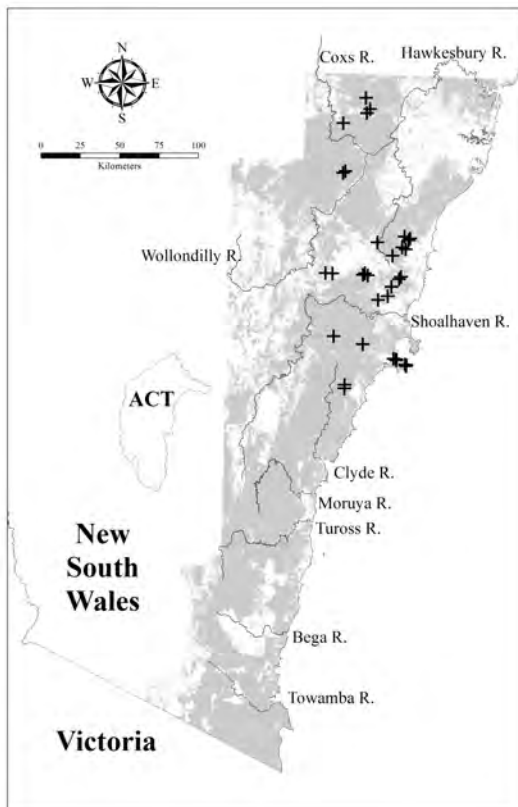


<i>Eucalyptus dendromorpha</i>	2(2-2)	3	2(1-2)	<1
<i>Eucalyptus mannifera</i>	1(1-3)	14	2(1-3)	4
<i>Eucalyptus obstans</i>	1(1-1)	3	1(1-2)	1
<i>Eucalyptus ovata</i>	2(1-2)	6	2(1-3)	1
<i>Eucalyptus piperita</i>	1(1-1)	8	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	6	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	1(1-1)	8	2(1-3)	4
<i>Eucalyptus sieberi</i>	1(1-1)	8	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	1(1-1)	3	2(1-3)	2



Locations of survey sites allocated to FrW p130. Grey shading indicates extant native vegetation cover within the study area.

**DSF p131: Coastal Sandstone Ridgetop Woodland**

Plate p131. Coastal Sandstone Ridgetop Woodland (Map Unit p131) shown near Martins Creek Fire Trail on the Nattai Tableland. *Corymbia eximia* and *Eucalyptus sieberi* form a discontinuous overstorey interspersed with large shrubs such as *Banksia serrata*, *Leptospermum trinervium* and *Hakea dactyloides*. Smaller shrubs including *Leucopogon setiger* and *Dillwynia floribunda* are prominent towards the edge of the rock shelf.

Sample Sites: 319

Area Extant (ha): 111000

Estimated % remaining: 75-90%

Area in conservation reserves (ha): 49900

Estimated % of pre-clearing area in conservation reserves: 25-45%

No. taxa (total / unique): 585 / 9

No. taxa per plot ( $\pm$ sd): 48.6 (9.8)

Class: Sydney Coastal Dry Sclerophyll Forests

Related TEC: n/a

Coastal Sandstone Ridgetop Woodland (DSF p131) is equivalent to DSF 131 identified by Tindall *et al.* (2004). This unit is a low eucalypt forest with a diverse sclerophyll shrub layer and open groundcover of sedges. It is extensively distributed on the Triassic Hawkesbury sandstone plateaux surrounding the Sydney Basin, and is widespread on ridgetops and upper valley slopes of the Hornsby and Woronora Plateaux and the lower Blue Mountains. Coastal Sandstone Ridgetop Woodland occurs up to 600m ASL in areas receiving an average annual rainfall ranging from 850 – 1650mm. Coastal Sandstone Ridgetop Woodland grades into heath (e.g. Coastal Sandstone Plateau Heath HL p117) where soils become shallower, or upland swamps in areas of impeded drainage (e.g. Coastal Upland Swamp FrW p129). Coastal Sandstone Ridgetop Woodland is replaced by Coastal Sandstone Gully Forest (DSF p140) or its drier western counterpart Hinterland Sandstone Gully Forest (DSF p142) in the deeply incised drainage lines dissecting the plateaux. In the upper Blue Mountains it is replaced by Blue Mountains Ridgetop Woodland on the more elevated Narrabeen Sandstone. Coastal Sandstone Ridgetop Woodland is one of the most intensively sampled units in the study area and is variable and diverse in composition across its range. About one-quarter of its area has been cleared for urban development, but large areas are represented in conservation reserves. High frequency fires, weeds and fragmentation associated with urban encroachment are likely to pose localised threats.

**Floristic Summary:**

**Trees:** *Corymbia gummifera*, *E. sieberi*, *E. racemosa*. **Shrubs:** *Leptospermum trinervium*, *Lambertia formosa*, *Persoonia levis*, *Banksia serrata*, *Platysace linearifolia*, *Acacia suaveolens*, *Isopogon anemonifolius*, *Dillwynia retorta*, *Petrophile pulchella*, *Banksia spinulosa*, *Bossiaea heterophylla*, *Banksia ericifolia*, *Acacia ulicifolia*, *Monotoca scoparia*, *Hakea dactyloides*. **Groundcover:** *Caustis flexuosa*, *Lomandra obliqua*, *Dampiera stricta*, *Entolasia stricta*, *Actinotus minor*, *Cyathochaeta diandra*, *Lomandra glauca*.

**Vegetation structure:**

Stratum	Frequency (n=117)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	99	13.4 (4.4)	20.9 (12.2)
Small tree	60	5.7 (1.6)	29.7 (18.8)
Shrub	62	2.4 (0.7)	36.7 (19.7)
Ground cover	95	0.8 (0.3)	24.3 (19.9)

**Diagnostic Species:**

A 0.04ha plot located in this Map Unit is expected to contain at least 31 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 41 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 31 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia echinula</i>	1(1-1)	2	1(1-1)	<1
<i>Acacia gordonii</i>	1(1-1)	1	2(2-2)	<1
<i>Acacia hispidula</i>	1(1-1)	3	1(1-1)	<1
<i>Acacia linifolia</i>	1(1-1)	34	1(1-1)	5
<i>Acacia myrtifolia</i>	1(1-1)	30	1(1-1)	3
<i>Acacia oxycedrus</i>	1(1-1)	3	1(1-1)	<1
<i>Acacia suaveolens</i>	1(1-1)	68	1(1-1)	5
<i>Acacia terminalis</i>	1(1-1)	22	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	50	1(1-1)	9
<i>Actinotus helianthi</i>	1(1-1)	10	1(1-1)	1
<i>Actinotus minor</i>	1(1-1)	51	1(1-1)	3
<i>Allocasuarina distyla</i>	1(1-1)	14	1(1-2)	2
<i>Angophora costata</i>	1(1-2)	23	2(1-3)	6
<i>Angophora hispida</i>	1(1-2)	16	1(1-2)	1
<i>Anisopogon avenaceus</i>	1(1-2)	28	1(1-1)	5
<i>Aotus ericoides</i>	1(1-1)	8	1(1-1)	3
<i>Austrostipa pubescens</i>	1(1-1)	18	1(1-2)	5
<i>Babingtonia densifolia</i>	1(1-1)	2	1(1-1)	<1
<i>Baeckea brevifolia</i>	1(1-3)	3	1(1-3)	<1
<i>Baeckea diosmifolia</i>	1(1-1)	9	1(1-1)	<1
<i>Baeckea imbricata</i>	1(1-1)	5	1(1-1)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	2(1-3)	55	1(1-2)	5
<i>Banksia marginata</i>	1(1-1)	17	1(1-1)	2
<i>Banksia oblongifolia</i>	1(1-1)	23	1(1-2)	2
<i>Banksia serrata</i>	1(1-2)	72	1(1-2)	7
<i>Banksia spinulosa</i> var. <i>collina</i>	1(1-1)	1	1(1-1)	<1
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	61	1(1-2)	14
<i>Bauera rubioides</i>	1(1-1)	4	1(1-2)	1
<i>Boronia floribunda</i>	1(1-2)	5	1(1-2)	<1
<i>Boronia fraseri</i>	1(1-1)	1	1(1-1)	<1
<i>Boronia ledifolia</i>	1(1-1)	39	1(1-1)	2
<i>Boronia pinnata</i>	1(1-1)	14	1(1-1)	1

<i>Boronia serrulata</i>	1(1-2)	3	1(1-1)	<1
<i>Bossiaea ensata</i>	1(1-1)	21	1(1-1)	2
<i>Bossiaea heterophylla</i>	1(1-1)	55	1(1-1)	4
<i>Bossiaea lenticularis</i>	1(1-2)	3	1(1-2)	<1
<i>Bossiaea obcordata</i>	1(1-1)	24	1(1-2)	6
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	2(1-2)	7	1(1-3)	1
<i>Bossiaea scolopendria</i>	1(1-1)	19	1(1-1)	1
<i>Bossiaea stephensonii</i>	2(1-2)	4	1(1-3)	<1
<i>Brachyloma daphnoides</i>	1(1-1)	13	1(1-1)	6
<i>Callitris muelleri</i>	1(1-2)	2	1(1-1)	<1
<i>Calytrix tetragona</i>	1(1-1)	12	1(1-2)	1
<i>Cassutha glabella</i>	1(1-1)	18	1(1-1)	7
<i>Cassutha pubescens</i>	1(1-1)	32	1(1-1)	7
<i>Caustis flexuosa</i>	1(1-2)	60	1(1-2)	5
<i>Caustis pentandra</i>	1(1-1)	14	1(1-1)	1
<i>Caustis recurvata</i>	1(1-1)	2	1(1-1)	<1
<i>Ceratopetalum gummiferum</i>	1(1-1)	12	1(1-2)	3
<i>Chloanthes stoechadis</i>	1(1-2)	3	1(1-1)	<1
<i>Comesperma ericinum</i>	1(1-1)	4	1(1-1)	1
<i>Conospermum longifolium</i> subsp. <i>angustifolium</i>	1(1-1)	5	1(1-1)	<1
<i>Conospermum longifolium</i> subsp. <i>longifolium</i>	1(1-1)	24	1(1-1)	<1
<i>Conospermum longifolium</i> subsp. <i>mediale</i>	1(1-1)	1	1(1-1)	<1
<i>Conospermum taxifolium</i>	1(1-1)	5	1(1-1)	1
<i>Conospermum tenuifolium</i>	1(1-1)	5	1(1-2)	<1
<i>Corymbia eximia</i>	1(1-2)	16	1(1-2)	1
<i>Corymbia gummifera</i>	2(1-2)	85	2(1-3)	13
<i>Crowea saligna</i>	1(1-1)	2	1(1-2)	<1
<i>Cryptandra amara</i>	1(1-1)	6	1(1-1)	1
<i>Cryptandra ericoides</i>	1(1-1)	2	1(1-1)	<1
<i>Cyathochaeta diandra</i>	1(1-2)	53	1(1-2)	6
<i>Dampiera scottiana</i>	1(1-1)	1	1(1-1)	<1
<i>Dampiera stricta</i>	1(1-1)	55	1(1-1)	6
<i>Darwinia biflora</i>	1(1-2)	2	1(1-2)	<1
<i>Darwinia diminuta</i>	1(1-1)	2	1(1-1)	<1
<i>Darwinia fascicularis</i> subsp. <i>fascicularis</i>	1(1-1)	5	1(1-2)	1
<i>Darwinia grandiflora</i>	2(1-2)	2	1(1-1)	<1
<i>Daviesia corymbosa</i>	1(1-1)	18	1(1-1)	1
<i>Dianella prunina</i>	1(1-1)	10	1(1-1)	1
<i>Dillwynia acicularis</i>	1(1-2)	1	1(1-2)	<1
<i>Dillwynia elegans</i>	1(1-2)	3	1(1-1)	<1
<i>Dillwynia floribunda</i>	1(1-1)	9	1(1-1)	2
<i>Dillwynia retorta</i>	1(1-1)	63	1(1-2)	4
<i>Dillwynia sericea</i>	1(1-2)	5	1(1-1)	2
<i>Dodonaea camfieldii</i>	1(1-1)	3	1(1-1)	<1
<i>Doryanthes excelsa</i>	1(1-2)	9	1(1-2)	1
<i>Drosera peltata</i>	1(1-1)	5	1(1-1)	2



<i>Entolasia stricta</i>	1(1-1)	59	1(1-2)	33
<i>Epacris crassifolia</i>	1(1-1)	1	1(1-1)	<1
<i>Epacris longiflora</i>	1(1-1)	5	1(1-2)	1
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	26	1(1-1)	4
<i>Epacris pulchella</i>	1(1-1)	49	1(1-1)	3
<i>Eriostemon australasius</i>	1(1-1)	37	1(1-1)	2
<i>Eucalyptus burgessiana</i>	1(1-3)	2	1(1-2)	<1
<i>Eucalyptus camfieldii</i>	2(2-5)	2	1(1-1)	<1
<i>Eucalyptus haemastoma</i>	2(1-2)	27	1(1-2)	1
<i>Eucalyptus luehmanniana</i>	3(1-3)	3	3(2-3)	<1
<i>Eucalyptus multicaulis</i>	2(1-3)	5	1(1-3)	<1
<i>Eucalyptus oblonga</i>	1(1-2)	15	1(1-3)	1
<i>Eucalyptus piperita</i>	1(1-2)	24	2(1-3)	8
<i>Eucalyptus racemosa</i>	2(1-2)	23	1(1-2)	1
<i>Eucalyptus sclerophylla</i>	2(1-2)	11	2(1-3)	3
<i>Eucalyptus sieberi</i>	1(1-2)	32	2(1-3)	15
<i>Eucalyptus sparsifolia</i>	2(1-2)	15	2(1-3)	2
<i>Eucalyptus squamosa</i>	1(1-2)	3	1(1-1)	<1
<i>Eucalyptus umbra</i>	1(1-2)	3	2(1-2)	<1
<i>Euryomyrtus ramosissima</i>	1(1-1)	5	1(1-1)	<1
<i>Gahnia erythrocarpa</i>	1(1-1)	3	1(1-2)	<1
<i>Gompholobium glabratum</i>	1(1-1)	11	1(1-1)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	38	1(1-1)	2
<i>Gompholobium latifolium</i>	1(1-1)	12	1(1-1)	3
<i>Gompholobium virgatum</i> var. <i>aspalathoides</i>	1(1-1)	2	1(1-1)	<1
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	14	1(1-1)	4
<i>Goodenia decurrens</i>	2(1-2)	3	1(1-2)	<1
<i>Goodenia heterophylla</i>	1(1-1)	6	1(1-1)	2
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	41	1(1-1)	1
<i>Grevillea capitellata</i>	1(1-2)	2	1(1-2)	<1
<i>Grevillea diffusa</i>	1(1-1)	7	1(1-1)	1
<i>Grevillea mucronulata</i>	1(1-1)	13	1(1-1)	3
<i>Grevillea oleoides</i>	1(1-1)	20	1(1-1)	1
<i>Grevillea phyllicoides</i>	1(1-2)	6	1(1-2)	<1
<i>Grevillea sericea</i>	1(1-1)	32	1(1-1)	1
<i>Grevillea speciosa</i>	1(1-1)	7	1(1-2)	<1
<i>Grevillea sphacelata</i>	1(1-1)	21	1(1-1)	1
<i>Grevillea triternata</i>	1(1-1)	1	1(1-1)	<1
<i>Guringalia dimorpha</i>	1(1-2)	10	1(1-2)	<1
<i>Hakea bakeriana</i>	1(1-2)	6	1(1-1)	<1
<i>Hakea dactyloides</i>	1(1-1)	71	1(1-1)	10
<i>Hakea gibbosa</i>	1(1-1)	12	1(1-1)	<1
<i>Hakea propinqua</i>	1(1-2)	9	1(1-1)	<1
<i>Hakea sericea</i>	1(1-1)	40	1(1-1)	5
<i>Hakea teretifolia</i>	1(1-1)	25	1(1-2)	3
<i>Hemigenia purpurea</i>	1(1-1)	8	1(1-1)	<1

<i>Hibbertia acicularis</i>	1(1-1)	3	1(1-1)	1
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	17	1(1-1)	10
<i>Hibbertia bracteata</i>	1(1-1)	20	1(1-1)	1
<i>Hibbertia cistiflora</i> subsp. <i>cistiflora</i>	1(1-1)	6	1(1-1)	<1
<i>Hibbertia fasciculata</i>	1(1-1)	5	1(1-1)	<1
<i>Hibbertia linearis</i>	1(1-1)	9	1(1-1)	1
<i>Hibbertia monogyne</i>	1(1-1)	8	1(1-1)	<1
<i>Hibbertia nitida</i>	1(1-1)	3	1(1-1)	<1
<i>Hibbertia riparia</i>	1(1-1)	6	1(1-1)	2
<i>Hibbertia rufa</i>	1(1-1)	3	1(1-1)	1
<i>Hovea linearis</i>	1(1-1)	33	1(1-1)	9
<i>Hybanthus monopetalus</i>	1(1-1)	6	1(1-1)	2
<i>Hypolaena fastigiata</i>	1(1-3)	3	1(1-1)	1
<i>Isopogon anemonifolius</i>	1(1-1)	66	1(1-1)	6
<i>Isopogon anethifolius</i>	1(1-1)	14	1(1-1)	1
<i>Kunzea capitata</i>	1(1-2)	4	1(1-2)	1
<i>Lambertia formosa</i>	1(1-1)	80	1(1-2)	6
<i>Lasiopetalum ferrugineum</i>	1(1-2)	5	1(1-2)	2
<i>Lasiopetalum parviflorum</i>	1(1-1)	1	1(1-1)	<1
<i>Lasiopetalum rufum</i>	1(1-1)	5	1(1-1)	<1
<i>Laxmannia gracilis</i>	1(1-1)	11	1(1-1)	3
<i>Lepidosperma concavum</i>	1(1-2)	7	1(1-2)	2
<i>Lepidosperma filiforme</i>	1(1-2)	11	1(1-2)	2
<i>Leptospermum squarrosum</i>	1(1-1)	7	1(1-1)	1
<i>Leptomeria acida</i>	1(1-1)	19	1(1-1)	4
<i>Leptospermum arachnoides</i>	1(1-1)	19	1(1-1)	1
<i>Leptospermum parvifolium</i>	1(1-1)	4	1(1-1)	1
<i>Leptospermum polygalifolium</i>	1(1-1)	16	1(1-2)	8
<i>Leptospermum trinervium</i>	2(1-2)	91	1(1-2)	13
<i>Lepyrodia scariosa</i>	1(1-2)	42	1(1-2)	4
<i>Leucopogon amplexicaulis</i>	1(1-2)	2	1(1-1)	<1
<i>Leucopogon appressus</i>	1(1-1)	2	1(1-1)	<1
<i>Leucopogon ericoides</i>	1(1-1)	8	1(1-1)	2
<i>Leucopogon esquamatus</i>	1(1-1)	8	1(1-1)	1
<i>Leucopogon microphyllum</i>	1(1-1)	35	1(1-1)	1
<i>Leucopogon muticus</i>	1(1-1)	6	1(1-1)	1
<i>Leucopogon setiger</i>	1(1-1)	5	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	34	1(1-1)	6
<i>Lomandra brevis</i>	1(1-1)	4	1(1-1)	<1
<i>Lomandra cylindrica</i>	1(1-1)	17	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	29	1(1-1)	10
<i>Lomandra glauca</i>	1(1-2)	48	1(1-1)	8
<i>Lomandra gracilis</i>	1(1-1)	10	1(1-1)	3
<i>Lomandra obliqua</i>	1(1-1)	59	1(1-1)	12
<i>Lomatia silaifolia</i>	1(1-1)	46	1(1-1)	8
<i>Lycopodium deuterodensum</i>	1(1-1)	2	1(1-1)	<1

<i>Melaleuca deanei</i>	2(1-2)	1	2(1-2)	<1
<i>Micromyrtus blakelyi</i>	1(1-1)	1	2(2-2)	<1
<i>Micromyrtus ciliata</i>	1(1-1)	5	1(1-1)	<1
<i>Micrantheum ericoides</i>	1(1-1)	23	1(1-1)	2
<i>Mirbelia rubiifolia</i>	1(1-1)	12	1(1-1)	2
<i>Mirbelia speciosa</i> subsp. <i>speciosa</i>	1(1-1)	3	1(1-1)	<1
<i>Mitrasacme pilosa</i> var. <i>pilosa</i>	1(1-1)	1	1(1-1)	<1
<i>Mitrasacme polymorpha</i>	1(1-1)	7	1(1-1)	3
<i>Monotaxis linifolia</i>	1(1-1)	1	1(1-1)	<1
<i>Monotoca scoparia</i>	1(1-1)	50	1(1-1)	11
<i>Olex stricta</i>	1(1-1)	6	1(1-1)	<1
<i>Patersonia glabrata</i>	1(1-1)	26	1(1-1)	9
<i>Patersonia longifolia</i>	1(1-1)	5	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	33	1(1-1)	8
<i>Persoonia lanceolata</i>	1(1-1)	23	1(1-1)	1
<i>Persoonia levis</i>	1(1-1)	78	1(1-1)	10
<i>Persoonia mollis</i> subsp. <i>nectens</i>	1(1-1)	2	1(1-1)	<1
<i>Persoonia oblongata</i>	1(1-2)	2	1(1-1)	<1
<i>Persoonia pinifolia</i>	1(1-1)	41	1(1-1)	2
<i>Petrophile pedunculata</i>	1(1-1)	9	1(1-2)	3
<i>Petrophile pulchella</i>	1(1-2)	61	1(1-1)	4
<i>Petrophile sessilis</i>	1(1-2)	8	1(1-1)	1
<i>Phebalium squamulosum</i> subsp. <i>squamulosum</i>	1(1-1)	2	1(1-1)	<1
<i>Philothea hispidula</i>	1(1-1)	8	1(1-1)	1
<i>Philothea salsolifolia</i> subsp. <i>salsolifolia</i>	1(1-1)	3	1(1-2)	<1
<i>Philothea scabra</i>	1(1-1)	2	1(1-2)	<1
<i>Phyllota grandiflora</i>	2(1-2)	3	1(1-3)	<1
<i>Phyllanthus hirtellus</i>	1(1-1)	47	1(1-1)	13
<i>Phyllota phyllicoides</i>	1(1-2)	33	1(1-2)	2
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	44	1(1-1)	12
<i>Platysace ericoides</i>	1(1-1)	8	1(1-1)	2
<i>Platysace linearifolia</i>	1(1-1)	72	1(1-1)	6
<i>Poranthera corymbosa</i>	1(1-1)	4	1(1-1)	1
<i>Poranthera ericifolia</i>	1(1-1)	6	1(1-1)	1
<i>Prostanthera howelliae</i>	2(1-2)	1	3(2-3)	<1
<i>Ptilothrix deusta</i>	1(1-1)	8	1(1-2)	2
<i>Pultenaea ferruginea</i>	1(1-2)	12	1(1-2)	1
<i>Pultenaea linophylla</i>	1(1-1)	6	1(1-1)	2
<i>Pultenaea stipularis</i>	1(1-1)	12	1(1-1)	1
<i>Pultenaea tuberculata</i>	1(1-1)	26	1(1-1)	2
<i>Ricinocarpos pinifolius</i>	1(1-1)	8	1(1-1)	1
<i>Scaevola ramosissima</i>	1(1-1)	14	1(1-1)	3
<i>Schizaea bifida</i>	1(1-1)	11	1(1-1)	1
<i>Schizaea dichotoma</i>	1(1-1)	3	1(1-1)	<1
<i>Schoenus ericetorum</i>	1(1-1)	11	1(1-1)	1
<i>Schoenus imberbis</i>	1(1-1)	19	1(1-1)	1

