolius</i>	1(1-1)	96	1(1-1)	8
<i>Joycea pallida</i>	1(1-1)	32	1(1-2)	8
<i>Kunzea capitata</i>	1(1-2)	32	1(1-2)	1
<i>Lambertia formosa</i>	1(1-1)	48	1(1-2)	9
<i>Lepidosperma filiforme</i>	1(1-1)	24	1(1-2)	2
<i>Lepidosperma viscidum</i>	1(1-2)	64	1(1-2)	1
<i>Leptospermum arachnoides</i>	1(1-1)	52	1(1-1)	2
<i>Leptospermum trinervium</i>	1(1-2)	88	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-1)	44	1(1-2)	6
<i>Lindsaea linearis</i>	1(1-1)	48	1(1-1)	7
<i>Lomandra cylindrica</i>	1(1-1)	32	1(1-1)	4
<i>Lomandra glauca</i>	1(1-1)	88	1(1-1)	10
<i>Mirbelia rubiifolia</i>	1(1-1)	32	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	32	1(1-1)	3
<i>Patersonia longifolia</i>	1(1-1)	36	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	56	1(1-1)	9
<i>Petrophile pulchella</i>	1(1-1)	84	1(1-1)	6
<i>Phyllota squarrosa</i>	1(1-1)	28	1(1-2)	<1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	36	1(1-1)	13
<i>Platysace linearifolia</i>	1(1-1)	88	1(1-1)	8
<i>Ptilothrix deusta</i>	1(1-1)	20	1(1-2)	2
<i>Rhytidosporum procumbens</i>	1(1-1)	40	1(1-1)	3
<i>Schoenus ericetorum</i>	1(1-1)	44	1(1-1)	1
<i>Schoenus imberbis</i>	1(1-1)	32	1(1-1)	1
<i>Schoenus turbinatus</i>	1(1-1)	24	1(1-1)	<1
<i>Schoenus villosus</i>	1(1-1)	48	1(1-3)	<1
<i>Sowerbaea juncea</i>	1(1-1)	32	1(1-1)	1
<i>Stylidium lineare</i>	1(1-2)	36	1(1-1)	2
<i>Tricostularia pauciflora</i>	1(1-1)	20	1(1-1)	<1
<i>Xanthorrhoea media</i>	1(1-2)	20	1(1-2)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	1(1-1)	44	1(1-2)	34
<i>Gonocarpus tetragynus</i>	1(1-1)	44	1(1-1)	20
<i>Monotoca scoparia</i>	1(1-1)	32	1(1-1)	12

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	1(1-1)	8	1(1-2)	2
<i>Corymbia gummifera</i>	1(1-1)	12	2(1-2)	16
<i>Eucalyptus apiculata</i>	2(2-2)	4	3(1-3)	<1
<i>Eucalyptus baueriana</i>	1(1-1)	4	2(1-2)	1
<i>Eucalyptus gregsoniana</i>	2(2-2)	4	2(1-2)	<1
<i>Eucalyptus ligustrina</i>	1(1-2)	12	2(1-2)	<1
<i>Eucalyptus mannifera</i>	1(1-1)	12	2(1-3)	4
<i>Eucalyptus moorei</i>	3(3-3)	4	3(2-3)	<1
<i>Eucalyptus oblonga</i>	1(1-1)	4	1(1-2)	2
<i>Eucalyptus piperita</i>	1(1-1)	8	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	4	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	1(1-1)	8	2(1-3)	4
<i>Eucalyptus sieberi</i>	1(1-2)	20	2(1-3)	16



Locations of survey sites allocated to HL p124. Grey shading indicates extant native vegetation cover within the study area.

HL p125: Morton Rock Plate Heath

Plate p125. Morton Rock Plate Heath (Map Unit p125) shown on the Touga Fire Trail, Morton National Park. Abundant *Kunzea parvifolia* is flowering in the foreground interspersed with *Grevillea baueri* subsp. *baueri*, *Leptospermum rotundifolium*, *Isopogon anemonifolius* and *Calytrix tetragona*. Larger individuals of *Allocasuarina distyla* can be seen emerging from cracks in the pavement.

Sample Sites: 4

Area Extant (ha): 4700

Estimated % remaining: >95%

Area in conservation reserves (ha): 4200

Estimated % of pre-clearing area in conservation reserves: 80-95%

No. taxa (total / unique): 69 / 0

No. taxa per plot (\pm sd): 24 (12.7)

Class: Sydney Montane Heaths

Related TEC: n/a

Morton Rock Plate Heath (HL p125) is equivalent to HL 125 identified by Tindall *et al.* (2004), and has an open to clumped shrub canopy with a patchy groundcover of sedges and forbs. This unit is restricted to the central Morton plateau, particularly between the Nerriga Road and Tullyangela Clearing, where mean annual rainfall is 950-1050mm and elevation 650-750m ASL. It occurs on small patches of skeletal sandy soil over massive Permian sandstone pavements (Nowra Sandstone and Berry Formation). Morton Rock Plate Heath is related to Coastal Rock Plate Heath (HL p126) and Sandstone Headland Scrub (HL p127), however has a significantly disjunct distribution from these coastal assemblages.

Although highly restricted, the original distribution of Morton Rock Plate Heath is largely intact within Morton National Park, and its principal threat is likely to be high frequency fire.

Floristic Summary:

Trees: *Eucalyptus stricta*. **Shrubs:** *Calytrix tetragona*, *Baeckea imbricata*, *Kunzea ambigua*, *Leucopogon ericoides*, *Allocasuarina distyla*, *Epacris calvertiana*, *Grevillea baueri* subsp. *asperula*, *Isopogon anethifolius*, *Leptospermum rotundifolium*. **Groundcover:** *Lepyrodia scariosa*, *Stylidium lineare*, *Austrodanthonia pilosa*, *Gonocarpus micranthus*, *Goodenia bellidifolia*, *Lomandra gracilis*, *Thelymitra pauciflora*.