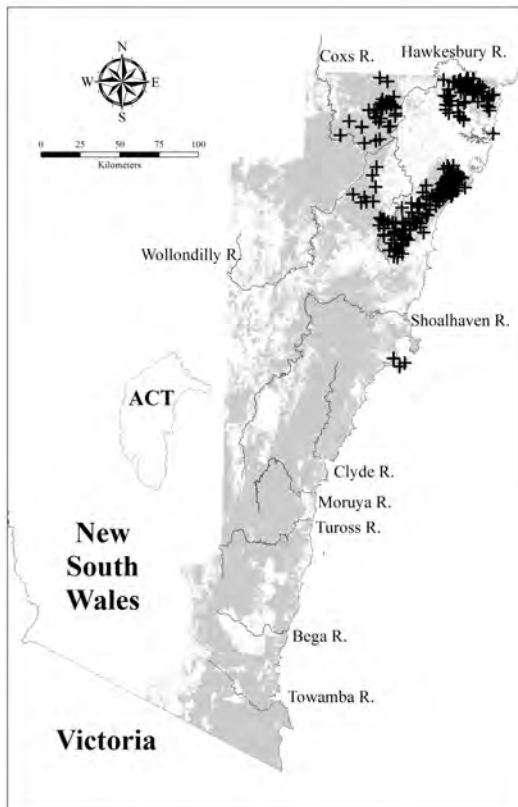
<i>Schoenus turbinatus</i>	1(1-2)	3	1(1-1)	<1
<i>Selaginella uliginosa</i>	1(1-1)	7	1(1-1)	2
<i>Stylidium lineare</i>	1(1-1)	15	1(1-1)	1
<i>Stylidium productum</i>	1(1-1)	6	1(1-2)	1
<i>Styphelia tubiflora</i>	1(1-1)	13	1(1-1)	<1
<i>Telopea speciosissima</i>	1(1-1)	11	1(1-1)	1
<i>Tetradlea ericifolia</i>	1(1-1)	10	1(1-1)	<1
<i>Tetradlea glandulosa</i>	1(1-1)	6	1(1-1)	<1
<i>Tetradlea neglecta</i>	1(1-1)	11	1(1-1)	<1
<i>Tetradlea rupicola</i>	1(1-1)	2	1(1-1)	<1
<i>Tetradlea shiressii</i>	1(1-1)	1	1(1-2)	<1
<i>Tricostularia pauciflora</i>	1(1-1)	2	1(1-1)	<1
<i>Woolfsia pungens</i>	1(1-2)	16	1(1-1)	1
<i>Xanthorrhoea arborea</i>	1(1-1)	4	1(1-2)	1
<i>Xanthorrhoea media</i>	1(1-2)	49	1(1-2)	3
<i>Xanthosia pilosa</i>	1(1-1)	29	1(1-1)	7
<i>Xanthorrhoea resinifera</i>	1(1-1)	19	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-1)	33	1(1-1)	4
<i>Xylomelum pyriforme</i>	1(1-1)	14	1(1-1)	3
<i>Xyris bracteata</i>	1(1-1)	4	1(1-1)	<1
<i>Xyris complanata</i>	1(1-1)	1	1(1-1)	<1
<i>Zieria laevigata</i>	1(1-1)	3	1(1-1)	<1
<i>Zieria pilosa</i>	1(1-2)	3	1(1-1)	1

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	30	1(1-1)	28
<i>Lepidosperma laterale</i>	1(1-1)	34	1(1-1)	28

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	2(1-2)	4	1(1-2)	2
<i>Angophora crassifolia</i>	2(2-2)	<1	4(2-4)	<1
<i>Eucalyptus apiculata</i>	3(1-3)	1	2(2-3)	<1
<i>Eucalyptus bridgesiana</i>	2(2-2)	<1	1(1-3)	2
<i>Eucalyptus capitellata</i>	1(1-2)	1	3(1-3)	<1
<i>Eucalyptus considianiana</i>	2(1-2)	2	2(1-2)	2
<i>Eucalyptus eugenioides</i>	2(1-3)	1	2(1-3)	4
<i>Eucalyptus obstans</i>	1(1-2)	1	1(1-2)	<1
<i>Eucalyptus oreades</i>	3(3-3)	10	3(1-3)	<1
<i>Eucalyptus punctata</i>	1(1-1)	9	2(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	<1	1(1-2)	1
<i>Eucalyptus rossii</i>	3(3-3)	<1	3(1-3)	2
<i>Eucalyptus stricta</i>	1(1-3)	2	1(1-2)	1



Locations of survey sites allocated to DSF p131. Grey shading indicates extant native vegetation cover within the study area.

### DSF p136: Blue Mountains Ridgetop Forest



Plate p136. Blue Mountains Ridgetop Forest (Map Unit p136) shown near Battleship Tops, Kings Tableland Road, Blue Mountains National Park. The overstorey is dominated by *Eucalyptus sparsifolia*, *Angophora costata* and *E. piperita* with *Banksia serrata* and *Leptospermum trinervium* forming a prominent sub-stratum. The shrub stratum includes *Lambertia formosa*, *Persoonia mollis* and *Dillwynia retorta* while *Xanthorrhoea resinosa* is prominent in the ground cover.

Sample Sites: 50  
 Area Extant (ha): 28800  
 Estimated % remaining: 80-95%  
 Area in conservation reserves (ha): 21200  
 Estimated % of pre-clearing area in conservation reserves: 55-70%  
 No. taxa (total / unique): 326 / 2  
 No. taxa per plot ( $\pm$ sd): 48.3 (6.3)  
 Class: Sydney Montane Dry Sclerophyll Forests  
 Related TEC: n/a

Blue Mountains Ridgetop Forest (DSF p136) is equivalent to DSF 136 identified by Tindall *et al.* (2004), and is a low eucalypt forest with an abundant sclerophyll shrub stratum and a groundcover dominated by sedges and forbs. This low forest is restricted to the upper Blue Mountains plateau north of the Kedumba valley, and extends beyond Bell at the northern edge of the study area. Within this distribution Blue Mountains Ridgetop Forest occurs on sandy loams derived from Narrabeen sandstone between 650 and 1050m ASL. Mean annual rainfall varies between 1000 and 1400mm. Blue Mountains Ridgetop Forest grades into Coastal Sandstone Ridgetop Woodland (DSF p131) to the east with decreasing elevation. Patches of Blue Mountains Heath (HL p124) and Blue Mountains – Shoalhaven Hanging Swamps (FrW p130) may be embedded within the forest in complex patterns related to soil depth and drainage.

About one-third of the original distribution of Blue Mountains Ridgetop Forest has been cleared during the expansion of towns in the upper Blue Mountains. Further attrition and edge effects are likely, although considerable stands exist within Blue Mountains National Park.

#### Floristic Summary:

**Trees:** *Eucalyptus piperita*, *E. sieberi*. **Shrubs:** *Leptospermum trinervium*, *Platysace linearifolia*, *Banksia spinulosa*, *Persoonia levis*, *Lomatia silaifolia*, *Monotoca scoparia*, *Daviesia ulicifolia*, *Isopogon anemonifolius*, *Lambertia formosa*, *Bossiaea heterophylla*, *Banksia serrata*, *Hakea dactyloides*, *Persoonia laurina*, *Acacia terminalis*, *Petrophile pulchella*, *Amperea xiphoclada*, *Leptospermum polygalifolium*, *Telopea speciosissima*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Lomandra obliqua*, *Entolasia stricta*, *Xanthosia pilosa*, *Patersonia sericea*, *Pteridium esculentum*, *Lomandra glauca*, *Dampiera stricta*, *Caustis flexuosa*.

#### Vegetation structure:

Stratum	Frequency (n=25)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	15.6 (4.6)	20.1 (11.3)
Small tree	64	5.8 (1.8)	15.2 (14.8)
Shrub	80	2 (0.7)	34.8 (16)
Ground cover	92	0.6 (0.3)	25.2 (16)

#### 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 44 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 myrtifolia</i>	1(1-1)	16	1(1-1)	4
<i>Acacia obtusifolia</i>	2(1-2)	34	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	58	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	40	1(1-1)	10
<i>Amperea xiphoclada</i>	1(1-1)	54	1(1-1)	7
<i>Angophora costata</i>	1(1-3)	22	1(1-3)	7
<i>Banksia serrata</i>	1(1-2)	58	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	88	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	62	1(1-1)	27
<i>Boronia ledifolia</i>	1(1-1)	28	1(1-1)	3
<i>Boronia microphylla</i>	1(1-2)	20	1(1-1)	<1
<i>Bossiaea ensata</i>	1(1-1)	24	1(1-1)	2

<i>Bossiaea heterophylla</i>	1(1-1)	62	1(1-1)	5
<i>Cassytha glabella</i>	1(1-1)	30	1(1-1)	8
<i>Cassytha pubescens</i>	1(1-1)	36	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	46	1(1-2)	7
<i>Conospermum tenuifolium</i>	2(1-3)	14	1(1-1)	<1
<i>Cyathochaeta diandra</i>	2(1-3)	32	1(1-2)	8
<i>Dampiera purpurea</i>	1(1-1)	36	1(1-1)	4
<i>Dampiera stricta</i>	1(1-1)	50	1(1-1)	8
<i>Daviesia corymbosa</i>	1(1-1)	22	1(1-1)	2
<i>Daviesia ulicifolia</i>	1(1-2)	66	1(1-1)	6
<i>Dianella prunina</i>	1(1-1)	22	1(1-1)	1
<i>Dillwynia retorta</i>	2(1-3)	30	1(1-2)	6
<i>Entolasia stricta</i>	1(1-2)	72	1(1-2)	33
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	18	1(1-1)	5
<i>Epacris pulchella</i>	1(1-2)	20	1(1-1)	5
<i>Eriostemon australasius</i>	1(1-1)	16	1(1-1)	3
<i>Eucalyptus piperita</i>	3(2-3)	78	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	20	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	2(1-3)	34	2(1-3)	4
<i>Eucalyptus sieberi</i>	2(1-3)	72	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	3(1-3)	22	2(1-3)	2
<i>Gahnia microstachya</i>	2(1-2)	30	1(1-2)	<1
<i>Gompholobium glabratum</i>	1(1-1)	14	1(1-1)	2
<i>Gonocarpus teucroides</i>	1(1-1)	40	1(1-1)	17
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	40	1(1-1)	4
<i>Goodenia heterophylla</i>	1(1-1)	14	1(1-1)	2
<i>Hakea dactyloides</i>	1(1-2)	90	1(1-1)	11
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	28	1(1-1)	10
<i>Hibbertia rufa</i>	1(1-1)	22	1(1-1)	1
<i>Hovea linearis</i>	1(1-1)	48	1(1-1)	9
<i>Hybanthus monopetalus</i>	1(1-1)	22	1(1-1)	2
<i>Isopogon anemonifolius</i>	1(1-1)	76	1(1-1)	8
<i>Joycea pallida</i>	2(1-3)	24	1(1-2)	8
<i>Lachnagrostis filiformis</i>	1(1-2)	18	1(1-1)	3
<i>Lambertia formosa</i>	2(2-3)	74	1(1-2)	8
<i>Leptomeria acida</i>	1(1-1)	14	1(1-1)	4
<i>Leptospermum arachnoides</i>	1(1-1)	14	1(1-1)	2
<i>Leptospermum polygalifolium</i>	1(1-2)	48	1(1-2)	8
<i>Leptospermum trinervium</i>	2(2-3)	94	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-1)	26	1(1-2)	6
<i>Lindsaea linearis</i>	1(1-1)	26	1(1-1)	7
<i>Lindsaea microphylla</i>	1(1-1)	20	1(1-1)	5
<i>Lomandra cylindrica</i>	1(1-1)	34	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-2)	28	1(1-1)	11
<i>Lomandra glauca</i>	1(1-2)	54	1(1-1)	10
<i>Lomandra gracilis</i>	1(1-1)	28	1(1-1)	3

<i>Lomandra obliqua</i>	1(1-2)	80	1(1-1)	14
<i>Lomatia silaifolia</i>	1(1-1)	74	1(1-1)	10
<i>Mirbelia platylobioides</i>	1(1-1)	14	1(1-1)	1
<i>Mirbelia rubiifolia</i>	1(1-1)	20	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	14	1(1-1)	3
<i>Monotoca scoparia</i>	1(1-1)	74	1(1-1)	12
<i>Olearia erubescens</i>	1(1-1)	14	1(1-1)	2
<i>Patersonia glabrata</i>	1(1-2)	52	1(1-1)	10
<i>Patersonia sericea</i>	1(1-2)	66	1(1-1)	9
<i>Persoonia laurina</i>	1(1-1)	52	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	84	1(1-1)	13
<i>Persoonia mollis</i> subsp. <i>mollis</i>	1(1-1)	18	1(1-1)	1
<i>Petrophile pedunculata</i>	1(1-1)	30	1(1-2)	3
<i>Petrophile pulchella</i>	1(1-2)	54	1(1-1)	5
<i>Petrophile sessilis</i>	1(1-1)	14	1(1-1)	2
<i>Phyllanthus hirtellus</i>	1(1-1)	50	1(1-1)	14
<i>Phyllota squarrosa</i>	2(1-2)	34	1(1-1)	<1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	48	1(1-1)	13
<i>Platysace linearifolia</i>	1(1-2)	88	1(1-1)	8
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-2)	32	1(1-2)	10
<i>Poranthera corymbosa</i>	1(1-1)	18	1(1-1)	1
<i>Pultenaea scabra</i>	2(2-3)	16	1(1-2)	1
<i>Pultenaea tuberculata</i>	1(1-1)	20	1(1-1)	3
<i>Rhytidosporum procumbens</i>	1(1-1)	16	1(1-1)	3
<i>Scaevola ramosissima</i>	1(1-1)	16	1(1-1)	3
<i>Stylidium lineare</i>	1(1-1)	18	1(1-1)	2
<i>Telopea speciosissima</i>	1(1-1)	44	1(1-1)	2
<i>Tetradlea ericifolia</i>	1(1-3)	14	1(1-1)	1
<i>Tetradlea rupicola</i>	1(1-2)	18	1(1-1)	<1
<i>Xanthorrhoea media</i>	1(1-2)	34	1(1-2)	5
<i>Xanthosia pilosa</i>	1(1-1)	68	1(1-1)	7
<i>Xanthorrhoea resinifera</i>	1(1-1)	40	1(1-2)	4
<i>Xylomelum pyriforme</i>	1(1-1)	16	1(1-1)	3

## Constant:

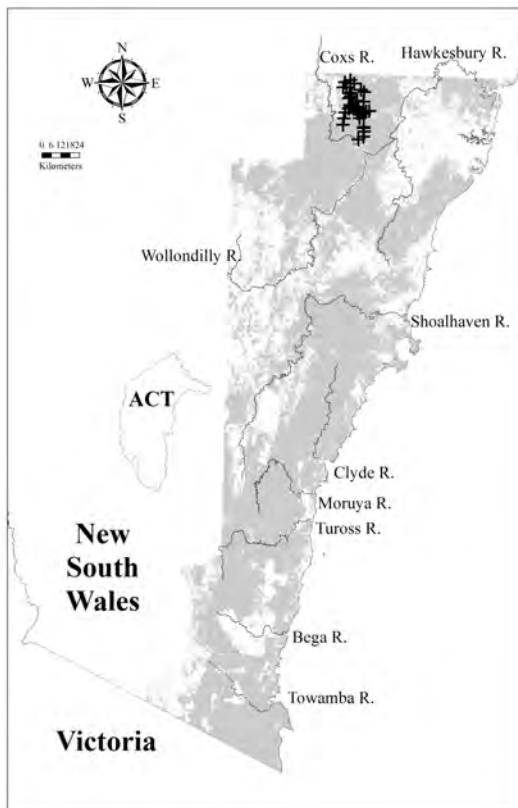
Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-1)	30	1(1-1)	44
<i>Pteridium esculentum</i>	1(1-1)	56	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	3(3-3)	2	1(1-2)	2
<i>Corymbia eximia</i>	1(1-1)	2	1(1-2)	2
<i>Corymbia gummifera</i>	2(1-3)	18	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-1)	2	2(1-3)	7
<i>Eucalyptus apiculata</i>	1(1-1)	2	3(2-3)	<1
<i>Eucalyptus blaxlandii</i>	1(1-3)	6	1(1-3)	1



<i>Eucalyptus consideriana</i>	3(1-3)	4	2(1-2)	2
<i>Eucalyptus globoidea</i>	3(1-3)	4	2(1-2)	12
<i>Eucalyptus ligustrina</i>	2(1-2)	6	2(1-2)	<1
<i>Eucalyptus oblonga</i>	1(1-1)	4	1(1-2)	2
<i>Eucalyptus oreades</i>	4(3-4)	6	3(1-3)	<1
<i>Eucalyptus stricta</i>	2(2-3)	10	1(1-2)	1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	4	2(1-3)	8



Locations of survey sites allocated to DSF p136. Grey shading indicates extant native vegetation cover within the study area.

**HL p139: Coastal Sandplain Heath**

Plate p139. Coastal Sand plain Heath (Map Unit p139) at Wottamolla, Royal National Park. The dense shrub layer includes *Banksia ericifolia*, *Leptospermum laevigatum*, *Allocasuarina distyla*, *Banksia serrata* and *Conospermum taxifolium*.

Sample Sites: 42

Area Extant (ha): 1000

Estimated % remaining: >90%

Area in conservation reserves (ha): 530

Estimated % of pre-clearing area in conservation reserves: 20-40%

No. taxa (total / unique): 243 / 1

No. taxa per plot ( $\pm$ sd): 38.6 (10.3)

Class: Wallum Sand Heaths

Related TEC: n/a

Coastal Sandplain Heath (HL p139) is equivalent to HL 139 identified by Tindall *et al.* (2004), and is a dense to open shrubland with an open groundcover of forbs and sedges. This unit is found at Port Hacking (Kurnell and Jibbon) and at Jervis Bay (Beecroft and Booderee) where mean annual rainfall is between 1200 and 1470mm. It is restricted to podsolised sand dunes, usually perched on coastal sandstone plateaux up to 150m ASL. Coastal Sandplain Heath shares some species with Agnes Banks Woodland (DSF p239) which is found on podsolised sand deposits adjacent to the Hawkesbury river near Windsor at much lower rainfall and some distance from the coast.

Parts of Coastal Sandplain Heath's original distribution at Kurnell and in the Illawarra have been cleared for urban and industrial development. The remaining stands are under considerable recreational pressures and vulnerable to localised dune erosion.

**Floristic Summary:**

**Shrubs:** *Banksia serrata*, *Bossiaea ensata*, *Acacia suaveolens*, *Ricinocarpos pinifolius*, *Isopogon anemonifolius*, *Lambertia formosa*, *Bossiaea heterophylla*, *Leptospermum laevigatum*, *Allocasuarina distyla*, *Persoonia levis*, *Pimelea linifolia*. **Groundcover:** *Xanthosia pilosa*, *Gonocarpus teucroides*, *Hypolaena fastigiata*, *Lomandra glauca*, *Dampiera stricta*, *Lepidosperma concavum*.