Vegetation structure:

Stratum	Frequency (n=4)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	25	5 (-)	- (-)
Tree canopy	100	3.9 (4.3)	20.3 (19.2)
Small tree	25	5 (-)	25 (-)
Shrub	25	1.6 (-)	40 (-)
Ground cover	100	0.6 (0.3)	6 (2.9)

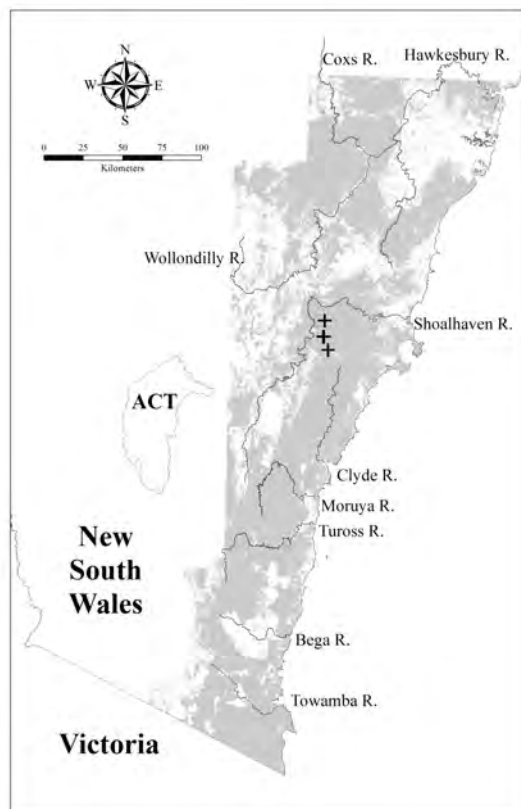
Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 11 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 14 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 11 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia elongata</i>	1(1-1)	25	1(1-1)	1
<i>Acacia hamiltoniana</i>	1(1-1)	25	1(1-1)	<1
<i>Actinotus gibbonsii</i>	1(1-1)	25	1(1-1)	<1
<i>Allocasuarina distyla</i>	2(2-2)	50	1(1-2)	2
<i>Austrodanthonia pilosa</i>	2(1-2)	50	1(1-1)	3
<i>Baeckea imbricata</i>	3(1-4)	75	1(1-1)	1
<i>Bossiaea kiamensis</i>	2(2-2)	25	2(1-3)	<1
<i>Calytrix tetragona</i>	2(1-4)	100	1(1-2)	2
<i>Centrolepis strigosa</i> subsp. <i>strigosa</i>	2(2-2)	25	1(1-1)	<1
<i>Cooperhookea barbata</i>	1(1-1)	25	1(1-1)	1
<i>Cryptandra amara</i>	1(1-1)	25	1(1-1)	1
<i>Dillwynia glaberrima</i>	1(1-1)	25	1(1-1)	1
<i>Dillwynia ramosissima</i>	1(1-1)	25	1(1-1)	<1
<i>Drosera pygmaea</i>	1(1-1)	25	1(1-1)	<1
<i>Drosera spatulata</i>	2(2-2)	25	1(1-1)	1
<i>Epacris calvertiana</i> var. <i>calvertiana</i>	1(1-1)	50	1(1-2)	<1
<i>Eucalyptus stricta</i>	1(1-3)	75	1(1-2)	1
<i>Gonocarpus micranthus</i>	1(1-1)	50	1(1-1)	1
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	2(1-2)	50	1(1-1)	4
<i>Grevillea baueri</i> subsp. <i>asperula</i>	1(1-1)	50	1(1-1)	<1
<i>Grevillea lanigera</i>	1(1-1)	25	1(1-1)	<1
<i>Isopogon anethifolius</i>	1(1-1)	50	1(1-1)	2
<i>Kunzea ambigua</i>	1(1-1)	75	1(1-2)	4
<i>Kunzea parvifolia</i>	2(2-2)	25	1(1-2)	1
<i>Lepidosperma tortuosum</i>	1(1-1)	25	1(1-1)	<1
<i>Lepidosperma viscidum</i>	1(1-1)	25	1(1-2)	1
<i>Leptospermum rotundifolium</i>	3(1-3)	50	1(1-2)	1
<i>Lepyrodia scariosa</i>	2(1-2)	100	1(1-2)	6
<i>Leucopogon attenuatus</i>	1(1-1)	25	1(1-1)	<1
<i>Leucopogon ericoides</i>	1(1-1)	75	1(1-1)	2
<i>Leucopogon fraseri</i>	2(2-2)	25	1(1-1)	<1
<i>Lomandra gracilis</i>	1(1-1)	50	1(1-1)	3
<i>Melaleuca capitata</i>	1(1-1)	25	1(1-1)	<1
<i>Philothea scabra</i>	1(1-1)	25	1(1-2)	<1
<i>Prostanthera saxicola</i>	1(1-1)	25	1(1-2)	<1
<i>Schoenus ericetorum</i>	1(1-1)	25	1(1-1)	1
<i>Schoenus villosus</i>	1(1-1)	25	1(1-2)	<1
<i>Stylidium lineare</i>	1(1-1)	75	1(1-1)	2
<i>Tetrarrhena turfosa</i>	1(1-1)	25	1(1-2)	1
<i>Thelymitra pauciflora</i>	1(1-1)	50	1(1-1)	<1

<i>Todea barbara</i>	1(1-1)	25	1(1-2)	1
<i>Velleia paradoxa</i>	2(2-2)	25	1(1-1)	<1
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Hakea dactyloides</i>	1(1-1)	50	1(1-1)	12
Other tree species occurring less frequently in this community:				
Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus sclerophylla</i>	1(1-1)	25	2(1-3)	4
<i>Eucalyptus sieberi</i>	1(1-1)	25	2(1-3)	16



Locations of survey sites allocated to HL p125. Grey shading indicates extant native vegetation cover within the study area.