**Vegetation structure:**

\* Structural information is unavailable for this Map Unit. This heathland is characterised by a dense to open 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 18 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 18 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia suaveolens</i>	1(1-1)	64	1(1-1)	7
<i>Acacia ulicifolia</i>	1(1-1)	33	1(1-1)	10
<i>Actinotus helianthi</i>	1(1-1)	31	1(1-1)	2
<i>Actinotus minor</i>	1(1-1)	36	1(1-1)	4
<i>Allocasuarina distyla</i>	1(1-2)	64	1(1-2)	2
<i>Amperea xiphoclada</i>	1(1-1)	24	1(1-1)	7
<i>Anisopogon avenaceus</i>	1(1-2)	24	1(1-2)	5
<i>Aotus ericoides</i>	1(1-2)	21	1(1-1)	3
<i>Astrotricha linearis</i>	1(1-1)	19	1(1-1)	<1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-1)	31	1(1-2)	7
<i>Banksia paludosa</i>	1(1-1)	50	1(1-2)	3
<i>Banksia serrata</i>	2(1-2)	98	1(1-2)	9
<i>Boronia ledifolia</i>	1(1-1)	21	1(1-1)	3
<i>Boronia pinnata</i>	1(1-1)	52	1(1-1)	1
<i>Bossiaea ensata</i>	1(1-1)	79	1(1-1)	2
<i>Bossiaea heterophylla</i>	1(1-1)	60	1(1-1)	6
<i>Brachyloma daphnoides</i>	1(1-2)	33	1(1-1)	6
<i>Cassythia glabella</i>	1(1-1)	24	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-1)	48	1(1-2)	7
<i>Caustis pentandra</i>	1(1-2)	19	1(1-1)	1
<i>Caustis recurvata</i>	1(1-1)	19	1(1-1)	<1
<i>Conospermum taxifolium</i>	1(1-1)	21	1(1-1)	1
<i>Corymbia gummifera</i>	3(1-4)	45	2(1-2)	16
<i>Dampiera stricta</i>	1(1-1)	62	1(1-1)	8
<i>Darwinia leptantha</i>	1(1-1)	33	1(1-1)	1
<i>Dillwynia glaberrima</i>	1(1-1)	31	1(1-1)	1
<i>Dodonaea camfieldii</i>	1(1-1)	26	1(1-1)	<1
<i>Gompholobium glabratum</i>	1(1-1)	24	1(1-1)	2
<i>Gonocarpus teucroides</i>	1(1-1)	52	1(1-1)	17
<i>Haemodorum planifolium</i>	1(1-1)	21	1(1-1)	1
<i>Hibbertia diffusa</i>	1(1-1)	26	1(1-1)	3
<i>Hibbertia fasciculata</i>	1(1-1)	26	1(1-1)	<1
<i>Hibbertia linearis</i>	1(1-1)	19	1(1-1)	1
<i>Hibbertia riparia</i>	1(1-1)	29	1(1-1)	2
<i>Hybanthus monopetalus</i>	1(1-1)	24	1(1-1)	2
<i>Hypolaena fastigiata</i>	1(1-2)	50	1(1-1)	1
<i>Isopogon anemonifolius</i>	1(1-1)	60	1(1-1)	8
<i>Lambertia formosa</i>	1(1-2)	45	1(1-2)	9
<i>Lepidosperma concavum</i>	2(2-3)	33	1(1-2)	2
<i>Lepidosperma laterale</i>	1(1-2)	60	1(1-1)	28
<i>Leptomeria acida</i>	1(1-1)	21	1(1-1)	4
<i>Leptospermum epacridoideum</i>	1(1-1)	21	1(1-2)	<1
<i>Leptospermum laevigatum</i>	1(1-2)	38	1(1-3)	1
<i>Leptospermum rotundifolium</i>	1(1-1)	24	1(1-2)	1

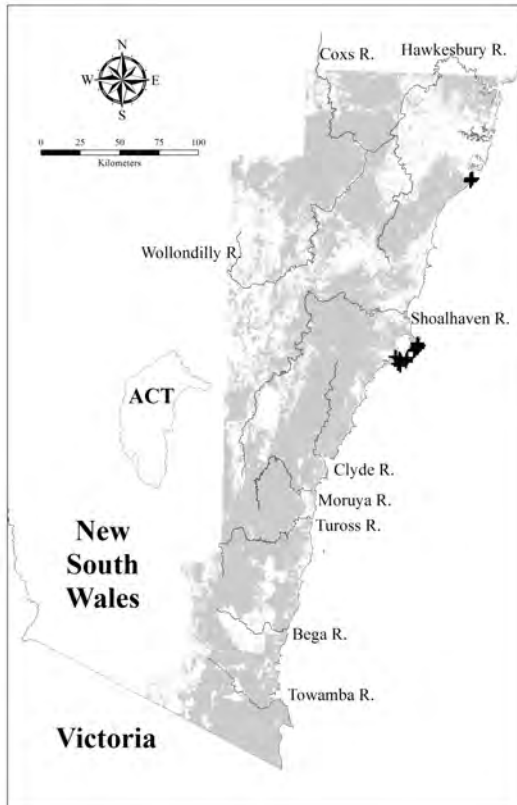
<i>Leptospermum trinervium</i>	1(1-2)	50	1(1-2)	15
<i>Leucopogon ericoides</i>	1(1-1)	36	1(1-1)	2
<i>Leucopogon virgatus</i>	1(1-1)	31	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	29	1(1-1)	7
<i>Lomandra glauca</i>	1(1-1)	64	1(1-1)	10
<i>Melaleuca capitata</i>	1(1-1)	26	1(1-1)	<1
<i>Mitrasacme polymorpha</i>	1(1-1)	19	1(1-1)	3
<i>Monotoca scoparia</i>	1(1-1)	31	1(1-1)	12
<i>Patersonia glabrata</i>	1(1-2)	33	1(1-1)	10
<i>Patersonia sericea</i>	1(1-1)	26	1(1-1)	9
<i>Persoonia levis</i>	1(1-1)	36	1(1-1)	13
<i>Petrophile pulchella</i>	1(1-1)	19	1(1-1)	6
<i>Philothea buxifolia</i>	1(1-1)	26	1(1-1)	<1
<i>Phyllota phyllicoides</i>	1(1-1)	45	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	45	1(1-1)	13
<i>Poranthera ericifolia</i>	1(1-1)	21	1(1-1)	1
<i>Prostanthera densa</i>	1(1-1)	29	1(1-1)	<1
<i>Ricinocarpos pinifolius</i>	1(1-1)	67	1(1-1)	1
<i>Scaevola ramosissima</i>	1(1-1)	24	1(1-1)	3
<i>Selaginella uliginosa</i>	1(1-1)	31	1(1-1)	2
<i>Woollsia pungens</i>	1(1-1)	52	1(1-1)	1
<i>Xanthorrhoea australis</i>	1(1-2)	52	1(1-1)	1
<i>Xanthorrhoea media</i>	1(1-2)	19	1(1-2)	5
<i>Xanthosia pilosa</i>	1(1-1)	62	1(1-1)	7
<i>Xanthosia tridentata</i>	1(1-1)	29	1(1-1)	5

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	1(1-1)	31	1(1-2)	34
<i>Pteridium esculentum</i>	2(1-2)	33	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	1(1-1)	2	1(1-3)	7
<i>Eucalyptus obstans</i>	1(1-1)	5	1(1-2)	<1
<i>Eucalyptus pilularis</i>	3(3-3)	2	2(1-3)	5
<i>Eucalyptus sclerophylla</i>	2(1-2)	7	2(1-3)	4
<i>Eucalyptus sieberi</i>	2(2-2)	26	2(1-3)	16
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(2-2)	2	2(1-3)	8



Locations of survey sites allocated to HL p139. Grey shading indicates extant native vegetation cover within the study area.

### DSF p140: Coastal Sandstone Gully Forest



Plate p140. Coastal Sandstone Gully Forest (Map Unit p140) along the creek line adjacent to McKell Avenue east of Waterfall. The overstorey is dominated by the smooth-barked *Angophora costata* with a diverse tall shrub layer including *Telopea speciosissima*, *Ceratopetalum gummiferum* and *Banksia spinulosa* interspersed with clumps of *Doryanthes excelsa*.

Sample Sites: 127  
 Area Extant (ha): 24400  
 Estimated % remaining: 70-85%  
 Area in conservation reserves (ha): 7700  
 Estimated % of pre-clearing area in conservation reserves: 15-35%  
 No. taxa (total / unique): 478 / 2

No. taxa per plot ( $\pm$ sd): 49.5 (13.7)

Class: Sydney Coastal Dry Sclerophyll Forests

Related TEC: includes areas matching Southern Sydney Sheltered Forest on Transitional Sandstone Soils EEC (TSC).

Coastal Sandstone Gully Forest (DSF p140) is equivalent to DSF 140 identified by Tindall *et al.* (2004). This unit is an open eucalypt forest with a diverse sclerophyll shrub stratum and an open groundcover dominated by sedges. This forest is distributed along the eastern portion of the Hornsby and Woronora plateaux (below 500m ASL) where it occurs on the lower slopes of sandstone gullies within an annual average rainfall band of 1000 - 1550mm. Coastal Sandstone Gully Forest grades into Sandstone Riparian Scrub (Map Unit FoW p58) immediately adjacent to creeklines, and grades into Coastal Sandstone Ridgetop Woodland (DSF p131) on upperslopes and in less sheltered positions. Hinterland Sandstone Gully Forest (DSF p142) replaces this unit in similar landforms and substrates as rainfall declines with distance from the coast.

Several examples of Coastal Sandstone Gully Forest are represented in conservation reserves and about one-third of the distribution has been cleared for urban development. Weeds, high frequency fires and fragmentation associated with the urban fringe pose localised threats.

#### Floristic Summary:

**Trees:** *Banksia serrata*, *Eucalyptus piperita*, *Angophora costata*, *Corymbia gummifera*. **Shrubs:** *Persoonia levis*, *Leptospermum polygalifolium*, *Lomatia silaifolia*, *Persoonia pinifolia*, *Banksia ericifolia*, *Acacia terminalis*, *Leptospermum trinervium*, *Platysace linearifolia*, *Banksia spinulosa*, *Ceratopetalum gummiferum*, *Acacia suaveolens*. **Climbers:** *Smilax glycyphylla*. **Groundcover:** *Lomandra longifolia*, *Pteridium esculentum*, *Gonocarpus teucrioides*, *Entolasia stricta*, *Caustis flexuosa*, *Dianella caerulea*, *Doryanthes excelsa*, *Lepidosperma laterale*.

#### Vegetation structure:

Stratum	Frequency (n=38)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	18.7 (5.9)	24.8 (14.4)
Small tree	68	6.5 (2.9)	20.6 (14.7)
Shrub	53	2.6 (0.5)	42.8 (34.1)
Ground cover	92	1 (0.5)	30.1 (24.4)

#### Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 23 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 38 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 23 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia elongata</i>	1(1-1)	10	1(1-1)	1
<i>Acacia linifolia</i>	1(1-1)	35	1(1-1)	6
<i>Acacia suaveolens</i>	1(1-1)	39	1(1-1)	7
<i>Acacia terminalis</i>	1(1-1)	51	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	37	1(1-1)	10
<i>Acianthus fornicatus</i>	1(1-2)	8	1(1-1)	1
<i>Actinotus helianthi</i>	1(1-1)	9	1(1-1)	2
<i>Actinotus minor</i>	1(1-1)	20	1(1-1)	4
<i>Allocasuarina distyla</i>	1(1-1)	7	1(1-2)	2
<i>Angophora costata</i>	2(1-3)	53	1(1-3)	6
<i>Aotus ericoides</i>	1(1-2)	26	1(1-1)	3
<i>Astroloma pinifolium</i>	1(1-2)	5	1(1-1)	<1
<i>Baeckea linifolia</i>	1(1-1)	17	1(1-2)	1
<i>Baloskion gracile</i>	2(1-3)	3	1(1-1)	<1
<i>Baloskion tetraphyllum</i>	1(1-2)	4	1(1-2)	<1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-2)	65	1(1-2)	6
<i>Banksia marginata</i>	1(1-1)	24	1(1-1)	3

<i>Banksia oblongifolia</i>	1(1-1)	13	1(1-2)	2
<i>Banksia serrata</i>	1(1-2)	65	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	58	1(1-2)	15
<i>Bauera rubioides</i>	1(1-2)	32	1(1-1)	1
<i>Blandfordia nobilis</i>	1(1-2)	3	1(1-1)	<1
<i>Boronia ledifolia</i>	1(1-1)	18	1(1-1)	3
<i>Bossiaea heterophylla</i>	1(1-1)	31	1(1-1)	5
<i>Bossiaea stephensonii</i>	1(1-2)	9	2(1-2)	<1
<i>Callicoma serratifolia</i>	1(1-2)	14	1(1-2)	3
<i>Cassyltha pubescens</i>	1(1-1)	24	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	51	1(1-2)	6
<i>Caustis pentandra</i>	1(1-1)	5	1(1-1)	1
<i>Ceratopetalum gummiferum</i>	1(1-2)	40	1(1-2)	3
<i>Conospermum longifolium</i> subsp. <i>angustifolium</i>	1(1-1)	4	1(1-1)	<1
<i>Conospermum tenuifolium</i>	1(1-1)	6	1(1-1)	<1
<i>Corymbia gummifera</i>	1(1-2)	56	2(1-2)	15
<i>Crowea saligna</i>	1(1-2)	7	1(1-1)	<1
<i>Cryptostylis erecta</i>	1(1-2)	4	1(1-1)	1
<i>Dampiera purpurea</i>	1(1-1)	13	1(1-1)	4
<i>Dampiera stricta</i>	1(1-1)	18	1(1-1)	8
<i>Darwinia fascicularis</i> subsp. <i>fascicularis</i>	1(1-1)	4	1(1-2)	1
<i>Dendrobium linguiforme</i>	1(1-2)	5	1(1-1)	<1
<i>Dianella caerulea</i>	1(1-1)	50	1(1-1)	28
<i>Dillwynia floribunda</i>	1(1-1)	7	1(1-1)	2
<i>Dillwynia retorta</i>	1(1-2)	40	1(1-2)	6
<i>Dodonaea triquetra</i>	1(1-2)	35	1(1-2)	5
<i>Doryanthes excelsa</i>	1(1-2)	37	1(1-2)	1
<i>Dracophyllum secundum</i>	1(1-2)	3	1(1-1)	<1
<i>Drosera spatulata</i>	1(1-1)	9	1(1-1)	1
<i>Empodisma minus</i>	1(1-1)	11	2(1-2)	3
<i>Entolasia stricta</i>	1(1-1)	54	1(1-2)	33
<i>Epacris longiflora</i>	1(1-1)	28	1(1-2)	1
<i>Epacris microphylla</i> var. <i>microphylla</i>	1(1-1)	13	1(1-1)	5
<i>Epacris pulchella</i>	1(1-1)	32	1(1-1)	5
<i>Eriostemon australasius</i>	1(1-1)	12	1(1-1)	3
<i>Eucalyptus haemastoma</i>	1(1-2)	6	1(1-2)	1
<i>Eucalyptus piperita</i>	2(1-3)	64	2(1-3)	8
<i>Eurychorda complanata</i>	1(1-2)	4	1(1-1)	1
<i>Gahnia erythrocarpa</i>	1(1-1)	6	1(1-1)	<1
<i>Gahnia sieberiana</i>	1(1-2)	22	1(1-1)	4
<i>Gleichenia dicarpa</i>	1(1-2)	33	1(1-3)	2
<i>Gleichenia microphylla</i>	1(1-2)	8	1(1-3)	1
<i>Gompholobium grandiflorum</i>	1(1-1)	9	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-1)	15	1(1-1)	3
<i>Gonocarpus teucrioides</i>	1(1-1)	54	1(1-1)	17
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	16	1(1-1)	2

<i>Grevillea capitellata</i>	1(1-2)	12	1(1-2)	<1
<i>Grevillea diffusa</i>	1(1-2)	15	1(1-1)	1
<i>Grevillea mucronulata</i>	1(1-1)	17	1(1-1)	3
<i>Grevillea oleoides</i>	1(1-1)	13	1(1-1)	2
<i>Grevillea sericea</i>	1(1-2)	10	1(1-1)	2
<i>Guringalia dimorpha</i>	1(1-2)	6	1(1-2)	1
<i>Hakea bakeriana</i>	1(1-2)	4	1(1-1)	<1
<i>Hakea dactyloides</i>	1(1-1)	43	1(1-1)	11
<i>Hakea gibbosa</i>	1(1-1)	13	1(1-1)	1
<i>Hakea propinqua</i>	1(1-1)	5	1(1-1)	1
<i>Hakea sericea</i>	1(1-1)	35	1(1-1)	6
<i>Hakea teretifolia</i>	1(1-1)	20	1(1-2)	4
<i>Hibbertia bracteata</i>	1(1-1)	8	1(1-1)	1
<i>Hibbertia linearis</i>	1(1-1)	16	1(1-1)	1
<i>Hibbertia monogyna</i>	1(1-1)	8	1(1-1)	1
<i>Hibbertia nitida</i>	1(1-1)	15	1(1-1)	<1
<i>Isopogon anemonifolius</i>	1(1-1)	25	1(1-1)	8
<i>Isopogon anethifolius</i>	1(1-2)	7	1(1-1)	2
<i>Lambertia formosa</i>	1(1-1)	35	1(1-2)	8
<i>Lasiopetalum ferrugineum</i>	1(1-2)	13	1(1-2)	2
<i>Leionema dentatum</i>	1(1-2)	5	1(1-1)	<1
<i>Lepidosperma laterale</i>	1(1-1)	43	1(1-1)	28
<i>Leptospermum squarrosum</i>	1(1-1)	11	1(1-1)	1
<i>Leptomeria acida</i>	1(1-1)	28	1(1-1)	4
<i>Leptospermum grandifolium</i>	1(1-1)	8	1(1-2)	<1
<i>Leptospermum polygalifolium</i>	1(1-1)	67	1(1-2)	7
<i>Leptospermum trinervium</i>	1(1-2)	57	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-2)	25	1(1-2)	5
<i>Leucopogon amplexicaulis</i>	1(1-1)	18	1(1-2)	<1
<i>Leucopogon ericoides</i>	1(1-2)	13	1(1-1)	2
<i>Leucopogon microphyllus</i>	1(1-1)	8	1(1-1)	3
<i>Leucopogon setiger</i>	1(1-1)	5	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	17	1(1-1)	7
<i>Lindsaea microphylla</i>	1(1-1)	19	1(1-1)	5
<i>Logania albiflora</i>	1(1-1)	9	1(1-1)	1
<i>Lomandra longifolia</i>	1(1-2)	65	1(1-1)	43
<i>Lomandra obliqua</i>	1(1-1)	30	1(1-1)	14
<i>Lomatia silaifolia</i>	1(1-1)	53	1(1-1)	9
<i>Lycopodium deuterodensum</i>	1(1-1)	9	1(1-1)	<1
<i>Marsdenia suaveolens</i>	1(1-1)	9	1(1-1)	3
<i>Micrantheum ericoides</i>	1(1-1)	9	1(1-1)	2
<i>Monotoca scoparia</i>	1(1-1)	24	1(1-1)	12
<i>Patersonia glabrata</i>	1(1-1)	26	1(1-1)	10
<i>Persoonia lanceolata</i>	1(1-1)	7	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	54	1(1-1)	12
<i>Persoonia pinifolia</i>	1(1-1)	49	1(1-1)	3

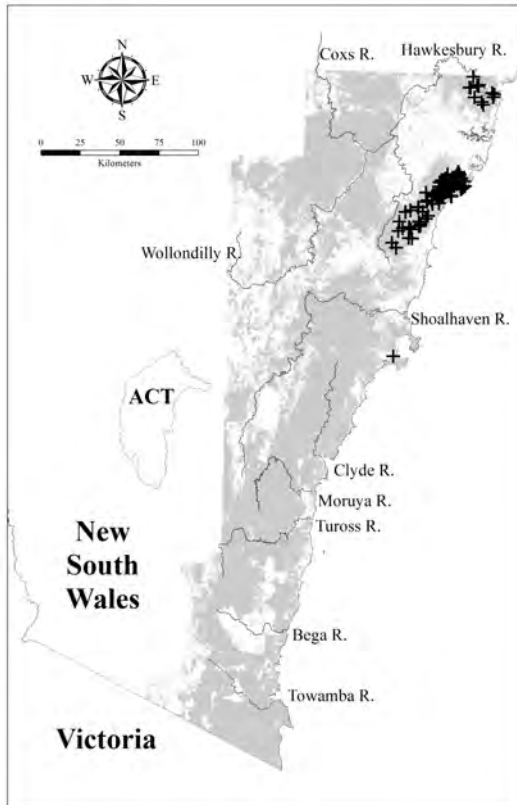


<i>Petrophile pulchella</i>	1(1-1)	31	1(1-1)	5
<i>Phebalium squamulosum</i> subsp. <i>squamulosum</i>	1(1-2)	3	1(1-1)	<1
<i>Philothea scabra</i>	1(1-2)	6	1(1-2)	<1
<i>Phyllota phyllicoides</i>	1(1-2)	9	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	40	1(1-1)	13
<i>Platylobium formosum</i>	1(1-2)	12	1(1-1)	3
<i>Platysace linearifolia</i>	1(1-1)	43	1(1-1)	8
<i>Podocarpus spinulosus</i>	2(1-3)	4	1(1-1)	1
<i>Pomaderris andromedifolia</i>	1(1-1)	3	1(1-1)	<1
<i>Pomaderris discolor</i>	1(1-2)	3	1(1-1)	<1
<i>Pomaderris ferruginea</i>	1(1-1)	5	1(1-1)	1
<i>Prostanthera linearis</i>	1(1-1)	6	1(1-2)	<1
<i>Pseudanthus pimeleoides</i>	2(1-3)	3	1(1-3)	<1
<i>Pteridium esculentum</i>	1(1-2)	62	1(1-2)	37
<i>Pultenaea daphnoides</i>	1(1-1)	28	1(1-1)	4
<i>Pultenaea linophylla</i>	1(1-1)	15	1(1-1)	2
<i>Pultenaea stipularis</i>	1(1-2)	25	1(1-1)	1
<i>Pultenaea tuberculata</i>	1(1-1)	9	1(1-1)	3
<i>Ricinocarpos pinifolius</i>	1(1-1)	17	1(1-1)	1
<i>Schoenus melanostachys</i>	1(1-2)	13	1(1-2)	2
<i>Selaginella uliginosa</i>	1(1-1)	18	1(1-1)	2
<i>Smilax glycyphylla</i>	1(1-1)	57	1(1-1)	8
<i>Sticherus flabellatus</i> var. <i>flabellatus</i>	1(1-3)	13	1(1-2)	1
<i>Stylidium productum</i>	1(1-1)	14	1(1-1)	1
<i>Styphelia tubiflora</i>	1(1-2)	9	1(1-1)	1
<i>Telopea speciosissima</i>	1(1-1)	15	1(1-1)	2
<i>Todea barbara</i>	1(1-1)	6	1(1-2)	1
<i>Tristania neriifolia</i>	1(1-2)	6	1(1-3)	<1
<i>Viminaria juncea</i>	1(1-1)	5	1(1-1)	<1
<i>Woolfsia pungens</i>	1(1-1)	24	1(1-1)	1
<i>Xanthorrhoea arborea</i>	1(1-1)	25	1(1-2)	1
<i>Xanthorrhoea media</i>	1(1-1)	31	1(1-2)	4
<i>Xanthosia pilosa</i>	1(1-1)	39	1(1-1)	7
<i>Xanthosia tridentata</i>	1(1-1)	31	1(1-1)	5
<i>Zieria laevigata</i>	1(1-1)	4	1(1-1)	<1
<i>Zieria pilosa</i>	1(1-1)	17	1(1-1)	1

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora hispida</i>	1(1-1)	2	1(1-2)	1
<i>Corymbia eximia</i>	1(1-2)	2	1(1-2)	2
<i>Eucalyptus agglomerata</i>	1(1-2)	4	2(1-3)	8
<i>Eucalyptus botryoides</i>	1(1-1)	2	2(1-3)	3
<i>Eucalyptus multicaulis</i>	3(1-3)	2	2(1-3)	<1
<i>Eucalyptus obstans</i>	1(1-3)	2	1(1-2)	<1
<i>Eucalyptus pilularis</i>	2(1-3)	4	2(1-3)	5

<i>Eucalyptus punctata</i>	1(1-2)	6	2(1-3)	9
<i>Eucalyptus racemosa</i>	3(1-3)	5	2(1-2)	1
<i>Eucalyptus scias</i> subsp. <i>callimastha</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus sieberi</i>	1(1-2)	25	2(1-3)	16
<i>Eucalyptus umbra</i>	1(1-1)	2	1(1-2)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-2)	2	2(1-3)	8



Locations of survey sites allocated to DSF p140. Grey shading indicates extant native vegetation cover within the study area.

**DSF p141: Budderoo-Morton Plateau Forest**

Sample Sites: 29  
 Area Extant (ha): 5500  
 Estimated % remaining: 80-95%  
 Area in conservation reserves (ha): 5200  
 Estimated % of pre-clearing area in conservation reserves: 70-90%  
 No. taxa (total / unique): 210 / 2  
 No. taxa per plot ( $\pm$ sd): 30.4 (8.7)  
 Class: Sydney Montane Dry Sclerophyll Forests  
 Related TEC: n/a

Budderoo-Morton Plateau Forest (DSF p141) is equivalent to DSF 141 identified by Tindall *et al.* (2004), and is a low eucalypt forest with a dense sclerophyll shrub stratum and an open groundcover dominated by sedges. Budderoo-Morton Plateau Forest is found on sheltered, periodically damp parts of elevated sandstone plateaux between 550 and 1000m ASL, primarily on the Budderoo, Little Forest, Tianjara and the southern Morton plateaux. Budderoo-Morton Plateau Forest grades into heath with decreasing soil depths (e.g. Morton Mallee-Heath, HL p122), or upland swamps in areas of impeded drainage (Blue Mountains-Shoalhaven Hanging Swamps, FrW p130). It is replaced by Shoalhaven Sandstone Forest (DSF p148) in areas receiving lower rainfall.

The majority of the distribution of Budderoo-Morton Plateau Forest is within Budderoo and Morton National Parks.

**Floristic Summary:**

**Trees:** *Corymbia gummifera*, *Eucalyptus sieberi*, *E. piperita*. **Shrubs:** *Bossiaea kiamensis*, *Aotus ericoides*, *Banksia paludosa*, *Leptospermum trinervium*, *Amperea xiphoclada*, *Acacia obtusifolia*, *Banksia serrata*, *Epacris longifolia*. **Groundcover:** *Lomandra longifolia*, *Gahnia sieberiana*, *Gleichenia dicarpa*, *Empodisma minus*.

**Vegetation structure:**

Stratum	Frequency (n=28)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	17.9 (6.5)	29.6 (15.1)
Small tree	82	5.8 (1.7)	40.2 (27.1)
Shrub	54	2.1 (0.6)	52.3 (24.2)
Ground cover	89	0.9 (0.5)	42.8 (22.5)

**Diagnostic Species:**

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

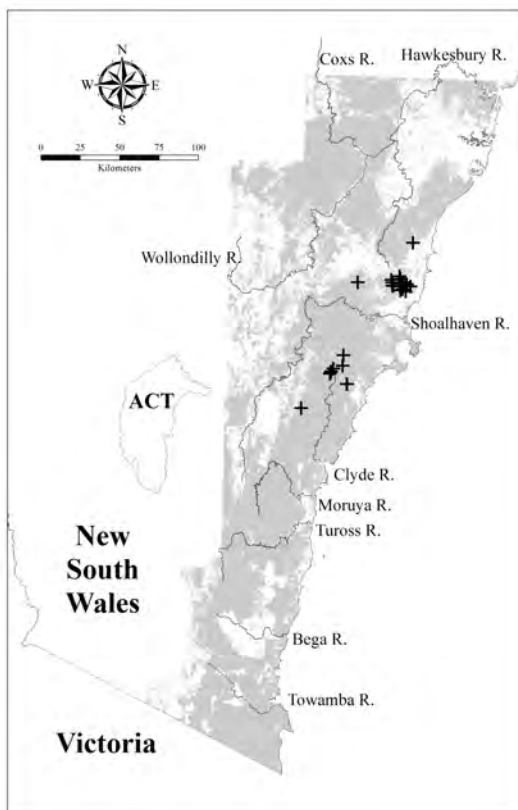
<b>Positive</b>				
Species	C/A	Freq	C/A O	Freq O
<i>Acacia obtusifolia</i>	2(1-2)	48	1(1-2)	9
<i>Actinotus minor</i>	1(1-1)	24	1(1-1)	4
<i>Amperea xiphoclada</i>	1(1-1)	52	1(1-1)	7
<i>Aotus ericoides</i>	1(1-2)	69	1(1-1)	3
<i>Baekkea linifolia</i>	1(1-2)	34	1(1-2)	1
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-2)	38	1(1-2)	7
<i>Banksia paludosa</i>	2(1-2)	69	1(1-2)	3
<i>Banksia serrata</i>	2(1-2)	48	1(1-2)	9
<i>Bauera rubioides</i>	1(1-1)	21	1(1-2)	1
<i>Boronia thujona</i>	2(2-2)	31	2(1-2)	<1
<i>Bossiaea kiamensis</i>	2(1-3)	76	2(2-2)	<1
<i>Cassytha pubescens</i>	1(1-1)	28	1(1-1)	8
<i>Corymbia gummifera</i>	2(1-2)	62	2(1-2)	16
<i>Dracophyllum secundum</i>	1(1-1)	24	1(1-1)	<1
<i>Empodisma minus</i>	2(1-2)	48	1(1-2)	2
<i>Epacris longiflora</i>	2(1-2)	48	1(1-1)	1
<i>Eucalyptus dendromorpha</i>	2(1-2)	24	2(2-2)	<1
<i>Eucalyptus piperita</i>	2(2-3)	55	2(1-3)	9
<i>Eucalyptus sieberi</i>	2(1-2)	62	2(1-3)	16
<i>Gahnia sieberiana</i>	1(1-2)	72	1(1-1)	4
<i>Gleichenia dicarpa</i>	2(1-3)	59	1(1-2)	2
<i>Gleichenia microphylla</i>	2(1-3)	21	1(1-2)	1
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	24	1(1-1)	6
<i>Isopogon anemonifolius</i>	1(1-1)	34	1(1-1)	8
<i>Leptospermum polygalifolium</i>	1(1-2)	38	1(1-2)	8
<i>Leptospermum rotundifolium</i>	1(1-2)	45	1(1-2)	1
<i>Leptospermum subglabratum</i>	2(1-2)	21	2(1-2)	<1
<i>Leptospermum trinervium</i>	2(1-2)	55	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-2)	34	1(1-2)	6
<i>Lindsaea linearis</i>	1(1-1)	34	1(1-1)	7
<i>Lomandra longifolia</i>	1(1-2)	72	1(1-1)	44
<i>Melaleuca squarrosa</i>	1(1-2)	38	2(1-3)	1
<i>Persoonia levis</i>	1(1-1)	34	1(1-1)	13
<i>Persoonia mollis</i> subsp. <i>ledifolia</i>	1(1-1)	24	1(1-1)	1
<i>Platysace lanceolata</i>	1(1-1)	48	1(1-1)	13
<i>Smilax glycyphylla</i>	1(1-1)	38	1(1-1)	8
<i>Tetratheca thymifolia</i>	1(1-2)	45	1(1-1)	6
<i>Todea barbara</i>	1(1-1)	24	1(1-2)	1
<i>Tristaniopsis collina</i>	1(1-1)	24	1(1-2)	2
<i>Xanthosia pilosa</i>	1(1-1)	28	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)	31	1(1-1)	28
<i>Entolasia stricta</i>	1(1-1)	31	1(1-2)	34
<i>Gonocarpus teucroides</i>	1(1-1)	38	1(1-1)	17
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	45	1(1-1)	24
<i>Pteridium esculentum</i>	1(1-1)	55	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus dives</i>	1(1-1)	3	2(1-3)	4
<i>Eucalyptus obstans</i>	4(4-4)	3	1(1-2)	1
<i>Eucalyptus stricta</i>	2(2-2)	3	1(1-2)	1
<i>Eucalyptus triflora</i>	3(3-3)	3	1(1-1)	<1



Locations of survey sites allocated to DSF p141. Grey shading indicates extant native vegetation cover within the study area.

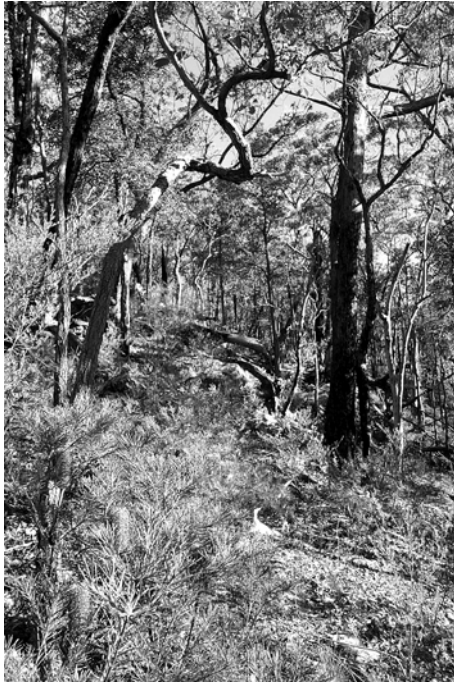
**DSF p142: Hinterland Sandstone Gully Forest**

Plate p142. Hinterland Sandstone Gully Forest (Map Unit p142) in Blue Mountains National Park off Winbourne Rd in Hazelbrook. A canopy dominated by *Eucalyptus agglomerata*, *Syncarpia glomulifera* subsp. *glomulifera* and *E. piperita* subsp. *piperita* grows above a diverse shrub layer including *Bossiaea rhombifolia*, *Pultenaea flexilis*, *Banksia spinulosa* var. *spinulosa* and *Acacia terminalis*, and a sparse groundcover dominated by grasses and sedges.

Sample Sites: 152

Area Extant (ha): 90900

Estimated % remaining: 80-95%

Area in conservation reserves (ha): 46800

Estimated % of pre-clearing area in conservation reserves: 35-55%

No. taxa (total / unique): 524 / 3

No. taxa per plot ( $\pm$ sd): 45.2 (11.6)

Class: Sydney Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Hinterland Sandstone Gully Forest (DSF p142) is equivalent to DSF 142 identified by Tindall *et al.* (2004), and is an open eucalypt forest with an abundant sclerophyll shrub stratum and a groundcover dominated by sedges. This forest surrounds the Cumberland plain, occurring along the western portion of the Hornsby and Woronora plateaux and in the lower Blue Mountains. Within this distribution Hinterland Sandstone Gully Forest occurs on lower slopes of dry sandstone gullies up to 600m ASL where average annual rainfall ranges from 850 to 1300mm. Hinterland Sandstone Gully Forest grades into Sandstone Riparian Scrub (FoW p58) immediately adjacent to creeklines and is replaced by Coastal Sandstone Ridgetop Woodland (DSF p131) or Wingecarribee-Burraborang Sandstone Forest (DSF p144) on upper slopes and exposed positions. As rainfall increases toward the coast, it is replaced by Coastal Sandstone Gully Forest (DSF p140).

About one third of Hinterland Sandstone Gully Forest's original extent has been supplanted by urban development. Large areas remain, including examples in conservation reserves, though edge effects such as weed invasion and high fire frequency are evident in some locations.

**Floristic Summary:**

**Trees:** *Angophora costata*, *Corymbia gummifera*, *Banksia serrata*, *Eucalyptus piperita*. **Shrubs:** *Personia linearis*, *P. levis*, *Phyllanthus hirtellus*, *Leptospermum trinervium*, *Lomatia silaifolia*, *Banksia spinulosa*, *Platysace linearifolia*, *Ceratopetalum gummiferum*, *Acacia ulicifolia*, *Acacia terminalis*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Entolasia stricta*, *Pteridium esculentum*, *Dianella caerulea*, *Smilax glyciphylla*, *Xanthosia pilosa*, *Lomandra longifolia*, *Lepidosperma laterale*, *Lomandra obliqua*.

**Vegetation structure:**

Stratum	Frequency (n=100)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	2	20 (2.8)	5 (-)
Tree canopy	99	22.1 (5.2)	26.5 (12.8)
Small tree	80	9.1 (3.8)	26 (18.2)
Shrub	54	2.4 (0.6)	27 (21.4)
Ground cover	100	1 (0.3)	23.7 (23.8)

**Diagnostic Species:**

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

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia hispidula</i>	1(1-3)	2	1(1-1)	<1
<i>Acacia linifolia</i>	1(1-2)	46	1(1-1)	5
<i>Acacia longifolia</i>	1(1-1)	18	1(1-2)	9
<i>Acacia parvipinnula</i>	1(1-1)	3	1(1-1)	1
<i>Acacia suaveolens</i>	1(1-1)	27	1(1-1)	7
<i>Acacia terminalis</i>	1(1-1)	49	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	52	1(1-1)	9
<i>Acianthus fornicatus</i>	1(1-1)	15	1(1-2)	1
<i>Acianthus pusillus</i>	1(1-1)	2	1(1-2)	<1
<i>Acrotriche divaricata</i>	1(1-1)	7	1(1-1)	1
<i>Actinotus helianthi</i>	1(1-1)	20	1(1-1)	1
<i>Allocasuarina littoralis</i>	1(1-2)	39	1(1-2)	16
<i>Allocasuarina torulosa</i>	2(1-3)	30	1(1-3)	4
<i>Amperea xiphoclada</i>	1(1-1)	17	1(1-1)	7
<i>Angophora bakeri</i>	1(1-2)	7	1(1-2)	2
<i>Angophora costata</i>	2(1-3)	72	1(1-3)	6
<i>Anisopogon avenaceus</i>	1(1-2)	12	1(1-2)	5
<i>Asterolasia correifolia</i>	1(1-3)	3	2(2-2)	<1
<i>Astrotricha floccosa</i>	1(1-2)	11	1(1-2)	<1
<i>Astrotricha latifolia</i>	1(1-1)	11	1(1-1)	2
<i>Astrotricha longifolia</i>	1(1-2)	4	1(1-1)	<1
<i>Austrostipa pubescens</i>	1(1-1)	24	1(1-2)	5
<i>Banksia serrata</i>	1(1-2)	51	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	62	1(1-2)	14
<i>Billardiera scandens</i>	1(1-1)	56	1(1-1)	27
<i>Boronia ledifolia</i>	1(1-1)	21	1(1-1)	3
<i>Bossiaea heterophylla</i>	1(1-1)	20	1(1-1)	6
<i>Bossiaea lenticularis</i>	1(1-2)	5	1(1-2)	<1
<i>Bossiaea neo-anglica</i>	1(1-3)	3	1(1-2)	<1
<i>Bossiaea obcordata</i>	1(1-1)	22	1(1-2)	7
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	2(1-3)	10	1(1-3)	1
<i>Calochlaena dubia</i>	2(1-3)	20	1(1-3)	9



<i>Cassytha glabella</i>	1(1-1)	16	1(1-1)	8
<i>Cassytha pubescens</i>	1(1-1)	23	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	30	1(1-2)	7
<i>Ceratopetalum gummiferum</i>	1(1-2)	54	1(1-2)	3
<i>Cheilanthes distans</i>	1(1-1)	7	1(1-1)	2
<i>Chloanthes stoechadis</i>	1(1-2)	3	1(1-1)	<1
<i>Correa reflexa</i>	1(1-1)	13	1(1-1)	5
<i>Corymbia eximia</i>	2(1-3)	13	1(1-2)	2
<i>Corymbia gummifera</i>	1(1-3)	72	2(1-2)	15
<i>Crowea exalata</i> subsp. <i>exalata</i>	2(1-2)	2	1(1-2)	<1
<i>Crowea saligna</i>	1(1-2)	2	1(1-2)	<1
<i>Dampiera purpurea</i>	1(1-1)	20	1(1-1)	4
<i>Dendrobium linguiforme</i>	1(1-1)	5	1(1-1)	<1
<i>Dianella caerulea</i>	1(1-1)	75	1(1-1)	28
<i>Dillwynia retorta</i>	1(1-2)	44	1(1-2)	6
<i>Dodonaea pinnata</i>	1(1-1)	2	1(1-1)	<1
<i>Dodonaea triquetra</i>	1(1-2)	39	1(1-2)	5
<i>Dracophyllum secundum</i>	1(1-2)	3	1(1-1)	<1
<i>Elaeocarpus reticulatus</i>	1(1-1)	41	1(1-1)	11
<i>Entolasia stricta</i>	1(1-2)	83	1(1-2)	33
<i>Epacris pulchella</i>	1(1-1)	20	1(1-1)	5
<i>Eriostemon australasius</i>	1(1-1)	20	1(1-1)	3
<i>Eucalyptus agglomerata</i>	3(1-3)	25	2(1-3)	7
<i>Eucalyptus notabilis</i>	1(1-1)	3	1(1-2)	1
<i>Eucalyptus pilularis</i>	3(1-3)	26	2(1-3)	4
<i>Eucalyptus piperita</i>	3(1-3)	47	2(1-3)	8
<i>Eucalyptus punctata</i>	2(1-3)	33	2(1-3)	8
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-2)	3	1(1-2)	1
<i>Eucalyptus umbra</i>	2(1-2)	3	1(1-2)	<1
<i>Gompholobium grandiflorum</i>	1(1-1)	12	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-2)	21	1(1-1)	3
<i>Gonocarpus teucrioides</i>	1(1-2)	38	1(1-1)	17
<i>Goodenia decurrens</i>	2(1-2)	6	1(1-2)	<1
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-2)	9	1(1-1)	3
<i>Grevillea mucronulata</i>	1(1-1)	42	1(1-1)	3
<i>Grevillea phyllicoides</i>	1(1-3)	3	1(1-2)	1
<i>Grevillea sericea</i>	1(1-1)	10	1(1-1)	2
<i>Haemodorum planifolium</i>	1(1-1)	5	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-1)	34	1(1-1)	12
<i>Hakea sericea</i>	1(1-1)	20	1(1-1)	6
<i>Hibbertia bracteata</i>	1(1-1)	10	1(1-1)	1
<i>Hibbertia monogyna</i>	1(1-1)	4	1(1-1)	1
<i>Hibbertia saligna</i>	2(1-2)	2	1(1-3)	<1
<i>Hovea linearis</i>	1(1-1)	21	1(1-1)	9
<i>Hovea purpurea</i>	1(1-1)	5	1(1-1)	<1
<i>Lambertia formosa</i>	1(1-2)	36	1(1-2)	8