HL p126: Coastal Rock Plate Heath

Plate p126. Coastal Rock Plate Heath (Map Unit p126) adjacent to Maianbar Road, Royal National Park. The low shrub stratum is dominated by *Kunzea ambigua*, *Darwinia fascicularis* and *Allocasuarina distyla* and is interspersed with clumps of *Lepidosperma viscidum*.

Sample Sites: 15

Area Extant (ha): 260

Estimated % remaining: >95%

Area in conservation reserves (ha): 50

Estimated % of pre-clearing area in conservation reserves: 10-30%

No. taxa (total / unique): 171 / 1

No. taxa per plot (\pm sd): 29.1 (13)

Class: Sydney Coastal Heaths

Related TEC: n/a

Coastal Rock Plate Heath (HL p126) is equivalent to HL 126 identified by Tindall *et al.* (2004), and has an open to clumped shrub canopy with a patchy groundcover of sedges and forbs. This unit is distributed on areas of sandstone from Broken Bay to Cataract dam, with outlying stands on Beecroft Peninsula at Jervis Bay. Coastal Rock Plate Heath is restricted to skeletal sandy soils on massive sandstone pavements in coastal and near-coastal areas 50 - 400m ASL where mean annual rainfall varies from 1200 to 1450mm. These sandstone pavements are not differentiated by any of the available abiotic modelling variables and the modelled distribution of this unit is therefore reliant on aerial photograph interpretation (API) of structurally distinct rock plate heath vegetation. Given the mapping scale and the variety of sources used to compile the API layer, in some areas Coastal Rock Plate Heath may not be distinguished from surrounding vegetation. Coastal Rock Plate Heath occurs most commonly as small patches within a widespread matrix of Coastal Sandstone Ridgetop Woodland (DSF p131). With increasing soil depth Coastal Rock Plate Heath is replaced by Coastal Sandstone Plateau Heath (HL p117), and in poorly drained areas it is replaced by Coastal Upland Swamp (FrW p129).

Most occurrences of Coastal Rock Plate Heath are no more than a few hectares in extent, though the majority are included within conservation reserves. High fire frequency may threaten the diversity of these stands because many of the plant species are killed by fire and the regenerating seedlings may suffer high mortality rates if the shallow soils they inhabit are desiccated during drought.

Floristic Summary:

Shrubs: *Allocasuarina distyla*, *Darwinia fascicularis*, *Epacris microphylla*, *Leucopogon microphyllus*, *Acacia suaveolens*, *Banksia ericifolia*, *Kunzea ambigua*, *Leptospermum squarrosum*, *Dillwynia floribunda*, *Zieria laevigata*.

Groundcover: *Lepyrodia scariosa*, *Lepidosperma viscidum*, *Actinotus minor*.

Vegetation structure:

Stratum	Frequency (n=2)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	50	4 (-)	10 (-)
Tree canopy	-	- (-)	- (-)
Small tree	-	- (-)	- (-)
Shrub	100	2.5 (0.7)	25 (21.2)
Ground cover	100	0.6 (0.2)	44 (12.7)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 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 10 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia suaveolens</i>	1(1-1)	53	1(1-1)	7
<i>Actinotus minor</i>	1(1-1)	40	1(1-1)	4
<i>Allocasuarina distyla</i>	1(1-2)	73	1(1-2)	2
<i>Angophora hispida</i>	1(1-1)	20	1(1-2)	1
<i>Baeckea brevifolia</i>	3(1-3)	27	1(1-3)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-1)	67	1(1-2)	7
<i>Banksia oblongifolia</i>	1(1-1)	20	1(1-1)	2
<i>Callistemon rigidus</i>	1(1-2)	20	1(1-1)	<1
<i>Calytrix tetragona</i>	1(1-2)	47	1(1-2)	2
<i>Caustis pentandra</i>	1(1-1)	20	1(1-1)	1
<i>Darwinia fascicularis</i> subsp. <i>fascicularis</i>	2(1-3)	53	1(1-1)	1
<i>Darwinia leptantha</i>	1(1-1)	20	1(1-1)	1
<i>Dillwynia floribunda</i>	1(1-1)	40	1(1-1)	2
<i>Drosera peltata</i>	1(1-2)	33	1(1-1)	2
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-2)	67	1(1-1)	5
<i>Gonocarpus micranthus</i>	1(1-1)	33	1(1-1)	1
<i>Goodenia stelligera</i>	2(1-3)	27	1(1-1)	<1
<i>Hakea teretifolia</i>	1(1-1)	47	1(1-2)	4
<i>Hibbertia serpyllifolia</i>	2(1-2)	27	1(1-1)	1
<i>Hypolaena fastigiata</i>	1(1-3)	27	1(1-1)	1
<i>Kunzea ambigua</i>	2(1-3)	73	1(1-2)	3
<i>Lasiopetalum parviflorum</i>	1(1-1)	20	1(1-1)	<1
<i>Laxmannia gracilis</i>	1(1-1)	27	1(1-1)	4
<i>Lepidosperma viscidum</i>	3(2-3)	47	1(1-2)	1
<i>Leptospermum squarrosum</i>	1(1-2)	60	1(1-1)	1
<i>Leptospermum arachnoides</i>	1(1-2)	33	1(1-1)	2
<i>Leptospermum epacridoideum</i>	2(1-2)	27	1(1-2)	<1
<i>Lepyrodia scariosa</i>	3(1-3)	87	1(1-2)	6
<i>Leucopogon ericoides</i>	1(1-1)	20	1(1-1)	2
<i>Leucopogon microphyllus</i>	1(1-1)	53	1(1-1)	3
<i>Mirbelia rubiifolia</i>	1(1-1)	33	1(1-1)	3
<i>Mitrasacme polymorpha</i>	2(1-2)	33	1(1-1)	3
<i>Platysace stephensonii</i>	2(1-3)	27	1(1-1)	<1

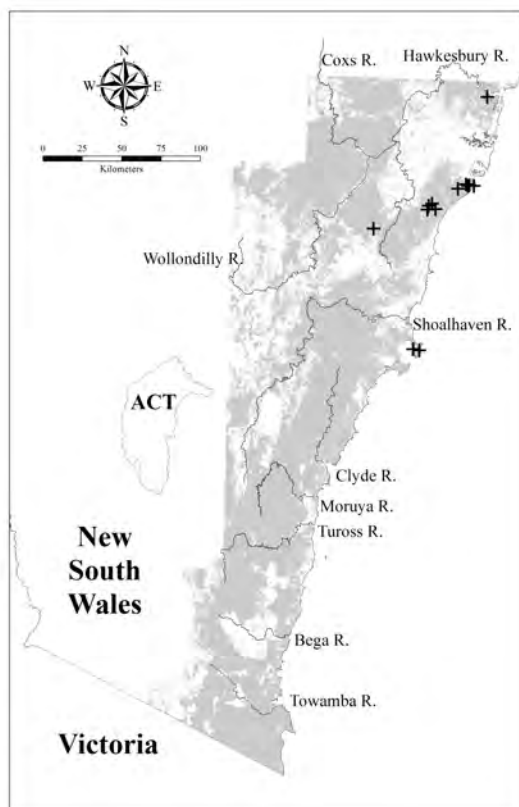
<i>Ptilothrix deusta</i>	1(1-3)	27	1(1-2)	2
<i>Schoenus ericetorum</i>	1(1-1)	27	1(1-1)	1
<i>Thelionema umbellatum</i>	2(1-3)	27	1(1-1)	<1
<i>Thysanotus juncifolius</i>	1(1-1)	20	1(1-1)	<1
<i>Xanthorrhoea resinifera</i>	1(1-2)	33	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-1)	40	1(1-1)	5
<i>Zieria laevigata</i>	1(1-1)	40	1(1-1)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	1(1-2)	33	1(1-2)	34
<i>Lepidosperma laterale</i>	1(1-2)	33	1(1-1)	29
<i>Lomandra glauca</i>	1(1-1)	33	1(1-1)	10

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	1(1-1)	20	2(1-2)	16
<i>Eucalyptus apiculata</i>	3(3-3)	13	2(1-3)	<1
<i>Eucalyptus botryoides</i>	1(1-1)	7	2(1-3)	3
<i>Eucalyptus piperita</i>	1(1-1)	7	2(1-3)	9
<i>Eucalyptus racemosa</i>	1(1-1)	7	2(1-2)	1



Locations of survey sites allocated to HL p126. Grey shading indicates extant native vegetation cover within the study area.

HL p127: Sandstone Headland Scrub

Plate p127. Sandstone Headland Scrub (Map Unit p127) clinging to a cliff above the sea at Wottamolla, Royal National Park. The dense, wind-sculpted shrub layer contains an even mix of species including *Westringia fruticosa*, *Baeckea imbricata*, *Banksia ericifolia*, *Allocasuarina distyla* and *Darwinia fascicularis*.

Sample Sites: 11

Area Extant (ha): 290

Estimated % remaining: >95%

Area in conservation reserves (ha): 200

Estimated % of pre-clearing area in conservation reserves: 60-80%

No. taxa (total / unique): 115 / 0

No. taxa per plot (\pm sd): 23 (6.5)

Class: Sydney Coastal Heaths

Related TEC: n/a

Sandstone Headland Scrub (HL p127) is equivalent to HL 127 identified by Tindall *et al.* (2004), and is characterised by a dense shrub canopy with a sparse groundcover of sedges and forbs. This unit is distributed on coastal headlands formed by Hawkesbury Sandstone between Bouddi and Otford including Sydney Heads, Cape Banks and Royal National Park. Outlying stands occur further south on Beecroft Peninsula at Jervis Bay. Within this distribution Sandstone Headland Scrub is highly restricted to small patches of shallow to skeletal soil on sandstone headlands exposed to sea winds and salt spray. Its coastal habitat receives high annual rainfall, averaging 1250-1450mm, and it has been recorded at elevations up to 100m ASL.

Most occurrences of Sandstone Headland Scrub within the northern beaches and eastern suburbs of Sydney have been cleared, and the remaining areas throughout its limited range are exposed to recreational pressures.

Floristic Summary:

Shrubs: *Allocasuarina distyla*, *Banksia ericifolia*, *Melaleuca armillaris*, *Phebalium squamulosum ssp argenteum*, *Baeckea imbricata*, *Darwinia fascicularis*, *Rulingia hermanniifolia*, *Epacris longiflora*, *Westringia fruticosa*.

Groundcover: *Isolepis nodosa*.

Vegetation structure:

* Structural information is unavailable for this Map Unit. This heathland is characterised by a dense shrub canopy with an open groundcover of forbs & sedges.

Diagnostic Species:

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

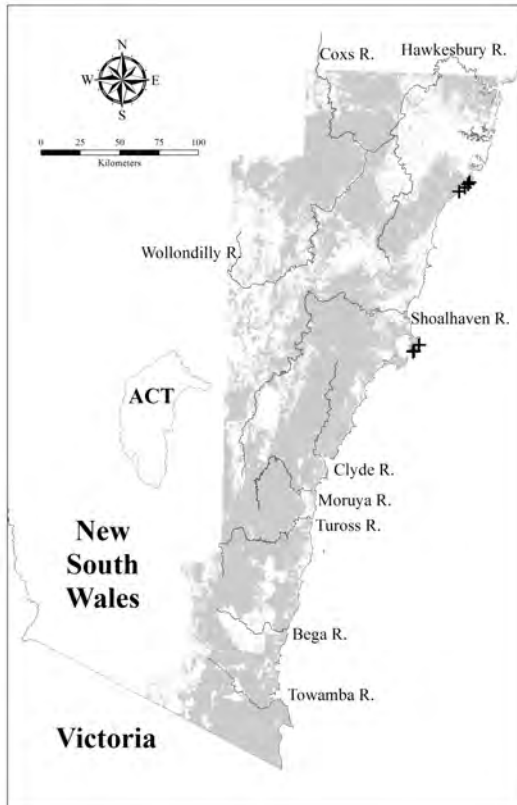
Species	C/A	Freq	C/A O	Freq O
<i>Allocasuarina distyla</i>	1(1-2)	100	1(1-2)	2
<i>Baeckea brevifolia</i>	1(1-1)	27	1(1-3)	1
<i>Baeckea imbricata</i>	2(1-2)	36	1(1-1)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-1)	91	1(1-2)	7
<i>Calytrix tetragona</i>	1(1-1)	27	1(1-2)	2
<i>Caustis flexuosa</i>	1(1-1)	36	1(1-2)	7
<i>Caustis recurvata</i>	1(1-1)	27	1(1-1)	<1
<i>Darwinia fascicularis</i> subsp. <i>fascicularis</i>	1(1-2)	27	1(1-2)	1
<i>Darwinia leptantha</i>	1(1-1)	45	1(1-1)	1
<i>Dillwynia floribunda</i>	1(1-1)	27	1(1-1)	2
<i>Dillwynia ramosissima</i>	1(1-1)	27	1(1-1)	<1
<i>Dodonaea camfieldii</i>	1(1-1)	45	1(1-1)	<1
<i>Epacris longiflora</i>	1(1-1)	27	1(1-2)	1
<i>Lasiopetalum ferrugineum</i>	1(1-3)	27	1(1-2)	2
<i>Lepidosperma laterale</i>	1(1-1)	82	1(1-1)	29
<i>Leptospermum squarrosum</i>	1(1-1)	36	1(1-1)	2
<i>Leptospermum epacridoideum</i>	1(1-3)	36	1(1-2)	<1
<i>Leptospermum laevigatum</i>	1(1-3)	36	1(1-2)	1
<i>Leptospermum rotundifolium</i>	1(1-1)	27	1(1-2)	1
<i>Melaleuca armillaris</i> subsp. <i>armillaris</i>	2(1-2)	55	1(1-2)	1
<i>Melaleuca capitata</i>	1(1-1)	36	1(1-1)	<1
<i>Phebalium squamulosum</i> subsp. <i>argenteum</i>	1(1-1)	64	1(1-1)	<1
<i>Rulingia hermanniifolia</i>	1(1-2)	55	1(1-1)	<1
<i>Westringia fruticosa</i>	1(1-1)	27	1(1-2)	<1
<i>Xanthosia tridentata</i>	1(1-2)	36	1(1-1)	5

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	2(1-3)	36	1(1-2)	34
<i>Gonocarpus teucrioides</i>	3(1-4)	36	1(1-1)	18
<i>Lomandra longifolia</i>	2(1-2)	45	1(1-1)	44

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora hispida</i>	2(2-2)	9	1(1-2)	1
<i>Corymbia gummifera</i>	1(1-1)	18	2(1-2)	16
<i>Eucalyptus obstans</i>	1(1-1)	9	1(1-2)	1



Locations of survey sites allocated to HL p127. Grey shading indicates extant native vegetation cover within the study area.

FrW p129: Coastal Upland Swamp



Plate p129. Coastal Upland Swamp (Map Unit p129) at Maddens Plains near the coastal escarpment above Wombarra. The dominant shrub species is *Hakea teretifolia*, co-occurring with clumps of *Banksia robur* (foreground) and *Banksia ericifolia* (background). The dense and diverse ground cover includes the prominent species *Gleichenia dicarpa* and *Gymnoschoenus sphaerocephalus*.

Sample Sites: 78

Area Extant (ha): 4800

Estimated % remaining: >90%

Area in conservation reserves (ha): 1300

Estimated % of pre-clearing area in conservation reserves: 15-30%

No. taxa (total / unique): 308 / 1

No. taxa per plot (\pm sd): 29.7 (12)

Class: Coastal Heath Swamps

Related TEC: n/a

Coastal Upland Swamp (FrW p129) represents a slight revision of FrW 129 identified by Tindall *et al.* (2004), with the addition of a small number of sites originally allocated to FrW 303 (Booderee Heath Swamp)(no longer recognised as a separate unit). The revised FrW p129 is characterised by an open to dense shrub canopy with dense groundcover of sedges and forbs. This unit is locally restricted to swampy areas on humic sandy loams in headwater valleys and seepage zones on coastal sandstone plateaux. Its distribution extends from Brisbane Water to Bhewerre Peninsula, and it has been sampled at elevations up to 600m ASL and over a mean annual rainfall range from 1000 to 1700mm. Coastal Upland Swamps are restricted to Hawkesbury and Shoalhaven Group sandstones, and peaty alluvium derived from these substrates. Coastal Upland Swamp generally occurs as small patches within a matrix of Coastal Sandstone Ridgetop Woodland (DSF p131) or Coastal Sandstone Plateau Heath (HL p117), however larger occurrences are common at Maddens Plains west of Bulli. It shares a number of its most abundant species with Blue Mountains - Shoalhaven Hanging Swamps (FrW p130), which is generally found on sandstone plateaux extending to higher elevations. The overall floristic differences between the two units relate to increasing plant diversity as altitude declines and some local endemism in the upper altitudinal range of Blue Mountains - Shoalhaven Hanging Swamps (FrW p130). These units tend to intergrade on the Woronora Plateau.

Frequent and infrequent fire regimes, peat fires, subsidence related to underground mining, surface quarrying, polluted runoff and climate change pose threats to Coastal Upland Swamp. While much of the distribution is within conservation reserves or protected water catchment areas, mining leases for underground coal which exist across tenures, fire management and climate change present ongoing challenges for the conservation of the community.