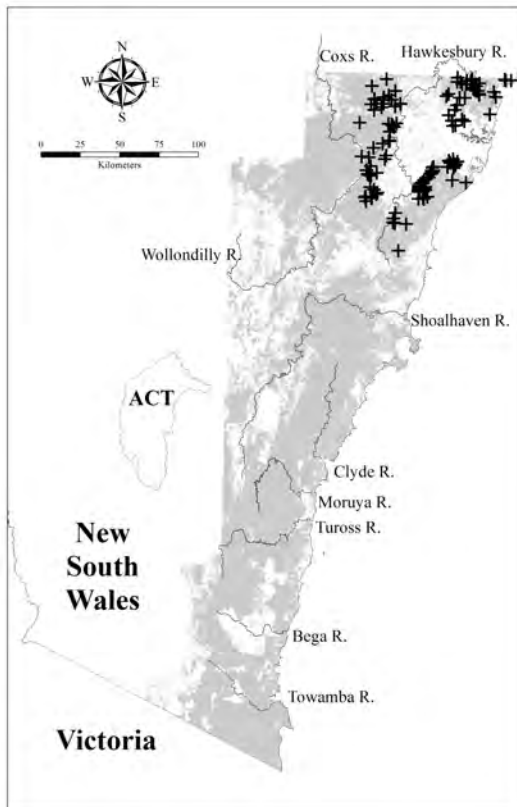


<i>Lasiopetalum ferrugineum</i>	1(1-1)	9	1(1-2)	2
<i>Lasiopetalum parviflorum</i>	1(1-1)	3	1(1-1)	<1
<i>Leionema dentatum</i>	1(1-1)	3	1(1-1)	<1
<i>Lepidosperma filiforme</i>	1(1-1)	8	1(1-2)	2
<i>Lepidosperma laterale</i>	1(1-1)	59	1(1-1)	28
<i>Leptomeria acida</i>	1(1-1)	16	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-1)	18	1(1-2)	8
<i>Leptospermum trinervium</i>	1(1-2)	68	1(1-2)	15
<i>Leucopogon ericoides</i>	1(1-1)	9	1(1-1)	2
<i>Leucopogon exolasius</i>	1(1-1)	3	1(1-1)	<1
<i>Leucopogon muticus</i>	1(1-1)	6	1(1-1)	1
<i>Leucopogon setiger</i>	1(1-1)	5	1(1-1)	1
<i>Lindsaea microphylla</i>	1(1-1)	36	1(1-1)	5
<i>Liparis reflexa</i>	1(1-2)	3	1(1-1)	<1
<i>Lissanthe sapida</i>	1(1-2)	5	1(1-1)	1
<i>Logania albiflora</i>	1(1-1)	13	1(1-1)	1
<i>Lomandra brevis</i>	1(1-1)	3	1(1-1)	<1
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-2)	16	1(1-1)	4
<i>Lomandra cylindrica</i>	1(1-1)	28	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	27	1(1-1)	10
<i>Lomandra gracilis</i>	1(1-1)	36	1(1-1)	3
<i>Lomandra longifolia</i>	1(1-1)	63	1(1-1)	43
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	39	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-1)	49	1(1-1)	13
<i>Lomatia silaifolia</i>	1(1-1)	62	1(1-1)	9
<i>Marsdenia suaveolens</i>	1(1-1)	14	1(1-1)	2
<i>Monotoca scoparia</i>	1(1-1)	26	1(1-1)	12
<i>Olearia tomentosa</i>	1(1-1)	3	1(1-1)	1
<i>Opercularia aspera</i>	1(1-1)	17	1(1-1)	8
<i>Patersonia glabrata</i>	1(1-1)	28	1(1-1)	10
<i>Patersonia sericea</i>	1(1-1)	28	1(1-1)	9
<i>Persoonia levis</i>	1(1-1)	67	1(1-1)	12
<i>Persoonia linearis</i>	1(1-1)	74	1(1-1)	28
<i>Persoonia mollis</i> subsp. <i>mollis</i>	2(1-3)	5	1(1-1)	1
<i>Persoonia myrtilloides</i>	1(1-3)	2	1(1-1)	<1
<i>Persoonia pinifolia</i>	1(1-1)	14	1(1-1)	3
<i>Petrophile pulchella</i>	1(1-1)	13	1(1-1)	6
<i>Philotheca hispidula</i>	1(1-1)	9	1(1-1)	1
<i>Philotheca scabra</i>	1(1-2)	6	1(1-1)	<1
<i>Phyllanthus hirtellus</i>	1(1-1)	66	1(1-1)	13
<i>Platysace linearifolia</i>	1(1-1)	61	1(1-1)	7
<i>Poa affinis</i>	1(1-2)	9	1(1-2)	2
<i>Polyscias sambucifolia</i>	1(1-1)	13	1(1-1)	6
<i>Pomaderris discolor</i>	1(1-2)	5	1(1-1)	<1
<i>Pomaderris intermedia</i>	1(1-1)	3	1(1-1)	<1
<i>Pomaderris lanigera</i>	1(1-3)	7	1(1-1)	1

<i>Pomax umbellata</i>	1(1-1)	32	1(1-1)	13
<i>Prostanthera linearis</i>	1(1-2)	2	1(1-1)	<1
<i>Pterostylis acuminata</i>	1(1-1)	3	1(1-1)	<1
<i>Pteridium esculentum</i>	1(1-2)	84	1(1-2)	36
<i>Pterostylis longifolia</i>	1(1-1)	5	1(1-1)	1
<i>Pultenaea daphnoides</i>	1(1-1)	14	1(1-1)	4
<i>Pultenaea ferruginea</i>	1(1-2)	7	1(1-2)	1
<i>Pultenaea flexilis</i>	1(1-3)	31	1(1-2)	1
<i>Pultenaea scabra</i>	2(1-3)	9	1(1-2)	1
<i>Ricinocarpos pinifolius</i>	1(1-1)	13	1(1-1)	1
<i>Schizaea bifida</i>	1(1-1)	5	1(1-1)	1
<i>Schoenus imberbis</i>	1(1-1)	5	1(1-1)	1
<i>Schoenus melanostachys</i>	1(1-1)	11	1(1-2)	2
<i>Smilax glycyphylla</i>	1(1-1)	67	1(1-1)	7
<i>Stylidium laricifolium</i>	1(1-1)	11	1(1-1)	1
<i>Stylidium productum</i>	1(1-2)	23	1(1-1)	1
<i>Styphelia viridis</i> subsp. <i>viridis</i>	1(1-1)	3	1(1-1)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-3)	35	2(1-3)	7
<i>Telopea speciosissima</i>	1(1-1)	13	1(1-1)	2
<i>Tristaniopsis collina</i>	1(1-1)	7	1(1-2)	2
<i>Woollsia pungens</i>	1(1-1)	9	1(1-1)	2
<i>Xanthorrhoea arborea</i>	2(1-2)	34	1(1-2)	1
<i>Xanthorrhoea media</i>	1(1-1)	16	1(1-2)	5
<i>Xanthosia pilosa</i>	1(1-1)	63	1(1-1)	7
<i>Xanthosia tridentata</i>	1(1-1)	20	1(1-1)	5
<i>Xylomelum pyriforme</i>	1(1-1)	35	1(1-1)	3
<i>Zieria laevigata</i>	1(1-2)	3	1(1-1)	<1
<i>Zieria pilosa</i>	1(1-1)	8	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>	1(1-2)	3	1(1-2)	9
<i>Angophora hispida</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus botryoides</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus considianiana</i>	1(1-1)	2	2(1-2)	2
<i>Eucalyptus deanei</i>	1(1-3)	3	3(1-3)	1
<i>Eucalyptus eugenioides</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus multicaulis</i>	1(1-1)	1	2(1-3)	<1
<i>Eucalyptus oblonga</i>	2(1-3)	3	1(1-2)	2
<i>Eucalyptus racemosa</i>	1(1-1)	1	2(1-2)	1
<i>Eucalyptus robusta</i>	1(1-1)	1	3(1-3)	<1
<i>Eucalyptus scias</i> subsp. <i>scias</i>	1(1-1)	1	1(1-2)	<1
<i>Eucalyptus sclerophylla</i>	1(1-1)	1	2(1-3)	4
<i>Eucalyptus sparsifolia</i>	3(3-3)	1	2(1-3)	2



Locations of survey sites allocated to DSF p142. Grey shading indicates extant native vegetation cover within the study area.

### DSF p143: Sydney Shale-Ironstone Cap Forest



Plate p143. Sydney Shale-Ironstone Cap Forest (Map Unit p143) at Dharawal National Park near Darkes Forest. The dominant tree species present are *Corymbia gummifera* and *Angophora costata*, while species prominent in the understorey include *Gompholobium latifolium*, *Doryanthes excelsa*, *Banksia spinulosa* var. *spinulosa*, *Pteridium esculentum* and *Lomandra longifolia*.

Sample Sites: 59

Area Extant (ha): 2600

Estimated % remaining: 50-70%

Area in conservation reserves (ha): 1600

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

No. taxa (total / unique): 346 / 3

No. taxa per plot ( $\pm$ sd): 50.9 (10.5)

Class: Northern Hinterland Wet Sclerophyll Forests

Related TECs: includes Duffy's Forest EEC and O'Hares Creek Shale Forest EEC (TSC).

Sydney Shale-Ironstone Cap Forest (DSF p143) is equivalent to DSF 143 identified by Tindall *et al.* (2004). This unit is usually a low eucalypt forest with a very diverse, mixed understorey of shrubs, forbs and grasses. Sydney Shale-Ironstone Cap Forest occurs on coastal sandstone plateaux (Woronora and Hornsby plateaux) between Lake Cataract and Duffy's Forest. In this area Sydney Shale-Ironstone Cap Forest is restricted to shale lenses and ironstone mantles on ridges up to 400m ASL with an average annual rainfall from 1100-1550mm. Sydney Shale-Ironstone Cap Forest is generally associated with ridgetop units of the surrounding sandstone plateaux (DSF p131 Coastal Sandstone Ridgetop Woodland, and HL p117 Coastal Sandstone Plateau Heath).

Much of this naturally restricted vegetation type was cleared for orchards and small farms during the early development of Sydney. The small remnants are mainly associated with the urban and rural-residential interface and are exposed to continuing degradation through high fire frequencies, rubbish dumping, polluted runoff and weed invasion.

#### Floristic Summary:

**Trees:** *Corymbia gummifera*, *Angophora costata*, *Ceratopetalum gummiferum*, *Eucalyptus sieberi*, *E. capitellata*, *E. globoidea*. **Shrubs:** *Lomatia silaifolia*, *Banksia spinulosa*, *Persoonia levis*, *Acacia myrtifolia*, *Phyllanthus hirtellus*, *Micrantheum ericoides*, *Xanthosia tridentata*, *Epacris pulchella*, *Xanthorrhoea media*, *Lasiopetalum ferrugineum*, *Hakea sericea*, *Persoonia pinifolia*, *Platysace linearifolia*, *Bossiaea obcordata*. **Climbers:** *Billardiera scandens*, *Cassytha pubescens*. **Groundcover:** *Entolasia stricta*, *Dianella caerulea*, *Pteridium esculentum*, *Austrostipa pubescens*, *Lomandra obliqua*, *Cyathochaeta diandra*, *Lepidosperma laterale*, *Lindsaea linearis*, *Patersonia glabrata*, *Brunoniella pumilio*, *Gonocarpus teucroides*, *Imperata cylindrica* var. *major*, *Lomandra multiflora*, *Dampiera stricta*.

#### Vegetation structure:

Stratum	Frequency (n=5)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	16.6 (2.3)	26.7 (11.5)
Small tree	40	7.5 (3.5)	30 (14.1)
Shrub	80	1.7 (0.5)	32.5 (17.7)
Ground cover	100	0.8 (0.3)	25 (21.8)

#### 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 43 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 26 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia floribunda</i>	1(1-1)	12	1(1-2)	2
<i>Acacia linifolia</i>	2(1-2)	36	1(1-1)	6
<i>Acacia myrtifolia</i>	2(1-3)	71	1(1-1)	4
<i>Acianthus fornicatus</i>	2(1-2)	15	1(1-1)	1
<i>Allocasuarina littoralis</i>	1(1-2)	41	1(1-2)	17
<i>Angophora costata</i>	3(2-3)	69	1(1-3)	7
<i>Anisopogon avenaceus</i>	1(1-2)	19	1(1-2)	5
<i>Austrostipa pubescens</i>	1(1-2)	63	1(1-2)	5
<i>Banksia ericifolia</i> subsp. <i>ericifolia</i>	1(1-1)	20	1(1-2)	7
<i>Banksia marginata</i>	1(1-2)	15	1(1-1)	3
<i>Banksia oblongifolia</i>	1(1-1)	15	1(1-1)	2
<i>Banksia serrata</i>	1(1-3)	29	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	80	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	75	1(1-1)	27
<i>Boronia pinnata</i>	2(1-2)	24	1(1-1)	1

<i>Bossiaea obcordata</i>	2(1-2)	39	1(1-2)	7
<i>Brunoniella pumilio</i>	1(1-1)	51	1(1-1)	4
<i>Cassylia glabella</i>	1(1-1)	22	1(1-1)	8
<i>Cassylia pubescens</i>	1(1-1)	53	1(1-1)	8
<i>Ceratopetalum gummiferum</i>	2(1-2)	39	1(1-2)	3
<i>Comesperma ericinum</i>	1(1-1)	25	1(1-1)	1
<i>Comesperma volubile</i>	1(1-1)	14	1(1-1)	2
<i>Conospermum longifolium</i> subsp. <i>longifolium</i>	1(1-2)	14	1(1-1)	1
<i>Corymbia gummifera</i>	3(2-3)	83	2(1-2)	15
<i>Cryptostylis subulata</i>	1(1-1)	25	1(1-1)	1
<i>Cyathochaeta diandra</i>	2(1-3)	54	1(1-2)	8
<i>Dampiera purpurea</i>	1(1-1)	14	1(1-1)	4
<i>Dampiera stricta</i>	1(1-1)	44	1(1-1)	8
<i>Dianella caerulea</i>	1(1-2)	80	1(1-1)	28
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	32	1(1-1)	15
<i>Dillwynia retorta</i>	1(1-3)	29	1(1-2)	6
<i>Dodonaea triquetra</i>	1(1-2)	25	1(1-2)	6
<i>Doryanthes excelsa</i>	2(1-3)	29	1(1-2)	1
<i>Entolasia stricta</i>	3(1-3)	93	1(1-2)	33
<i>Epacris pulchella</i>	1(1-2)	53	1(1-1)	5
<i>Eucalyptus capitellata</i>	3(3-4)	25	1(1-1)	<1
<i>Eucalyptus globoidea</i>	3(3-3)	34	1(1-2)	12
<i>Eucalyptus haemastoma</i>	2(1-2)	17	1(1-2)	1
<i>Eucalyptus oblonga</i>	3(1-3)	14	1(1-2)	2
<i>Eucalyptus pilularis</i>	3(2-4)	17	2(1-3)	5
<i>Eucalyptus piperita</i>	3(1-3)	31	2(1-3)	9
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-3)	17	1(1-1)	1
<i>Eucalyptus sieberi</i>	3(2-3)	39	2(1-3)	16
<i>Gompholobium grandiflorum</i>	1(1-1)	19	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-1)	12	1(1-1)	3
<i>Gonocarpus teucroides</i>	1(1-1)	53	1(1-1)	17
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	15	1(1-1)	4
<i>Goodenia heterophylla</i>	1(1-1)	37	1(1-1)	2
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-2)	15	1(1-1)	3
<i>Grevillea linearifolia</i>	2(1-3)	24	1(1-1)	<1
<i>Grevillea sericea</i>	1(1-2)	17	1(1-1)	2
<i>Hakea sericea</i>	1(1-2)	46	1(1-1)	6
<i>Hakea teretifolia</i>	1(1-1)	24	1(1-2)	4
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	29	1(1-1)	10
<i>Hibbertia bracteata</i>	1(1-2)	32	1(1-1)	1
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	36	1(1-1)	6
<i>Hybanthus monopetalus</i>	1(1-1)	15	1(1-1)	2
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-3)	56	1(1-2)	9
<i>Lambertia formosa</i>	1(1-2)	22	1(1-2)	9
<i>Lasiopetalum ferrugineum</i>	1(1-2)	47	1(1-2)	2
<i>Lepidosperma laterale</i>	1(1-1)	59	1(1-1)	28

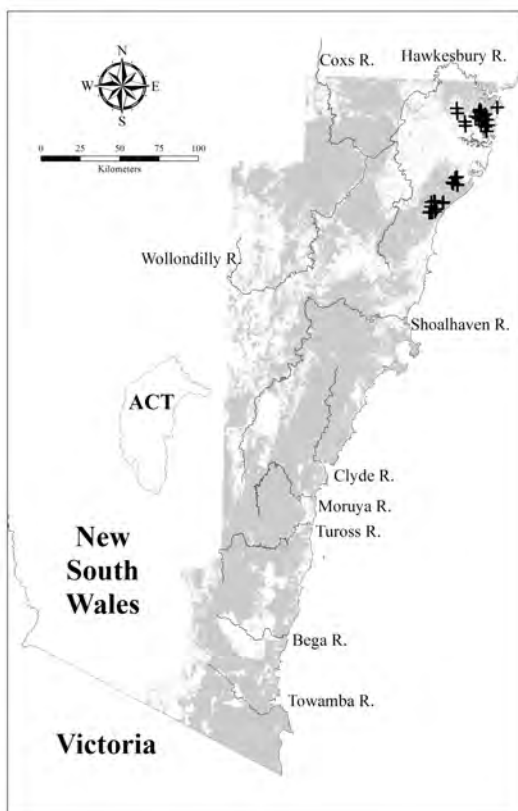
<i>Leptomeria acida</i>	1(1-1)	14	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-2)	25	1(1-2)	8
<i>Lindsaea linearis</i>	1(1-2)	49	1(1-1)	7
<i>Lindsaea microphylla</i>	1(1-1)	32	1(1-1)	5
<i>Lomandra brevis</i>	1(1-1)	12	1(1-1)	<1
<i>Lomandra gracilis</i>	1(1-1)	20	1(1-1)	3
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	46	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-2)	56	1(1-1)	14
<i>Lomatia silaifolia</i>	1(1-1)	78	1(1-1)	9
<i>Micrantheum ericoides</i>	2(1-3)	51	1(1-1)	2
<i>Opercularia varia</i>	1(1-1)	15	1(1-1)	3
<i>Patersonia glabrata</i>	1(1-2)	49	1(1-1)	10
<i>Patersonia sericea</i>	1(1-1)	27	1(1-1)	9
<i>Persoonia lanceolata</i>	1(1-1)	12	1(1-1)	2
<i>Persoonia laurina</i>	1(1-1)	25	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	69	1(1-1)	13
<i>Persoonia pinifolia</i>	1(1-1)	47	1(1-1)	3
<i>Petrophile pulchella</i>	1(1-1)	20	1(1-1)	6
<i>Phyllota grandiflora</i>	1(1-2)	12	2(1-2)	<1
<i>Phyllanthus hirtellus</i>	1(1-1)	63	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	2(1-3)	29	1(1-1)	13
<i>Platylobium formosum</i>	1(1-2)	12	1(1-1)	3
<i>Platysace linearifolia</i>	1(1-2)	44	1(1-1)	8
<i>Prostanthera denticulata</i>	1(1-3)	17	0(0-0)	0
<i>Pteridium esculentum</i>	2(1-3)	76	1(1-2)	37
<i>Ptilothrix deusta</i>	2(1-3)	14	1(1-2)	2
<i>Pultenaea daphnoides</i>	1(1-3)	25	1(1-1)	4
<i>Pultenaea hispidula</i>	2(1-3)	29	1(1-2)	<1
<i>Pultenaea linophylla</i>	1(1-2)	36	1(1-1)	2
<i>Pultenaea tuberculata</i>	2(1-3)	27	1(1-1)	3
<i>Smilax glyciophylla</i>	1(1-1)	47	1(1-1)	8
<i>Telopea speciosissima</i>	1(1-1)	20	1(1-1)	2
<i>Tetrarrhena juncea</i>	2(1-3)	32	1(1-2)	5
<i>Themeda australis</i>	2(1-3)	36	1(1-3)	17
<i>Xanthorrhoea media</i>	1(1-2)	49	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-1)	51	1(1-1)	5
<i>Xylomelum pyriforme</i>	1(1-1)	17	1(1-1)	3

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Glycine clandestina</i>	1(1-1)	34	1(1-1)	26
<i>Lomandra longifolia</i>	1(1-3)	54	1(1-1)	44
<i>Microlaena stipoides</i>	2(1-3)	41	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>	1(1-1)	2	1(1-2)	2
<i>Angophora crassifolia</i>	4(2-4)	3	2(2-2)	<1
<i>Angophora floribunda</i>	2(2-2)	2	1(1-2)	9
<i>Corymbia eximia</i>	4(4-4)	2	1(1-2)	2
<i>Eucalyptus botryoides</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus punctata</i>	2(1-4)	7	1(1-3)	9
<i>Eucalyptus racemosa</i>	1(1-3)	5	2(1-2)	1
<i>Eucalyptus sparsifolia</i>	3(3-3)	2	2(1-3)	2
<i>Eucalyptus umbra</i>	2(1-4)	7	1(1-2)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(3-4)	8	2(1-3)	8



Locations of survey sites allocated to DSF p143. Grey shading indicates extant native vegetation cover within the study area.



**DSF p144: Wingecarribee-Burraborang Sandstone Forest**

Plate p144. Wingecarribee-Burraborang Sandstone Forest (Map Unit p144) near Erskine Gap west of Lake Burraborang. *Eucalyptus piperita*, *Corymbia gummifera* and *E. sparsifolia* are the dominant tree species and the tall shrubs are *Acacia obtusifolia*. Prominent smaller shrubs include *Banksia spinulosa* var. *spinulosa* and *Bossiaea rhombifolia* subsp. *rhombifolia*. Tufts of *Xanthorrhoea arborea* are visible in the foreground.

Sample Sites: 125

Area Extant (ha): 65900

Estimated % remaining: 80-95%

Area in conservation reserves (ha): 41700

Estimated % of pre-clearing area in conservation reserves: 50-65%

No. taxa (total / unique): 504 / 7

No. taxa per plot ( $\pm$ sd): 44.7 (11)

Class: Sydney Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Wingecarribee-Burraborang Sandstone Forest (DSF p144) is equivalent to DSF 144 identified by Tindall *et al.* (2004), and is an open eucalypt forest with an abundant sclerophyll shrub stratum and a groundcover dominated by sedges. This unit is found in elevated sandstone country between Warragamba and Mittagong with large stands on the Burraborang, Tonalli, Wanganderry and Nattai Tablelands. Wingecarribee-Burraborang Sandstone Forest occurs on sandy loam soils between 250-800m ASL with an average annual rainfall between 800-1200mm. This unit is replaced by Coastal Sandstone Ridgetop Woodland and gully forests (DSF p131, DSF p142 and DSF p140) on the Woronora plateau to the east in the lower Blue Mountains to the north, while Megalong –Tonalli Sandstone Forest (DSF p244) occurs to its west on Narrabeen and Permian sedimentary strata . Most of the original distribution of Wingecarribee-Burraborang Sandstone Forest remains intact in Nattai and Blue Mountains National Parks.

**Floristic Summary:**

**Trees:** *Corymbia gummifera*, *Eucalyptus piperita*, *E. agglomerata*, *E. sieberi*. **Shrubs:** *Lomatia silaifolia*, *Phyllanthus hirtellus*, *Persoonia levis*, *P. linearis*, *Banksia spinulosa*, *Leptospermum trinervium*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Entolasia stricta*, *Lomandra obliqua*, *Pomax umbellata*, *Gonocarpus teucroides*, *Dianella caerulea*, *Dampiera purpurea*, *Pteridium esculentum*.

**Vegetation structure:**

Stratum	Frequency (n=119)	Height (m) ( $\pm$ StDev)	Cover(%) ( $\pm$ StDev)
Emergent	1	27 (-)	7 (-)
Tree canopy	98	20.2 (4.6)	28.9 (10.3)
Small tree	68	8.8 (4)	24.8 (19.1)
Shrub	67	2.2 (0.7)	23.1 (17.5)
Ground cover	99	0.7 (0.3)	21.1 (19)

**Diagnostic Species:**



A 0.04ha plot located in this Map Unit is expected to contain at least 24 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 36 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 24 positive diagnostic species.

**Positive Diagnostic Species:**

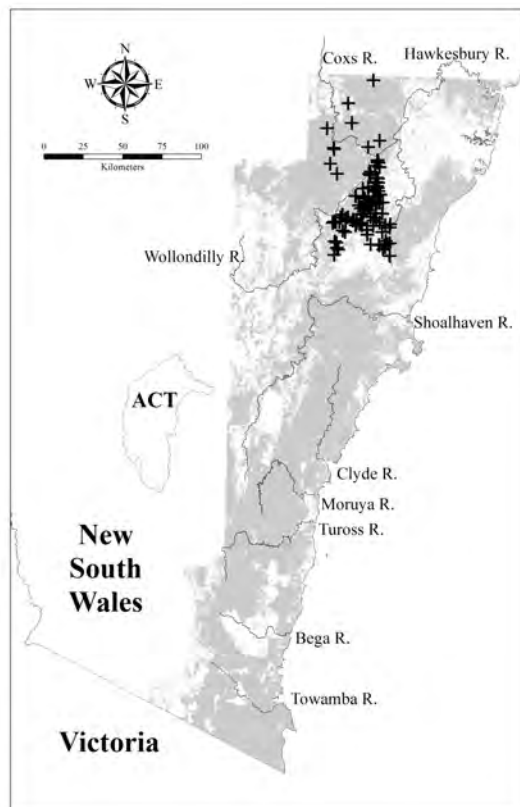
Species	C/A	Freq	C/A O	Freq O
<i>Acacia elata</i>	1(1-1)	5	1(1-3)	1
<i>Acacia linifolia</i>	1(1-1)	39	1(1-1)	5
<i>Acacia longifolia</i>	1(1-2)	22	1(1-2)	9
<i>Acacia obtusifolia</i>	1(1-2)	34	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	42	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	42	1(1-1)	10
<i>Acrotriche divaricata</i>	1(1-1)	6	1(1-1)	1
<i>Actinotus helianthi</i>	1(1-1)	7	1(1-1)	2
<i>Amperea xiphoclada</i>	1(1-1)	40	1(1-1)	6
<i>Angophora costata</i>	3(1-3)	18	1(1-3)	7
<i>Anisopogon avenaceus</i>	1(1-1)	16	1(1-2)	5
<i>Astrotricha floccosa</i>	1(1-1)	5	1(1-2)	1
<i>Astrotricha latifolia</i>	1(1-2)	8	1(1-1)	2
<i>Astrotricha longifolia</i>	1(1-1)	9	1(1-1)	<1
<i>Banksia serrata</i>	1(1-2)	25	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	70	1(1-2)	14
<i>Billardiera scandens</i>	1(1-1)	70	1(1-1)	27
<i>Boronia ledifolia</i>	1(1-2)	22	1(1-1)	3
<i>Bossiaea lenticularis</i>	2(2-2)	4	1(1-2)	<1
<i>Bossiaea neo-anglica</i>	2(1-3)	11	1(1-1)	<1
<i>Bossiaea obcordata</i>	1(1-2)	45	1(1-2)	6
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	3(1-3)	10	1(1-2)	1
<i>Brachyscome angustifolia</i>	1(1-1)	7	1(1-1)	2
<i>Bursaria longisepala</i>	1(1-1)	9	1(1-1)	1
<i>Cassinia aureonitens</i>	1(1-2)	8	1(1-2)	<1
<i>Cassytha pubescens</i>	1(1-1)	30	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	16	1(1-2)	7
<i>Ceratopetalum gummiferum</i>	3(1-3)	13	1(1-2)	3
<i>Choretrum candollei</i>	1(1-1)	5	1(1-1)	1
<i>Cooperookia barbata</i>	1(1-2)	9	1(1-1)	1
<i>Corymbia eximia</i>	3(1-3)	9	1(1-2)	2
<i>Corymbia gummifera</i>	2(1-3)	63	2(1-2)	15
<i>Crowea exalata</i> subsp. <i>exalata</i>	3(2-3)	3	1(1-1)	<1
<i>Cyathochaeta diandra</i>	1(1-1)	22	1(1-2)	8
<i>Dampiera purpurea</i>	1(1-1)	58	1(1-1)	3
<i>Dianella caerulea</i>	1(1-1)	58	1(1-1)	28
<i>Dianella prunina</i>	1(1-1)	10	1(1-1)	1
<i>Dillwynia phyllicoides</i>	2(1-3)	5	1(1-1)	1
<i>Dillwynia retorta</i>	1(1-2)	17	1(1-2)	6
<i>Dodonaea triquetra</i>	1(1-2)	34	1(1-2)	5
<i>Elaeocarpus reticulatus</i>	1(1-1)	30	1(1-1)	12

<i>Entolasia stricta</i>	1(1-2)	78	1(1-2)	33
<i>Eucalyptus agglomerata</i>	3(1-3)	43	2(1-3)	7
<i>Eucalyptus piperita</i>	3(1-3)	63	2(1-3)	8
<i>Eucalyptus punctata</i>	1(1-3)	34	2(1-3)	8
<i>Eucalyptus sieberi</i>	3(1-3)	38	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	1(1-3)	7	2(1-3)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	9	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-1)	17	1(1-1)	3
<i>Gonocarpus teucroides</i>	1(1-2)	59	1(1-1)	17
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	42	1(1-2)	14
<i>Grevillea arenaria</i> subsp. <i>arenaria</i>	1(1-2)	33	1(1-1)	1
<i>Grevillea mucronulata</i>	1(1-2)	22	1(1-1)	3
<i>Hakea dactyloides</i>	1(1-2)	34	1(1-1)	12
<i>Hardenbergia violacea</i>	1(1-1)	38	1(1-1)	17
<i>Hibbertia acicularis</i>	1(1-2)	6	1(1-1)	1
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-2)	20	1(1-1)	10
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-2)	39	1(1-1)	6
<i>Hibbertia vestita</i>	1(1-1)	4	1(1-1)	<1
<i>Hovea linearis</i>	1(1-1)	26	1(1-1)	9
<i>Hovea purpurea</i>	1(1-1)	3	1(1-1)	<1
<i>Hybanthus monopetalus</i>	1(1-1)	9	1(1-1)	2
<i>Isopogon anethifolius</i>	1(1-2)	6	1(1-1)	2
<i>Jacksonia scoparia</i>	1(1-1)	6	1(1-1)	2
<i>Lambertia formosa</i>	1(1-3)	21	1(1-2)	9
<i>Lepidosperma gunnii</i>	1(1-1)	12	1(1-1)	4
<i>Lepidosperma laterale</i>	1(1-1)	43	1(1-1)	28
<i>Leptomeria acida</i>	1(1-1)	29	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-1)	21	1(1-2)	8
<i>Leptospermum trinervium</i>	1(1-3)	58	1(1-2)	15
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	49	1(1-1)	23
<i>Leucopogon setiger</i>	1(1-1)	10	1(1-1)	1
<i>Lindsaea microphylla</i>	1(1-1)	26	1(1-1)	5
<i>Lissanthe sapida</i>	1(1-1)	13	1(1-1)	1
<i>Logania albiflora</i>	1(1-1)	8	1(1-1)	1
<i>Lomandra brevis</i>	1(1-1)	5	1(1-1)	<1
<i>Lomandra confertifolia</i> subsp. <i>pallida</i>	2(1-4)	4	1(1-2)	1
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-2)	15	1(1-1)	4
<i>Lomandra cylindrica</i>	1(1-1)	24	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	30	1(1-1)	10
<i>Lomandra filiformis</i> subsp. <i>flavior</i>	1(1-1)	3	1(1-1)	<1
<i>Lomandra gracilis</i>	1(1-1)	27	1(1-1)	3
<i>Lomandra micrantha</i> subsp. <i>tuberculata</i>	1(1-1)	3	1(1-1)	<1
<i>Lomandra montana</i>	1(1-2)	7	1(1-2)	<1
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	37	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-2)	68	1(1-1)	13
<i>Lomatia silaifolia</i>	1(1-2)	91	1(1-1)	9

<i>Marsdenia suaveolens</i>	1(1-1)	13	1(1-1)	2
<i>Monotoca scoparia</i>	1(1-1)	24	1(1-1)	12
<i>Olearia microphylla</i>	1(1-1)	5	1(1-1)	1
<i>Omphacomeria acerba</i>	1(1-1)	7	1(1-1)	1
<i>Opercularia hispida</i>	1(1-1)	10	1(1-1)	3
<i>Patersonia glabrata</i>	1(1-2)	41	1(1-1)	9
<i>Patersonia sericea</i>	1(1-1)	36	1(1-1)	8
<i>Persoonia laurina</i>	1(1-1)	17	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	74	1(1-1)	12
<i>Persoonia linearis</i>	1(1-2)	74	1(1-1)	28
<i>Persoonia mollis</i> subsp. <i>nectens</i>	1(1-1)	8	1(1-1)	<1
<i>Persoonia mollis</i> subsp. <i>mollis</i>	2(1-3)	9	1(1-1)	1
<i>Petrophile pedunculata</i>	1(1-2)	24	1(1-1)	2
<i>Petrophile pulchella</i>	1(1-1)	13	1(1-1)	6
<i>Philotheca hispidula</i>	1(1-2)	17	1(1-1)	1
<i>Phyllanthus hirtellus</i>	1(1-2)	84	1(1-1)	13
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	31	1(1-1)	13
<i>Platysace ericoides</i>	1(1-2)	17	1(1-1)	2
<i>Platysace linearifolia</i>	1(1-1)	22	1(1-1)	8
<i>Podolobium ilicifolium</i>	1(1-1)	43	1(1-1)	8
<i>Podocarpus spinulosus</i>	1(1-3)	8	1(1-1)	1
<i>Pomaderris ferruginea</i>	1(1-1)	6	1(1-1)	1
<i>Pomaderris lanigera</i>	1(1-3)	6	1(1-1)	1
<i>Pomax umbellata</i>	1(1-1)	66	1(1-1)	13
<i>Poranthera corymbosa</i>	1(1-2)	19	1(1-1)	1
<i>Pteridium esculentum</i>	1(1-2)	54	1(1-2)	37
<i>Pultenaea flexilis</i>	1(1-2)	18	1(1-2)	2
<i>Pultenaea retusa</i>	1(1-1)	6	1(1-1)	1
<i>Pultenaea scabra</i>	1(1-3)	6	1(1-2)	2
<i>Schoenus brevifolius</i>	1(1-3)	5	1(1-3)	1
<i>Smilax glycyphylla</i>	1(1-1)	32	1(1-1)	8
<i>Stylidium laricifolium</i>	1(1-2)	6	1(1-1)	1
<i>Stypandra glauca</i>	2(1-2)	27	1(1-2)	4
<i>Telopea speciosissima</i>	1(1-2)	16	1(1-1)	2
<i>Tetratheca thymifolia</i>	1(1-1)	42	1(1-1)	6
<i>Xanthosia atkinsoniana</i>	1(1-2)	4	1(1-1)	<1
<i>Xanthosia pilosa</i>	1(1-1)	36	1(1-1)	7
<i>Xanthorrhoea resinifera</i>	1(1-1)	10	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-1)	16	1(1-1)	5
<i>Xylomelum pyriforme</i>	1(1-1)	47	1(1-1)	2
<b>Constant:</b>				
<b>Species</b>	<b>C/A</b>	<b>Freq</b>	<b>C/A O</b>	<b>Freq O</b>
<i>Lomandra longifolia</i>	1(1-1)	33	1(1-1)	44

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	1(1-3)	6	1(1-2)	2
<i>Angophora floribunda</i>	1(1-1)	3	1(1-2)	9
<i>Eucalyptus burgessiana</i>	2(1-2)	2	1(1-3)	<1
<i>Eucalyptus consideniiana</i>	3(1-3)	2	1(1-2)	2
<i>Eucalyptus elata</i>	3(1-3)	2	2(1-3)	5
<i>Eucalyptus eugenioides</i>	3(1-4)	2	2(1-3)	4
<i>Eucalyptus fibrosa</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus globoidea</i>	3(1-3)	20	2(1-2)	12
<i>Eucalyptus oblonga</i>	1(1-2)	5	1(1-2)	2
<i>Eucalyptus oreades</i>	3(1-3)	2	3(1-3)	<1
<i>Eucalyptus racemosa</i>	1(1-1)	3	2(1-2)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(1-3)	2	2(1-3)	6
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	3(1-3)	2	1(1-2)	1
<i>Eucalyptus rossii</i>	1(1-1)	1	3(1-3)	2
<i>Eucalyptus sclerophylla</i>	3(1-3)	6	2(1-3)	4
<i>Eucalyptus smithii</i>	1(1-1)	1	1(1-2)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(3-3)	8	2(1-3)	8



Locations of survey sites allocated to DSF p144. Grey shading indicates extant native vegetation cover within the study area.

**DSF p146: Sydney Hinterland Transition Woodland**

Plate p146. Sydney Hinterland Transition Woodland (Map Unit p146) at Cripple Creek Reserve, Mount Riverview, Lower Blue Mountains. The dominant tree species are *Corymbia gummifera* and *Banksia serrata* with an open shrub stratum featuring *Dillwynia retorta*, *Grevillea mucronulata*, *Acacia terminalis*, *Bossiaea obcordata* and *Banksia spinulosa* var. *spinulosa*. *Austrostipa pubescens* and *Themda australis* are prominent in the groundcover.

Sample Sites: 214

Area Extant (ha): 41800

Estimated % remaining: 60-80%

Area in conservation reserves (ha): 13000

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

No. taxa (total / unique): 532 / 2

No. taxa per plot ( $\pm$ sd): 49.4 (9.6)

Class: Sydney Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Sydney Hinterland Transition Woodland (DSF p146) is equivalent to DSF 146 identified by Tindall *et al.* (2004), and is a eucalypt woodland with an open understorey of sclerophyll shrubs, sedges, forbs and grasses. This transition woodland encircles the Cumberland Plain rainshadow, on loamy soils typically derived from sediments belonging to the Hawkesbury or Mittagong formations.

About one-third of Sydney Hinterland Transition Woodland's original distribution has been cleared, and clearing continues in localised areas of suburban expansion including Dural-Maroota, the lower Blue Mountains and east of Campbelltown. However, considerable areas are represented within conservation reserves.

**Floristic Summary:**

**Trees:** *Corymbia gummifera*, *Eucalyptus punctata*, *Angophora costata*, *Syncarpia glomulifera*. **Shrubs:** *Phyllanthus hirtellus*, *Persoonia linearis*, *Leptospermum trinervium*, *Acacia ulicifolia*, *Persoonia levis*, *Acacia linifolia*, *Banksia spinulosa*, *Pimelea linifolia*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Entolasia stricta*, *Lomandra obliqua*, *Pomax umbellata*, *Themeda australis*, *Lomandra multiflora*, *Lepidosperma laterale*, *Dianella revoluta*, *Austrostipa pubescens*, *Goodenia hederacea*.

**Vegetation structure:**

Stratum	Frequency (n=107)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	2	21.5 (0.7)	11 (5.7)
Tree canopy	100	17.7 (4.1)	21.3 (10.4)
Small tree	68	7.9 (3.5)	15.9 (13.2)
Shrub	67	2.2 (0.7)	17.6 (15.8)
Ground cover	100	0.9 (0.3)	29.9 (21.4)

**Diagnostic Species:**

A 0.04ha plot located in this Map Unit is expected to contain at least 31 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 42 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 31 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	12	1(1-1)	1
<i>Acacia falcata</i>	1(1-1)	5	1(1-1)	1
<i>Acacia hispidula</i>	1(1-1)	3	1(1-2)	<1
<i>Acacia linifolia</i>	1(1-1)	61	1(1-1)	5
<i>Acacia longifolia</i>	1(1-1)	16	1(1-2)	9
<i>Acacia myrtifolia</i>	1(1-1)	31	1(1-1)	4
<i>Acacia parramattensis</i>	1(1-1)	11	1(1-2)	4
<i>Acacia parvipinnula</i>	1(1-1)	7	1(1-1)	<1
<i>Acacia suaveolens</i>	1(1-1)	21	1(1-1)	7
<i>Acacia terminalis</i>	1(1-2)	42	1(1-1)	11
<i>Acacia trinervata</i>	2(1-3)	2	1(1-1)	<1
<i>Acacia ulicifolia</i>	1(1-1)	66	1(1-1)	9
<i>Acianthus fornicatus</i>	1(1-1)	9	1(1-2)	1
<i>Actinotus helianthi</i>	1(1-1)	5	1(1-1)	2
<i>Allocasuarina littoralis</i>	1(1-2)	45	1(1-2)	16
<i>Allocasuarina torulosa</i>	1(1-2)	22	1(1-3)	4
<i>Angophora bakeri</i>	1(1-2)	29	1(1-3)	2
<i>Angophora costata</i>	1(1-2)	43	2(1-3)	6
<i>Anisopogon avenaceus</i>	1(1-2)	38	1(1-2)	5
<i>Aristida benthamii</i>	1(1-2)	7	1(1-1)	<1
<i>Aristida vagans</i>	1(1-1)	42	1(1-2)	7
<i>Aristida warburgii</i>	1(1-1)	3	1(1-2)	<1
<i>Astroloma humifusum</i>	1(1-1)	9	1(1-1)	4
<i>Astroloma pinifolium</i>	1(1-1)	5	1(1-1)	<1
<i>Austrodanthonia fulva</i>	1(1-2)	17	1(1-2)	1
<i>Austrostipa pubescens</i>	2(1-2)	59	1(1-1)	4
<i>Austrodanthonia tenuior</i>	1(1-1)	6	1(1-2)	2
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	57	1(1-2)	14
<i>Billardiera scandens</i>	1(1-1)	82	1(1-1)	26
<i>Bossiaea lenticularis</i>	1(1-2)	5	1(1-2)	<1
<i>Bossiaea obcordata</i>	1(1-2)	52	1(1-2)	6
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	1(1-2)	6	2(1-3)	1
<i>Brunoniella pumilio</i>	1(1-1)	29	1(1-1)	4
<i>Caesia parviflora</i>	1(1-1)	10	1(1-1)	2
<i>Callistemon linearis</i>	1(1-1)	3	1(1-1)	<1
<i>Callistemon rigidus</i>	1(1-1)	1	1(1-1)	<1
<i>Cassytha glabella</i>	1(1-1)	20	1(1-1)	7
<i>Cassytha pubescens</i>	1(1-1)	35	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	17	1(1-2)	7
<i>Cheilanthes sieberi</i>	1(1-1)	37	1(1-1)	13

<i>Corymbia eximia</i>	1(1-2)	23	1(1-2)	1
<i>Corymbia gummifera</i>	2(1-3)	81	2(1-2)	14
<i>Cyathochaeta diandra</i>	1(1-2)	48	1(1-2)	7
<i>Daviesia acicularis</i>	1(1-1)	2	1(1-1)	<1
<i>Daviesia corymbosa</i>	1(1-1)	6	1(1-1)	2
<i>Daviesia genistifolia</i>	1(1-1)	2	1(1-1)	<1
<i>Daviesia squarrosa</i>	1(1-1)	5	1(1-1)	<1
<i>Dianella caerulea</i>	1(1-1)	40	1(1-1)	28
<i>Dianella prunina</i>	1(1-1)	9	1(1-1)	1
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	61	1(1-1)	14
<i>Dillwynia acicularis</i>	2(1-3)	2	1(1-2)	<1
<i>Dillwynia parvifolia</i>	1(1-1)	3	1(1-2)	<1
<i>Dillwynia retorta</i>	1(1-2)	27	1(1-2)	6
<i>Dodonaea pinnata</i>	1(1-1)	1	1(1-1)	<1
<i>Dodonaea triquetra</i>	1(1-2)	21	1(1-2)	5
<i>Drosera auriculata</i>	1(1-1)	6	1(1-1)	1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-1)	17	1(1-1)	6
<i>Entolasia stricta</i>	2(1-3)	97	1(1-2)	32
<i>Entolasia whiteana</i>	1(1-1)	1	1(1-1)	<1
<i>Epacris pulchella</i>	1(1-1)	19	1(1-1)	5
<i>Epacris purpurascens</i> var. <i>purpurascens</i>	1(1-1)	2	1(1-3)	<1
<i>Eragrostis benthamii</i>	1(1-1)	4	1(1-1)	<1
<i>Eragrostis brownii</i>	1(1-1)	18	1(1-1)	3
<i>Eriostemon australasius</i>	1(1-1)	16	1(1-1)	3
<i>Eucalyptus beyeriana</i>	2(1-2)	2	2(2-3)	<1
<i>Eucalyptus crebra</i>	1(1-2)	9	2(1-3)	3
<i>Eucalyptus eugenioides</i>	2(1-3)	9	2(1-3)	4
<i>Eucalyptus notabilis</i>	1(1-2)	19	1(1-1)	<1
<i>Eucalyptus oblonga</i>	1(1-3)	23	1(1-2)	1
<i>Eucalyptus pilularis</i>	2(1-3)	15	2(1-3)	5
<i>Eucalyptus punctata</i>	1(1-3)	52	2(1-3)	8
<i>Eucalyptus resinifera</i> subsp. <i>resinifera</i>	1(1-1)	9	1(1-2)	1
<i>Eucalyptus scias</i> subsp. <i>scias</i>	1(1-1)	1	2(1-2)	<1
<i>Eucalyptus sclerophylla</i>	2(1-3)	15	2(1-3)	3
<i>Eucalyptus sparsifolia</i>	2(1-3)	24	2(1-3)	2
<i>Eucalyptus squamosa</i>	1(1-1)	3	1(1-2)	<1
<i>Exocarpos strictus</i>	1(1-1)	31	1(1-1)	9
<i>Glycine clandestina</i>	1(1-1)	37	1(1-1)	26
<i>Glycine tabacina</i>	1(1-1)	14	1(1-1)	7
<i>Gompholobium glabratum</i>	1(1-1)	14	1(1-1)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	21	1(1-1)	3
<i>Gompholobium inconspicuum</i>	1(1-2)	2	1(1-1)	<1
<i>Gompholobium minus</i>	1(1-1)	12	1(1-1)	1
<i>Gompholobium pinnatum</i>	1(1-1)	2	1(1-1)	<1
<i>Gompholobium uncinatum</i>	2(1-2)	1	1(1-1)	<1
<i>Gonocarpus tetragynus</i>	1(1-1)	39	1(1-1)	20