Floristic Summary:

Shrubs: *Hakea teretifolia*, *Banksia ericifolia*, *Epacris obtusifolia*, *Sprengelia incarnata*, *Xanthorrhoea resinifera*, *Baeckea imbricata*, *Leptospermum juniperinum*, *Banksia oblongifolia*, *B. robur*. **Climbers:** *Cassytha glabella*.

Groundcover: *Leptocarpus tenax*, *Empodisma minus*, *Lepyrodia scariosa*, *Selaginella uliginosa*, *Drosera spathulata*, *Dampiera stricta*, *Mitrasacme polymorpha*, *Lindsaea linearis*.

Vegetation structure:

Stratum	Frequency (n=27)	Height (m) (\pm StDev)	Cover (%) (\pm StDev)
Emergent	4	- (-)	3 (-)
Tree canopy	96	2.8 (3)	54.2 (39.7)
Small tree	4	4 (-)	- (-)
Shrub	56	1.2 (0.7)	25.8 (32)
Ground cover	93	0.7 (0.5)	72.6 (34.3)

Diagnostic Species:

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

Positive Diagnostic Species:

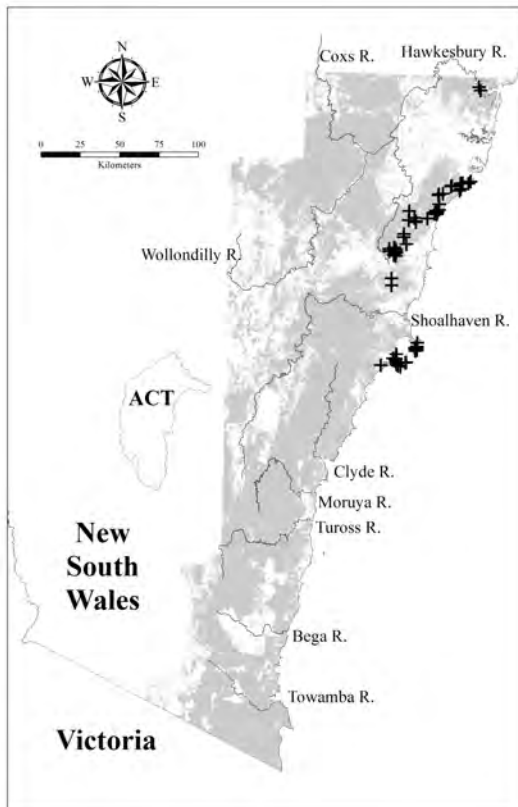
Species	C/A	Freq	C/A O	Freq O
<i>Actinotus minor</i>	1(1-1)	23	1(1-1)	4
<i>Allocasuarina distyla</i>	1(1-1)	14	1(1-2)	2
<i>Allocasuarina paludosa</i>	1(1-1)	6	2(1-3)	1
<i>Almaleea paludosa</i>	1(1-1)	8	1(1-1)	<1
<i>Baeckea imbricata</i>	1(1-1)	38	1(1-1)	1
<i>Baeckea linifolia</i>	2(1-2)	8	1(1-2)	1
<i>Baloskion tetraphyllum</i>	1(1-1)	9	1(1-2)	<1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-2)	74	1(1-2)	6
<i>Banksia oblongifolia</i>	1(1-2)	29	1(1-1)	2
<i>Banksia paludosa</i>	1(1-2)	15	1(1-2)	3
<i>Banksia robur</i>	2(1-3)	27	1(1-1)	<1
<i>Bauera microphylla</i>	1(1-1)	18	1(1-2)	<1
<i>Bauera rubioides</i>	1(1-1)	12	1(1-2)	1

<i>Baumea acuta</i>	1(1-1)	10	1(1-1)	<1
<i>Baumea articulata</i>	2(2-2)	13	1(1-1)	<1
<i>Baumea nuda</i>	1(1-1)	6	1(1-3)	<1
<i>Baumea rubiginosa</i>	1(1-1)	15	2(1-3)	<1
<i>Baumea teretifolia</i>	1(1-1)	23	1(1-2)	<1
<i>Blandfordia nobilis</i>	1(1-1)	21	1(1-1)	<1
<i>Boronia barkeriana</i>	1(1-1)	15	1(1-1)	<1
<i>Boronia parviflora</i>	1(1-1)	15	1(1-1)	<1
<i>Boronia pinnata</i>	1(1-1)	9	1(1-1)	1
<i>Burchardia umbellata</i>	1(1-1)	29	1(1-1)	2
<i>Callistemon citrinus</i>	1(1-2)	13	1(1-1)	1
<i>Cassyltha glabella</i>	1(1-1)	47	1(1-1)	7
<i>Chorizandra sphaerocephala</i>	2(1-2)	21	1(1-2)	<1
<i>Comesperma ericinum</i>	1(1-1)	6	1(1-1)	1
<i>Conospermum ericifolium</i>	1(1-1)	8	1(1-1)	<1
<i>Cyathochaeta diandra</i>	1(1-2)	22	1(1-2)	8
<i>Dampiera stricta</i>	1(1-1)	36	1(1-1)	8
<i>Darwinia leptantha</i>	1(1-1)	24	1(1-1)	1
<i>Dillwynia floribunda</i>	1(1-1)	33	1(1-1)	2
<i>Drosera binata</i>	1(1-1)	23	1(1-1)	<1
<i>Drosera peltata</i>	1(1-1)	10	1(1-1)	2
<i>Drosera spatulata</i>	1(1-1)	37	1(1-1)	1
<i>Eleocharis sphacelata</i>	1(1-1)	10	2(1-3)	<1
<i>Empodisma minus</i>	2(1-2)	65	1(1-2)	2
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	28	1(1-1)	5
<i>Epacris obtusifolia</i>	1(1-1)	63	1(1-1)	1
<i>Eurychorda complanata</i>	1(1-1)	29	1(1-1)	1
<i>Euryomyrtus ramosissima</i>	1(1-2)	9	1(1-1)	<1
<i>Gahnia sieberiana</i>	2(1-3)	13	1(1-1)	5
<i>Gleichenia dicarpa</i>	2(1-3)	36	1(1-2)	2
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	17	1(1-1)	4
<i>Grevillea oleoides</i>	1(1-1)	8	1(1-1)	2
<i>Gymnoschoenus sphaerocephalus</i>	1(1-1)	28	3(1-3)	1
<i>Haemodorum corymbosum</i>	1(1-1)	9	1(1-1)	1
<i>Haemodorum planifolium</i>	1(1-1)	13	1(1-1)	1
<i>Hakea teretifolia</i>	1(1-2)	73	1(1-2)	4
<i>Hibbertia riparia</i>	1(1-1)	18	1(1-1)	2
<i>Hibbertia rufa</i>	1(1-1)	6	1(1-1)	1
<i>Hypolaena fastigiata</i>	1(1-1)	13	1(1-1)	1
<i>Isopogon anemonifolius</i>	1(1-1)	37	1(1-1)	8
<i>Kunzea capitata</i>	1(1-1)	9	1(1-2)	1
<i>Lachnagrostis filiformis</i>	1(1-1)	12	1(1-1)	3
<i>Lepidosperma filiforme</i>	1(1-1)	23	1(1-2)	2
<i>Lepidosperma forsythii</i>	1(1-1)	18	1(1-3)	<1
<i>Lepidosperma limicola</i>	2(1-2)	22	1(1-2)	<1
<i>Lepidosperma neesii</i>	1(1-1)	10	1(1-2)	1