<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	11	1(1-1)	4
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	58	1(1-2)	13
<i>Goodenia heterophylla</i>	1(1-2)	13	1(1-1)	2
<i>Grevillea buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	15	1(1-1)	2
<i>Grevillea diffusa</i>	1(1-1)	3	1(1-1)	1
<i>Grevillea longifolia</i>	1(1-2)	2	1(1-1)	<1
<i>Grevillea mucronulata</i>	1(1-1)	37	1(1-1)	3
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	1(1-1)	1	1(1-1)	<1
<i>Grevillea phyllicoides</i>	1(1-2)	7	1(1-2)	<1
<i>Grevillea sericea</i>	1(1-1)	11	1(1-1)	2
<i>Grevillea sphacelata</i>	1(1-2)	8	1(1-1)	1
<i>Haemodorum planifolium</i>	1(1-1)	5	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-1)	29	1(1-1)	11
<i>Hakea sericea</i>	1(1-1)	48	1(1-1)	6
<i>Hardenbergia violacea</i>	1(1-1)	36	1(1-1)	17
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	22	1(1-1)	10
<i>Hibbertia bracteata</i>	1(1-1)	5	1(1-1)	1
<i>Hibbertia diffusa</i>	1(1-1)	22	1(1-1)	3
<i>Hibbertia serpyllifolia</i>	1(1-1)	5	1(1-2)	1
<i>Hovea linearis</i>	1(1-1)	49	1(1-1)	8
<i>Hybanthus monopetalus</i>	1(1-1)	9	1(1-1)	2
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	24	1(1-2)	9
<i>Isopogon anemonifolius</i>	1(1-1)	29	1(1-1)	8
<i>Jacksonia scoparia</i>	1(1-1)	11	1(1-1)	1
<i>Kunzea ambigua</i>	1(1-2)	22	1(1-2)	3
<i>Lagenifera gracilis</i>	1(1-1)	14	1(1-1)	3
<i>Lambertia formosa</i>	1(1-2)	22	1(1-2)	8
<i>Lasiopetalum ferrugineum</i>	1(1-2)	13	1(1-2)	2
<i>Lasiopetalum rufum</i>	1(1-1)	2	1(1-1)	<1
<i>Laxmannia gracilis</i>	1(1-1)	14	1(1-1)	3
<i>Lepidosperma laterale</i>	1(1-1)	65	1(1-1)	28
<i>Lepidosperma latens</i>	1(1-1)	3	1(1-1)	<1
<i>Leptomeria acida</i>	1(1-1)	16	1(1-1)	4
<i>Leptospermum parvifolium</i>	1(1-1)	7	1(1-1)	1
<i>Leptospermum trinervium</i>	1(1-2)	66	1(1-2)	14
<i>Leucopogon muticus</i>	1(1-1)	16	1(1-1)	1
<i>Leucopogon virgatus</i>	1(1-1)	7	1(1-1)	1
<i>Lindsaea microphylla</i>	1(1-1)	26	1(1-1)	5
<i>Lissanthe sapida</i>	1(1-1)	5	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-1)	46	1(1-1)	7
<i>Lobelia gracilis</i>	1(1-1)	5	1(1-1)	<1
<i>Logania pusilla</i>	1(1-1)	4	1(1-1)	1
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-3)	14	1(1-1)	4
<i>Lomandra cylindrica</i>	1(1-2)	32	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	26	1(1-2)	10
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	29	1(1-1)	10



<i>Lomandra glauca</i>	1(1-1)	17	1(1-1)	10
<i>Lomandra gracilis</i>	1(1-1)	9	1(1-1)	3
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	69	1(1-1)	24
<i>Lomandra obliqua</i>	1(1-2)	87	1(1-1)	12
<i>Lomatia silaifolia</i>	1(1-1)	45	1(1-1)	9
<i>Macrozamia spiralis</i>	1(1-1)	2	1(1-1)	<1
<i>Melaleuca nodosa</i>	1(1-2)	4	2(1-3)	1
<i>Micrantheum ericoides</i>	1(1-1)	13	1(1-1)	2
<i>Mirbelia rubiifolia</i>	1(1-2)	11	1(1-1)	3
<i>Monotoca scoparia</i>	1(1-1)	39	1(1-1)	12
<i>Olearia microphylla</i>	1(1-1)	7	1(1-1)	1
<i>Opercularia diphylla</i>	1(1-1)	18	1(1-1)	7
<i>Opercularia varia</i>	1(1-2)	10	1(1-1)	2
<i>Ozothamnus diosmifolius</i>	1(1-1)	19	1(1-1)	8
<i>Panicum simile</i>	1(1-1)	48	1(1-1)	5
<i>Patersonia glabrata</i>	1(1-1)	18	1(1-1)	10
<i>Patersonia longifolia</i>	1(1-1)	7	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	24	1(1-1)	8
<i>Persoonia hirsuta</i>	1(1-1)	1	1(1-1)	<1
<i>Persoonia lanceolata</i>	1(1-1)	5	1(1-1)	2
<i>Persoonia laurina</i>	1(1-1)	7	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	61	1(1-1)	12
<i>Persoonia linearis</i>	1(1-1)	67	1(1-1)	28
<i>Persoonia oblongata</i>	1(1-1)	5	1(1-1)	<1
<i>Persoonia pinifolia</i>	1(1-1)	13	1(1-1)	3
<i>Petrophile pulchella</i>	1(1-1)	18	1(1-1)	5
<i>Petrophile sessilis</i>	1(1-1)	7	1(1-1)	1
<i>Philothea hispidula</i>	1(1-1)	11	1(1-1)	1
<i>Phyllanthus hirtellus</i>	1(1-2)	90	1(1-1)	12
<i>Pimelea curviflora</i> var. <i>curviflora</i>	1(1-1)	2	1(1-1)	<1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	55	1(1-1)	12
<i>Platysace ericoides</i>	1(1-1)	23	1(1-1)	2
<i>Platysace linearifolia</i>	1(1-1)	22	1(1-1)	8
<i>Podolobium scandens</i>	1(1-3)	3	1(1-2)	<1
<i>Pomax umbellata</i>	1(1-1)	74	1(1-1)	12
<i>Pratia purpurascens</i>	1(1-1)	39	1(1-1)	17
<i>Prostanthera howelliae</i>	3(2-3)	1	2(1-2)	<1
<i>Pterostylis acuminata</i>	1(1-1)	2	1(1-1)	<1
<i>Pterostylis longifolia</i>	1(1-1)	5	1(1-1)	1
<i>Pultenaea ferruginea</i>	1(1-3)	10	1(1-2)	1
<i>Pultenaea polifolia</i>	2(1-2)	2	1(1-2)	<1
<i>Pultenaea scabra</i>	1(1-3)	16	1(1-2)	1
<i>Pultenaea tuberculata</i>	1(1-1)	10	1(1-1)	3
<i>Pultenaea villosa</i>	1(1-1)	5	1(1-2)	1
<i>Scaevola ramosissima</i>	1(1-1)	14	1(1-1)	3
<i>Schizaea bifida</i>	1(1-1)	4	1(1-1)	1

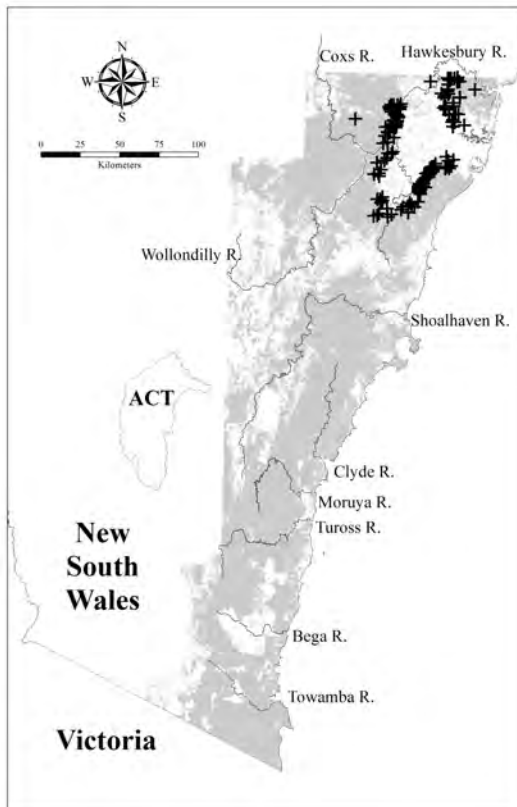
<i>Schoenus imberbis</i>	1(1-1)	5	1(1-1)	1
<i>Styphelia laeta</i> subsp. <i>laeta</i>	1(1-1)	2	1(1-1)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-3)	46	2(1-3)	7
<i>Thelymitra pauciflora</i>	1(1-1)	2	1(1-1)	<1
<i>Themeda australis</i>	2(1-3)	68	1(1-3)	16
<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	1(1-1)	9	1(1-1)	1
<i>Trachymene incisa</i> subsp. <i>incisa</i>	1(1-2)	4	1(1-2)	1
<i>Tricoryne simplex</i>	1(1-1)	4	1(1-1)	<1
<i>Xanthorrhoea concava</i>	1(1-1)	19	1(1-1)	4
<i>Xanthorrhoea media</i>	1(1-1)	27	1(1-2)	4
<i>Xanthorrhoea minor</i> subsp. <i>minor</i>	1(1-2)	4	1(1-1)	1
<i>Xanthosia pilosa</i>	1(1-1)	16	1(1-1)	7
<i>Xanthorrhoea resinifera</i>	1(1-1)	9	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-2)	13	1(1-1)	5
<i>Xylomelum pyriforme</i>	1(1-1)	22	1(1-1)	3

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-2)	38	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-1)	41	1(1-2)	36

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora hispida</i>	1(1-1)	4	2(1-2)	1
<i>Corymbia maculata</i>	1(1-3)	2	2(1-3)	3
<i>Eucalyptus agglomerata</i>	1(1-3)	4	2(1-3)	8
<i>Eucalyptus capitellata</i>	1(1-1)	<1	3(1-3)	<1
<i>Eucalyptus fibrosa</i>	1(1-2)	5	2(1-3)	3
<i>Eucalyptus globoidea</i>	2(1-2)	14	1(1-2)	12
<i>Eucalyptus haemastoma</i>	1(1-2)	2	1(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	3	1(1-2)	3
<i>Eucalyptus parramattensis</i> subsp. <i>parramattensis</i>	2(2-2)	<1	1(1-3)	<1
<i>Eucalyptus piperita</i>	1(1-2)	9	2(1-3)	9
<i>Eucalyptus racemosa</i>	1(1-3)	2	2(1-2)	1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	<1	2(1-3)	2



Locations of survey sites allocated to DSF p146. Grey shading indicates extant native vegetation cover within the study area.

### DSF p148: Shoalhaven Sandstone Forest



Plate p148. Shoalhaven Sandstone Forest (Map Unit p148) beside Turpentine Road in Jerrawangala National Park. A low tree canopy of *Eucalyptus sclerophylla*, *E. considiana* and *Corymbia gummifera* grows above a patchy groundcover of sedges and grasses and a diverse shrub layer including *Lambertia formosa*, *Banksia paludosa*, *Petrophile pedunculata*, *Bossiaea ensata* and *Isopogon anemonifolius*.

Sample Sites: 91

Area Extant (ha): 56500

Estimated % remaining: 80-95%

Area in conservation reserves (ha): 30900

Estimated % of pre-clearing area in conservation reserves: 40-55%

No. taxa (total / unique): 435 / 4

No. taxa per plot ( $\pm$ sd): 41.2 (9.9)  
 Class: Sydney Coastal Dry Sclerophyll Forests  
 Related TEC: n/a

Shoalhaven Sandstone Forest (DSF p148) is equivalent to DSF 148 identified by Tindall *et al.* (2004), and is an open eucalypt forest or woodland with an abundant sclerophyll shrub stratum and a groundcover dominated by sedges. This unit occurs on sandstone plateaux up to 700m ASL in the lower Shoalhaven district from Meryla south as far as Pigeon House Mountain, where average annual rainfall is 950-1600mm. Large stands occur at Meryla and Wingello State Forests, to the west of Mt Skanzi (Kangaroo Valley), west of Nowra (Bamarang and Colymea) and ascending the Morton plateau from Parma Creek Nature Reserve to Sassafra. Within this distribution Shoalhaven Sandstone Forest occurs on sandy loam soils derived primarily from Hawkesbury or Nowra sandstone, or the Berry formation. Shoalhaven Sandstone Forest shares several species with Morton-Budawang Sandstone Woodland (DSF p248), which occurs in higher country further west on the Morton plateau and on the Budawang ranges to the south. Examples of Shoalhaven Sandstone Forest are represented in Morton National Park and Parma Nature Reserve. Large areas outside reserves generally have not been subject to intensive land uses.

#### Floristic Summary:

**Trees:** *Corymbia gummifera*, *Eucalyptus sclerophylla*, *E. sieberi*. **Shrubs:** *Lambertia formosa*, *Persoonia levis*, *Banksia spinulosa*, *Petrophile pedunculata*, *Leptospermum trinervium*, *Lomatia ilicifolia*, *Bossiaea heterophylla*, *Hakea laevipes*, *Platysace linearifolia*, *Pimelea linifolia*, *Tetradlea thymifolia*. **Groundcover:** *Lomandra obliqua*, *Patersonia sericea*, *Entolasia stricta*, *Caustis flexuosa*, *Cyathochaeta diandra*.

#### Vegetation structure:

Stratum	Frequency (n=80)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	96	20.5 (16.9)	26.4 (11.3)
Small tree	64	6.1 (2.7)	26.1 (22.7)
Shrub	60	2.2 (0.7)	36.3 (22.6)
Ground cover	100	0.8 (0.3)	35.7 (25.5)

#### 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 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 21 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	12	1(1-1)	1
<i>Acacia elongata</i>	1(1-2)	9	1(1-1)	1
<i>Acacia obtusifolia</i>	1(1-2)	44	1(1-2)	9
<i>Acacia suaveolens</i>	1(1-1)	25	1(1-1)	7
<i>Acacia terminalis</i>	1(1-1)	44	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	26	1(1-1)	10
<i>Actinotus minor</i>	1(1-2)	16	1(1-1)	4
<i>Amperea xiphoclada</i>	1(1-1)	51	1(1-1)	6
<i>Anisopogon avenaceus</i>	1(1-2)	32	1(1-2)	5
<i>Aotus ericoides</i>	1(1-2)	36	1(1-1)	3
<i>Banksia paludosa</i>	1(1-2)	32	1(1-2)	2
<i>Banksia serrata</i>	1(1-2)	27	1(1-2)	9
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	88	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	46	1(1-1)	27
<i>Boronia floribunda</i>	2(1-3)	5	1(1-1)	<1
<i>Boronia pinnata</i>	2(1-2)	7	1(1-1)	2
<i>Bossiaea ensata</i>	1(1-1)	13	1(1-1)	2

<i>Bossiaea heterophylla</i>	1(1-1)	52	1(1-1)	5
<i>Bossiaea obcordata</i>	1(1-2)	48	1(1-2)	6
<i>Bossiaea scolopendria</i>	1(1-2)	5	1(1-1)	1
<i>Calytrix tetragona</i>	1(1-2)	7	1(1-2)	2
<i>Cassylia glabella</i>	1(1-1)	19	1(1-1)	8
<i>Caustis flexuosa</i>	1(1-2)	47	1(1-2)	7
<i>Comesperma ericinum</i>	1(1-1)	10	1(1-1)	1
<i>Cooperookia barbata</i>	1(1-1)	10	1(1-1)	1
<i>Corymbia gummifera</i>	2(1-3)	68	2(1-2)	15
<i>Cyathochaeta diandra</i>	2(1-3)	43	1(1-2)	8
<i>Dampiera stricta</i>	1(1-1)	26	1(1-1)	8
<i>Dianella caerulea</i>	1(1-1)	46	1(1-1)	28
<i>Drosera auriculata</i>	1(1-1)	5	1(1-1)	1
<i>Entolasia stricta</i>	1(1-2)	73	1(1-2)	33
<i>Epacris pulchella</i>	1(1-1)	22	1(1-1)	5
<i>Eucalyptus consideniensis</i>	2(1-3)	24	1(1-2)	2
<i>Eucalyptus piperita</i>	3(2-3)	29	2(1-3)	9
<i>Eucalyptus sclerophylla</i>	2(1-3)	45	2(1-3)	3
<i>Eucalyptus sieberi</i>	2(1-3)	42	2(1-3)	16
<i>Gompholobium glabratum</i>	1(1-1)	10	1(1-1)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	18	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-1)	20	1(1-1)	3
<i>Gonocarpus teucroides</i>	1(1-1)	31	1(1-1)	17
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	29	1(1-1)	4
<i>Grevillea linearifolia</i>	1(1-1)	5	1(1-1)	1
<i>Haemodorum corymbosum</i>	1(1-2)	8	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-2)	67	1(1-1)	11
<i>Hakea sericea</i>	1(1-2)	21	1(1-1)	7
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-2)	45	1(1-1)	6
<i>Hibbertia riparia</i>	1(1-1)	12	1(1-1)	2
<i>Hibbertia serpyllifolia</i>	1(1-1)	7	1(1-2)	1
<i>Hybanthus monopetalus</i>	1(1-1)	15	1(1-1)	2
<i>Isopogon anemonifolius</i>	1(1-1)	34	1(1-1)	8
<i>Kunzea ambigua</i>	1(1-2)	11	1(1-2)	3
<i>Lambertia formosa</i>	2(1-3)	77	1(1-1)	8
<i>Lepidosperma concavum</i>	2(1-2)	8	1(1-2)	2
<i>Lepidosperma urophorum</i>	1(1-1)	18	1(1-2)	7
<i>Leptomeria acida</i>	1(1-1)	19	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-1)	24	1(1-2)	8
<i>Leptospermum rotundifolium</i>	1(1-2)	15	1(1-2)	1
<i>Leptospermum trinervium</i>	1(1-2)	75	1(1-2)	15
<i>Lepyrodia scariosa</i>	1(1-2)	14	1(1-2)	6
<i>Leucopogon setiger</i>	2(1-2)	5	1(1-1)	1
<i>Lindsaea linearis</i>	1(1-1)	37	1(1-1)	7
<i>Lindsaea microphylla</i>	1(1-1)	25	1(1-1)	5
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	33	1(1-1)	10

<i>Lomatia ilicifolia</i>	1(1-1)	74	1(1-1)	6
<i>Lomandra obliqua</i>	1(1-1)	77	1(1-1)	13
<i>Marsdenia suaveolens</i>	1(1-1)	12	1(1-1)	3
<i>Mirbelia rubifolia</i>	1(1-2)	13	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	14	1(1-1)	3
<i>Monotoca scoparia</i>	1(1-1)	29	1(1-1)	12
<i>Patersonia glabrata</i>	1(1-2)	52	1(1-1)	9
<i>Patersonia sericea</i>	1(1-2)	65	1(1-1)	8
<i>Persoonia laurina</i>	1(1-1)	10	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	82	1(1-1)	12
<i>Persoonia mollis</i> subsp. <i>leptophylla</i>	1(1-2)	16	1(1-1)	1
<i>Persoonia mollis</i> subsp. <i>caleyi</i>	1(1-1)	8	1(1-1)	1
<i>Persoonia mollis</i> subsp. <i>ledifolia</i>	1(1-1)	27	1(1-1)	<1
<i>Petrophile pedunculata</i>	1(1-2)	74	1(1-1)	2
<i>Petrophile sessilis</i>	2(1-2)	11	1(1-1)	2
<i>Phyllota phyllicoides</i>	1(1-2)	14	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>collina</i>	1(1-1)	7	1(1-1)	1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	58	1(1-1)	13
<i>Platylobium formosum</i>	1(1-1)	14	1(1-1)	3
<i>Platysace linearifolia</i>	1(1-2)	54	1(1-1)	8
<i>Poranthera ericifolia</i>	1(1-1)	11	1(1-1)	1
<i>Ptilothrix deusta</i>	2(2-2)	14	1(1-2)	2
<i>Pultenaea daphnoides</i>	1(1-1)	14	1(1-1)	4
<i>Pultenaea linophylla</i>	1(1-1)	8	1(1-1)	2
<i>Pultenaea retusa</i>	1(1-1)	11	1(1-1)	1
<i>Pultenaea tuberculata</i>	1(1-1)	18	1(1-1)	3
<i>Scaevola ramosissima</i>	1(1-1)	19	1(1-1)	3
<i>Schizaea bifida</i>	1(1-1)	5	1(1-1)	1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-2)	22	2(1-3)	7
<i>Tetratea thymifolia</i>	1(1-2)	59	1(1-1)	6
<i>Xanthorrhoea concava</i>	1(1-1)	43	1(1-1)	4
<i>Xanthosia pilosa</i>	1(1-2)	23	1(1-1)	8
<i>Xanthorrhoea resinifera</i>	1(1-1)	12	1(1-2)	4
<i>Xanthosia tridentata</i>	1(1-1)	20	1(1-1)	5

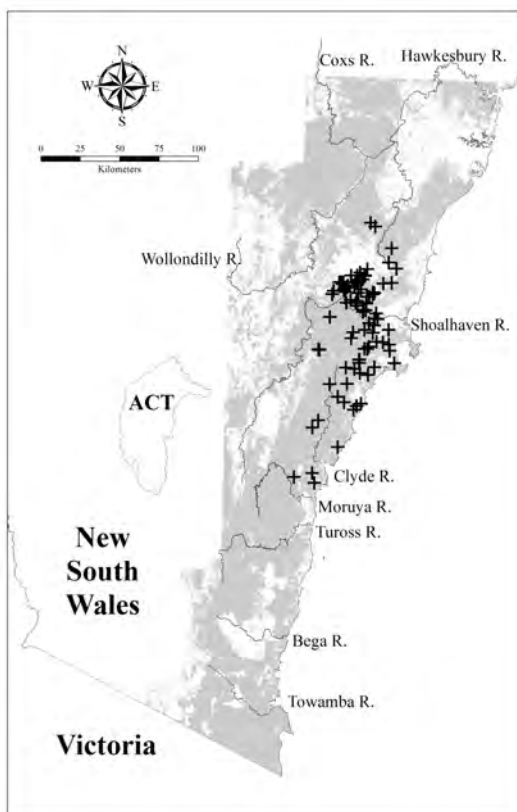
## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Persoonia linearis</i>	1(1-1)	38	1(1-1)	29
<i>Pteridium esculentum</i>	1(1-1)	49	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	1(1-2)	3	1(1-2)	2
<i>Angophora floribunda</i>	1(1-2)	5	1(1-2)	9
<i>Corymbia eximia</i>	2(2-2)	1	1(1-2)	2
<i>Eucalyptus agglomerata</i>	2(1-3)	16	2(1-3)	7
<i>Eucalyptus dives</i>	4(1-4)	2	2(1-3)	4

<i>Eucalyptus elata</i>	1(1-1)	1	2(1-3)	5
<i>Eucalyptus eugenioides</i>	3(1-3)	2	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-3)	12	1(1-2)	12
<i>Eucalyptus imitans</i>	1(1-3)	3	1(1-3)	<1
<i>Eucalyptus muelleriana</i>	3(3-3)	1	2(1-2)	7
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	1	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(1-2)	9	2(1-3)	5
<i>Eucalyptus punctata</i>	1(1-2)	11	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(1-3)	4	2(1-3)	6
<i>Eucalyptus ralla</i>	3(3-3)	1	3(3-3)	<1
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	1	2(1-3)	2
<i>Eucalyptus sparsifolia</i>	3(3-3)	1	2(1-3)	2



Locations of survey sites allocated to DSF p148. Grey shading indicates extant native vegetation cover within the study area.