<i>Leptospermum squarrosus</i>	1(1-1)	28	1(1-1)	1
<i>Leptospermum arachnoides</i>	1(1-1)	12	1(1-1)	2
<i>Leptospermum juniperinum</i>	1(1-1)	44	1(1-2)	1
<i>Leptocarpus tenax</i>	2(1-2)	77	1(1-2)	2
<i>Lepyrodia scariosa</i>	1(1-2)	54	1(1-2)	5
<i>Leucopogon esquamatus</i>	1(1-1)	9	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	38	1(1-1)	7
<i>Melaleuca linariifolia</i>	1(1-2)	6	1(1-2)	1
<i>Melaleuca squarrosa</i>	1(1-4)	13	2(1-3)	1
<i>Melaleuca thymifolia</i>	1(1-1)	22	1(1-1)	1
<i>Mirbelia rubiifolia</i>	1(1-1)	13	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	42	1(1-1)	3
<i>Petrophile pulchella</i>	1(1-1)	18	1(1-1)	6
<i>Philothea buxifolia</i>	1(1-1)	6	1(1-1)	1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	33	1(1-1)	13
<i>Ptilothrix deusta</i>	1(1-2)	23	1(1-2)	2
<i>Pultenaea divaricata</i>	1(1-2)	6	1(1-2)	<1
<i>Pultenaea rosmarinifolia</i>	1(1-1)	6	1(1-1)	<1
<i>Pultenaea tuberculata</i>	1(1-1)	14	1(1-1)	3
<i>Saropsis fastigiata</i>	2(1-3)	10	1(1-2)	1
<i>Schoenus brevifolius</i>	1(1-1)	28	1(1-3)	1
<i>Selaginella uliginosa</i>	1(1-1)	50	1(1-1)	2
<i>Sowerbaea juncea</i>	1(1-1)	17	1(1-1)	1
<i>Sphaerolobium vimineum</i>	1(1-1)	13	1(1-1)	<1
<i>Sprengelia incarnata</i>	1(1-2)	47	1(1-2)	1
<i>Stackhousia nuda</i>	1(1-1)	13	1(1-1)	<1
<i>Stylidium lineare</i>	1(1-1)	8	1(1-1)	2
<i>Tetrarrhena turfosa</i>	1(1-2)	18	1(1-2)	1
<i>Tricostularia pauciflora</i>	1(1-2)	12	1(1-1)	<1
<i>Utricularia dichotoma</i>	1(1-1)	9	1(1-1)	<1
<i>Villarsia exaltata</i>	1(1-1)	10	1(1-1)	<1
<i>Viminaria juncea</i>	1(1-1)	27	1(1-1)	<1
<i>Xanthorrhoea resinifera</i>	1(1-2)	46	1(1-1)	4
<i>Xanthosia tridentata</i>	1(1-1)	15	1(1-1)	5
<i>Xyris bracteata</i>	1(1-1)	21	1(1-1)	<1
<i>Xyris gracilis</i>	1(1-1)	6	1(1-1)	1
<i>Xyris operculata</i>	1(1-1)	33	1(1-2)	1
Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	1(1-1)	33	1(1-2)	34

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus haemastoma</i>	1(1-1)	3	1(1-2)	2
<i>Eucalyptus ligustrina</i>	2(2-2)	1	2(1-2)	<1
<i>Eucalyptus oblonga</i>	1(1-1)	3	1(1-2)	2
<i>Eucalyptus obstans</i>	1(1-1)	4	1(1-2)	<1
<i>Eucalyptus piperita</i>	1(1-1)	3	2(1-3)	9
<i>Eucalyptus racemosa</i>	2(2-2)	1	2(1-2)	1
<i>Eucalyptus sclerophylla</i>	1(1-1)	3	2(1-3)	4
<i>Eucalyptus stricta</i>	1(1-1)	1	1(1-2)	1



Locations of survey sites allocated to FrW p129. Grey shading indicates extant native vegetation cover within the study area.

FrW p130: Blue Mountains – Shoalhaven Hanging Swamps

Plate p130. Blue Mountains - Shoalhaven Hanging Swamps (Map Unit p130) shown at Lawson, Blue Mountains National Park. Shrubs such as *Hakea teretifolia*, *Acacia ptychoclada* and *Leptospermum continentale* are packed tightly with the dominant sedge and restioid species including *Lepidosperma limicola*, *Gymnoschoenus sphaerocephala* and *Leptocarpus tenax*.

Sample Sites: 36

Area Extant (ha): 5000

Estimated % remaining: >95%

Area in conservation reserves (ha): 3500

Estimated % of pre-clearing area in conservation reserves: 60-75%

No. taxa (total / unique): 196 / 5

No. taxa per plot (\pm sd): 22.3 (8.5)

Class: Coastal Heath Swamp

Related TECs: Blue Mountains Swamps VEC (TSC); part of the Temperate Highland Peat Swamps on Sandstone EEC (EPBC).

Blue Mountains - Shoalhaven Hanging Swamps (FrW p130) is equivalent to FrW 130 identified by Tindall *et al.* (2004). This unit has an open canopy of tall shrubs, scattered low shrubs and a dense groundcover of sedges and forbs. This unit is restricted to humic sandstone soils in headwater valleys and seepage areas on Hawkesbury, Narrabeen and Shoalhaven Group sandstones, generally at elevations of 500-1100m ASL in areas receiving 1000-1850mm mean annual rainfall, although a number of sites have been recorded at lower elevations. It is widely but patchily distributed from the upper Blue Mountains to the Morton plateau near Tolwong. Examples occur on Narrowneck Plateau, Kings and Lacys Tablelands, Tolwong, Meryla SF, Bellawongarah Mountain and the Budderoo Plateau, extending north to the Woronora Plateau, where it intergrades with Coastal Upland Swamps (FrW p129).

Blue Mountains - Shoalhaven Hanging Swamps generally occur as small patches within a matrix of drier sandstone plateau map units, including Blue Mountains Ridgetop Forest (DSF p136), Morton Mallee-Heath (HL p122), Shoalhaven Sandstone Forest (DSF p148) or Morton Sandstone Heath Woodland (DSF p149). Blue Mountains - Shoalhaven Hanging Swamps shares a number of common species with Coastal Upland Swamps (FrW p129), which is generally occurs at lower elevation sandstone plateaux. These two units tend to intergrade at intermediate elevations such as on the Woronora Plateau. With increasing substrate fertility, Blue Mountains - Shoalhaven Hanging Swamps are replaced by Tableland Bog (FrW p53) and Tableland Swamp Meadow (FrW p57).

Many examples of Blue Mountains - Shoalhaven Hanging Swamps are represented within Blue Mountains and Morton National Parks. Some areas of this unit may be threatened by sedimentation and changes to drainage and water quality below urban developments. Fire regimes and climate change also pose significant threats, while longwall mining may affect localised areas where underground mining leases exist.

Floristic Summary:

Shrubs: *Leptospermum juniperinum*, *Baeckea linifolia*, *Sprengelia incarnata*, *Epacris obtusifolia*, *Hakea teretifolia*, *Banksia ericifolia*. **Groundcover:** *Empodisma minus*, *Leptocarpus tenax*, *Gymnoschoenus sphaerocephalus*, *Lepidosperma limicola*, *Drosera binata*, *Xyris operculata*.

Vegetation structure:

Stratum	Frequency (n=25)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	12	8 (4)	5 (-)
Tree canopy	84	3.4 (2.3)	45.4 (31.2)
Small tree	4	4 (-)	60 (-)
Shrub	36	1.6 (0.7)	50.6 (24.7)
Ground cover	92	1 (0.5)	78.4 (27.4)

Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 6 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 16 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 6 positive diagnostic species.

Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Baeckea linifolia</i>	1(1-2)	64	1(1-1)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	2(1-2)	39	1(1-2)	7
<i>Boronia barkeriana</i>	1(1-1)	22	1(1-1)	<1
<i>Chorizandra sphaerocephala</i>	1(1-2)	39	2(1-2)	<1
<i>Dillwynia floribunda</i>	1(1-2)	22	1(1-1)	2
<i>Drosera binata</i>	1(1-1)	42	1(1-1)	<1
<i>Empodisma minus</i>	2(2-3)	97	1(1-2)	2
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-2)	25	1(1-1)	5
<i>Epacris obtusifolia</i>	1(1-2)	44	1(1-1)	1
<i>Epacris paludosa</i>	1(1-2)	22	1(1-2)	<1
<i>Eurychorda complanata</i>	1(1-2)	25	1(1-1)	1
<i>Gleichenia dicarpa</i>	2(1-3)	31	1(1-2)	2
<i>Gymnoschoenus sphaerocephalus</i>	3(2-4)	53	1(1-3)	1
<i>Hakea teretifolia</i>	1(1-2)	44	1(1-2)	4
<i>Hibbertia rufa</i>	1(1-2)	25	1(1-1)	1
<i>Lepidosperma limicola</i>	2(1-2)	53	1(1-2)	<1
<i>Leptospermum juniperinum</i>	2(1-3)	75	1(1-1)	1
<i>Leptospermum lanigerum</i>	2(1-2)	22	1(1-1)	1
<i>Leptocarpus tenax</i>	2(2-3)	67	1(1-2)	2
<i>Lepyrodia anarthria</i>	1(1-3)	22	1(1-3)	<1
<i>Lindsaea linearis</i>	1(1-1)	22	1(1-1)	7
<i>Melaleuca squarrosa</i>	2(1-3)	33	2(1-3)	1
<i>Pultenaea divaricata</i>	1(1-2)	25	1(1-2)	<1
<i>Selaginella uliginosa</i>	1(1-1)	33	1(1-1)	2
<i>Sprengelia incarnata</i>	1(1-3)	47	1(1-1)	1
<i>Xyris operculata</i>	1(1-1)	42	1(1-2)	1
<i>Xyris ustulata</i>	1(1-3)	25	1(1-1)	<1

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	1(1-1)	3	2(1-2)	16
<i>Eucalyptus aquatica</i>	2(1-2)	6	0(0-0)	0
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	1(1-1)	3	1(1-2)	3