**DSF p149: Morton Sandstone Heath Woodland**

Plate p149. Morton Sandstone Heath Woodland (Map Unit p149) beside the Touga Fire Trail in western Morton National Park. A sparse low canopy of *Eucalyptus sclerophylla* and *E. consideniiana* grows above a sparse groundcover of sedges and grasses including *Lepidosperma urophorum* and *Entolasia stricta*, and a diverse shrub layer including *Leptospermum trinervium*, *Banksia paludosa*, *Allocasuarina littoralis*, *Acacia elongata*, *Hibbertia empetrifolia* subsp. *empetrifolia* and *Aotus ericoides*.

Sample Sites: 20

Area Extant (ha): 18500

Estimated % remaining: >90%

Area in conservation reserves (ha): 16600

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

No. taxa (total / unique): 266 / 1

No. taxa per plot ( $\pm$ sd): 41.3 (11.9)

Class: Sydney Montane Dry Sclerophyll Forests

Related TEC: n/a

Morton Sandstone Heath Woodland (DSF p149) is identical to DSF 149 identified by Tindall *et al.* (2004). It is a low eucalypt woodland with an abundant sclerophyll shrub strata and an open groundcover. This unit occurs predominantly on the elevated sandstone country of the Morton, Ettrema and Danjera plateaux from Penrose south to Corang Hill. It occupies sandy loams derived from Nowra sandstone and the Berry formation between 550 and 1000m elevation in areas receiving an average annual rainfall from 780-1200mm. With decreasing soil depth Morton Sandstone Heath Woodland is replaced by Morton Mallee-Heath (HL p122) and the two units form a complex mosaic interspersed with isolated patches of Morton Rock Plate Heath (HL p125). Morton Sandstone Heath Woodland is replaced to the east at lower elevations by Shoalhaven Sandstone Forest (DSF p148).

Morton Sandstone Heath Woodland occupies large areas within Morton National Park and has escaped appreciable land clearing.

**Floristic Summary:**

**Trees:** *Eucalyptus sieberi*, *E. agglomerata*, *E. sclerophylla*. **Shrubs:** *Hakea dactyloides*, *Leptospermum trinervium*, *Banksia spinulosa*, *Acacia terminalis*, *Amperea xiphoclada*, *Leptospermum polygalifolium*, *Allocasuarina littoralis*.

**Groundcover:** *Entolasia stricta*, *Microlaena stipoides*, *Lomandra obliqua*, *Lepidosperma urophorum*, *Patersonia glabrata*, *P. sericea*.

**Vegetation structure:**

Stratum	Frequency (n=19)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	95	16 (5.4)	17.4 (9.5)
Small tree	74	6 (3.7)	19.6 (16.9)
Shrub	63	2.3 (0.6)	39.4 (24.7)
Ground cover	89	0.7 (0.3)	15.1 (14.5)

**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 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 13 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	35	1(1-1)	1
<i>Acacia elongata</i>	1(1-1)	30	1(1-1)	1
<i>Acacia obtusifolia</i>	1(1-2)	40	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	50	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	35	1(1-1)	10
<i>Allocasuarina littoralis</i>	1(1-1)	50	1(1-2)	17
<i>Amperea xiphoclada</i>	1(1-1)	50	1(1-1)	7
<i>Anisopogon avenaceus</i>	1(1-1)	25	1(1-2)	5
<i>Aotus ericoides</i>	1(1-2)	50	1(1-1)	3
<i>Banksia paludosa</i>	1(1-2)	35	1(1-2)	3
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	70	1(1-2)	15
<i>Bossiaea heterophylla</i>	1(1-1)	40	1(1-1)	6
<i>Dampiera purpurea</i>	1(1-1)	20	1(1-1)	4
<i>Entolasia stricta</i>	1(1-1)	75	1(1-2)	34
<i>Eucalyptus agglomerata</i>	1(1-2)	30	2(1-3)	7
<i>Eucalyptus mannifera</i>	1(1-1)	30	2(1-3)	4
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-3)	30	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	1(1-3)	40	2(1-3)	4
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	45	1(1-2)	14
<i>Grevillea linearifolia</i>	1(1-1)	25	1(1-1)	1
<i>Grevillea patulifolia</i>	1(1-1)	25	1(1-1)	<1
<i>Hakea dactyloides</i>	1(1-2)	85	1(1-1)	12
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	35	1(1-1)	6
<i>Isopogon anemonifolius</i>	1(1-1)	30	1(1-1)	8
<i>Isopogon anethifolius</i>	1(1-1)	40	1(1-1)	2
<i>Kunzea ambigua</i>	1(1-2)	30	1(1-2)	4
<i>Lagenifera gracilis</i>	1(1-1)	20	1(1-1)	3
<i>Lepidosperma urophorum</i>	1(1-1)	50	1(1-2)	7
<i>Leptospermum polygalifolium</i>	1(1-2)	55	1(1-2)	8
<i>Leptospermum rotundifolium</i>	2(1-2)	35	1(1-2)	1
<i>Leptospermum trinervium</i>	1(1-2)	80	1(1-2)	15
<i>Leucopogon ericoides</i>	1(1-1)	20	1(1-1)	2
<i>Lomandra cylindrica</i>	2(1-2)	30	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	45	1(1-1)	11
<i>Lomandra gracilis</i>	1(1-1)	20	1(1-1)	3
<i>Lomatia ilicifolia</i>	1(1-1)	40	1(1-1)	6
<i>Lomandra obliqua</i>	1(1-1)	65	1(1-1)	14
<i>Microlaena stipoides</i>	1(1-2)	75	1(1-2)	36
<i>Mitrasacme polymorpha</i>	1(1-1)	20	1(1-1)	3
<i>Patersonia glabrata</i>	1(1-2)	50	1(1-1)	10
<i>Patersonia longifolia</i>	1(1-1)	35	1(1-1)	2

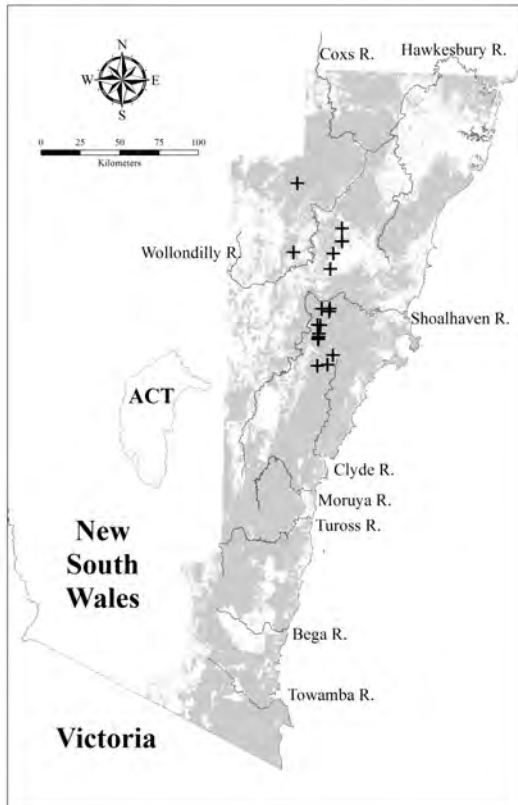
<i>Patersonia sericea</i>	1(1-1)	45	1(1-1)	9
<i>Persoonia mollis</i> subsp. <i>leptophylla</i>	1(1-1)	30	1(1-1)	1
<i>Petrophile pedunculata</i>	1(1-2)	20	1(1-1)	3
<i>Petrophile sessilis</i>	1(1-1)	35	1(1-1)	2
<i>Platysace lanceolata</i>	1(1-2)	40	1(1-1)	13
<i>Rhytidosporum procumbens</i>	1(1-1)	25	1(1-1)	3
<i>Tetratheca thymifolia</i>	1(1-1)	30	1(1-1)	6

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	50	1(1-1)	28
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	40	1(1-1)	15
<i>Eucalyptus sieberi</i>	2(1-3)	40	2(1-3)	16
<i>Gonocarpus tetragynus</i>	1(1-1)	45	1(1-1)	20
<i>Lepidosperma laterale</i>	1(1-1)	40	1(1-1)	29
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	30	1(1-1)	24
<i>Lomandra longifolia</i>	1(1-2)	65	1(1-1)	44
<i>Monotoca scoparia</i>	1(1-1)	30	1(1-1)	12
<i>Persoonia linearis</i>	1(1-1)	50	1(1-1)	29
<i>Pomax umbellata</i>	1(1-2)	30	1(1-1)	14
<i>Pteridium esculentum</i>	1(1-1)	45	1(1-2)	37
<i>Viola hederacea</i>	1(1-1)	30	1(1-1)	22

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	1(1-1)	5	2(1-2)	16
<i>Eucalyptus apiculata</i>	3(2-3)	10	2(1-3)	<1
<i>Eucalyptus blaxlandii</i>	1(1-1)	5	1(1-3)	1
<i>Eucalyptus consideniana</i>	2(1-2)	10	2(1-2)	2
<i>Eucalyptus dives</i>	2(1-2)	10	2(1-3)	4
<i>Eucalyptus elata</i>	3(1-3)	10	2(1-3)	5
<i>Eucalyptus globoidea</i>	1(1-1)	5	2(1-2)	12
<i>Eucalyptus gregsoniana</i>	1(1-1)	5	2(2-2)	<1
<i>Eucalyptus piperita</i>	3(1-3)	15	2(1-3)	9
<i>Eucalyptus punctata</i>	3(3-3)	10	1(1-3)	9
<i>Eucalyptus ralla</i>	3(3-3)	5	3(3-3)	<1
<i>Eucalyptus rossii</i>	3(1-3)	10	3(1-3)	2
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	2(1-2)	10	1(1-2)	2
<i>Eucalyptus smithii</i>	2(2-2)	5	1(1-2)	2
<i>Eucalyptus stricta</i>	1(1-1)	10	1(1-2)	1



Locations of survey sites allocated to DSF p149. Grey shading indicates extant native vegetation cover within the study area.

**WSF p153: Blue Gum High Forest**



Plate p153. Blue Gum High Forest (Map Unit p153) on the Hornsby Plateau, where a canopy of majestic *Eucalyptus saligna* towers above scattered *Elaeocarpus reticulatus* and *Pittosporum undulatum* and a ferny ground layer dominated by *Calochlaena dubia* and *Lomandra longifolia*.

Sample Sites: 10  
 Area Extant (ha): 180

Estimated % remaining: <10%

Area in conservation reserves (ha): 20

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

No. taxa (total / unique): 177 / 1

No. taxa per plot ( $\pm$ sd): 44.4 (7.5)

Class: North Coast Wet Sclerophyll Forests

Related TECs: Blue Gum High Forest CEEC (TSC) and Blue Gum High Forest CEEC (EPBC)

Blue Gum High Forest (WSF p153) is equivalent to Map Unit 153 in Tozer (2003) and WSF 153 described by Tindall et al. (2004). It is a tall eucalypt forest characterised by an open mesic tree/shrub layer and an open moist groundcover. This tall forest has a restricted distribution on wet shale ridges of the Hornsby plateau in northeast Sydney where annual rainfall exceeds 1000mm and at elevations above 100m ASL. With decreasing rainfall Blue Gum High Forest grades into Sydney Turpentine Ironbark Forest (WSF p87).

Most of Blue Gum High Forest's original range has been cleared for urban development, and the remainder faces ongoing threat from weed invasion, fragmentation, altered fire regimes, rubbish dumping and recreational pressures.

#### Floristic Summary:

**Trees:** *Allocasuarina torulosa*, *Angophora costata*, *Elaeocarpus reticulatus*, *Eucalyptus saligna*, *E. pilularis*. **Shrubs:** *Breynia oblongifolia*, *Pittosporum undulatum*, *Leucopogon juniperinus*, *Pittosporum revolutum*, *Maytenus silvestris*, *Clerodendrum tomentosum*, *Platylobium formosum*, *Polyscias sambucifolia* subsp. A, *Rapanea variabilis*. **Climbers:** *Tylophora barbata*, *Eustrephus latifolius*, *Pandorea pandorana*, *Clematis aristata*. **Groundcover:** *Lomandra longifolia*, *Adiantum aethiopicum*, *Entolasia marginata*, *Pseuderanthemum variabile*, *Dianella caerulea*, *Calochlaena dubia*, *Oplismenus imbecillis*, *Poa affinis*.

#### Vegetation structure:

Stratum	Frequency (n=7)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	40.7 (14)	25.7 (15.9)
Small tree	100	14.7 (0.8)	34.3 (17.4)
Shrub	29	2 (1.4)	44 (50.9)
Ground cover	100	1 (0)	41.4 (30.6)

#### 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 39 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 15 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Adiantum aethiopicum</i>	2(1-3)	80	1(1-1)	9
<i>Adiantum hispidulum</i>	1(1-1)	20	1(1-1)	2
<i>Allocasuarina torulosa</i>	1(1-2)	70	1(1-3)	5
<i>Alphitonia excelsa</i>	1(1-1)	20	1(1-1)	1
<i>Angophora costata</i>	1(1-3)	60	1(1-3)	7
<i>Blechnum cartilagineum</i>	2(1-3)	50	1(1-2)	11
<i>Brachychiton acerifolius</i>	1(1-1)	20	1(1-1)	1
<i>Breynia oblongifolia</i>	1(1-1)	80	1(1-1)	12
<i>Brunoniella australis</i>	2(1-2)	30	2(1-2)	4
<i>Calochlaena dubia</i>	1(1-1)	60	1(1-3)	9
<i>Carex maculata</i>	1(1-1)	20	0(0-0)	0
<i>Cayratia clematidea</i>	1(1-1)	30	1(1-1)	3
<i>Clerodendrum tomentosum</i>	1(1-2)	40	1(1-1)	5
<i>Dianella caerulea</i>	1(1-1)	80	1(1-1)	28
<i>Elaeocarpus reticulatus</i>	1(1-2)	60	1(1-1)	12
<i>Entolasia marginata</i>	2(1-2)	80	1(1-1)	11

<i>Eucalyptus pilularis</i>	3(2-4)	50	2(1-3)	5
<i>Eucalyptus saligna X botryoides</i>	4(1-4)	40	2(1-3)	2
<i>Eustrephus latifolius</i>	2(1-2)	80	1(1-1)	19
<i>Exocarpos cupressiformis</i>	1(1-2)	30	1(1-1)	5
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	2(1-3)	30	1(1-1)	2
<i>Leucopogon juniperinus</i>	1(1-1)	60	1(1-1)	5
<i>Lomandra longifolia</i>	2(1-2)	100	1(1-1)	44
<i>Maytenus silvestris</i>	1(1-2)	50	1(1-1)	1
<i>Morinda jasminoides</i>	3(3-3)	50	1(1-2)	9
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	50	1(1-1)	8
<i>Oplismenus aemulus</i>	2(1-2)	50	1(1-2)	5
<i>Ozothamnus diosmifolius</i>	1(1-1)	40	1(1-1)	9
<i>Pandorea pandorana</i>	2(1-2)	70	1(1-1)	18
<i>Passiflora herbertiana</i> subsp. <i>herbertiana</i>	1(1-1)	20	1(1-1)	1
<i>Pittosporum revolutum</i>	2(1-2)	60	1(1-1)	8
<i>Pittosporum undulatum</i>	2(2-4)	60	1(1-1)	14
<i>Platylobium formosum</i>	2(1-2)	40	1(1-1)	3
<i>Poa affinis</i>	2(1-3)	50	1(1-2)	2
<i>Polyscias sambucifolia</i>	2(1-2)	40	1(1-1)	6
<i>Pratia purpurascens</i>	2(1-2)	60	1(1-1)	17
<i>Pseuderanthemum variabile</i>	2(1-2)	70	1(1-2)	9
<i>Rapanea variabilis</i>	2(1-3)	40	1(1-1)	4
<i>Smilax glyciphylla</i>	1(1-1)	50	1(1-1)	8
<i>Tristaniopsis laurina</i>	1(1-1)	20	1(1-3)	2
<i>Tylophora barbata</i>	1(1-2)	90	1(1-1)	17

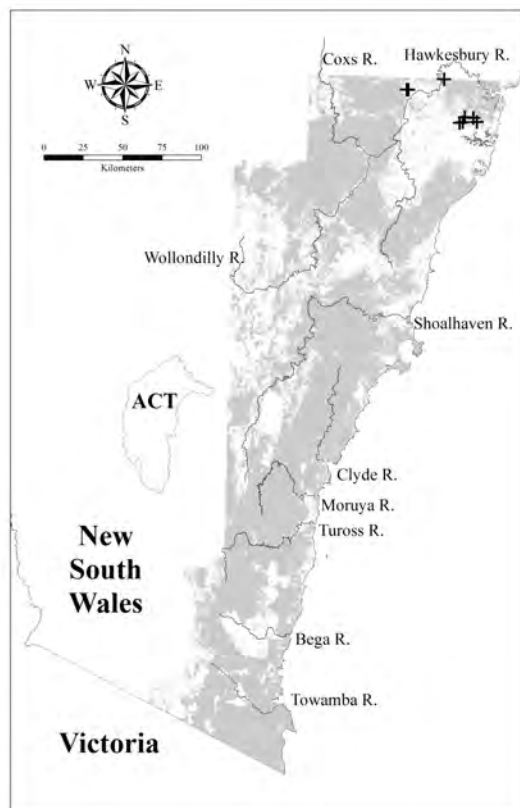
## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia implexa</i>	1(1-1)	30	1(1-1)	7
<i>Acmena smithii</i>	1(1-1)	30	2(1-3)	9
<i>Angophora floribunda</i>	1(1-2)	30	1(1-2)	9
<i>Asplenium flabellifolium</i>	1(1-1)	40	1(1-1)	12
<i>Backhousia myrtifolia</i>	4(2-4)	30	2(1-3)	5
<i>Bursaria spinosa</i>	1(1-1)	30	1(1-2)	14
<i>Cassutha glabella</i>	1(1-2)	30	1(1-1)	8
<i>Cissus hypoglauca</i>	3(1-4)	30	1(1-2)	10
<i>Clematis aristata</i>	1(1-1)	50	1(1-1)	20
<i>Corymbia gummifera</i>	1(1-1)	30	2(1-2)	16
<i>Dodonaea triquetra</i>	1(1-1)	30	1(1-2)	6
<i>Doodia aspera</i>	2(1-3)	40	1(1-2)	12
<i>Echinopogon ovatus</i>	1(1-1)	30	1(1-1)	14
<i>Entolasia stricta</i>	1(1-1)	60	1(1-2)	34
<i>Geitonoplesium cymosum</i>	2(1-2)	30	1(1-1)	16
<i>Glycine clandestina</i>	1(1-2)	50	1(1-1)	26
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-2)	30	1(1-1)	10
<i>Hydrocotyle laxiflora</i>	1(1-1)	30	1(1-1)	16

<i>Imperata cylindrica</i> var. <i>major</i>	2(1-2)	30	1(1-2)	10
<i>Lepidosperma laterale</i>	1(1-1)	40	1(1-1)	29
<i>Marsdenia rostrata</i>	1(1-2)	30	1(1-2)	12
<i>Oplismenus imbecillis</i>	1(1-2)	50	1(1-2)	14
<i>Oxalis perennans</i>	1(1-1)	40	1(1-1)	13
<i>Persoonia linearis</i>	1(1-2)	40	1(1-1)	29
<i>Pteridium esculentum</i>	1(1-1)	60	1(1-2)	37
<i>Smilax australis</i>	1(1-3)	40	1(1-1)	16
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	30	1(1-1)	7
<i>Themeda australis</i>	1(1-3)	40	1(1-3)	17

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora hispida</i>	1(1-1)	10	1(1-2)	1
<i>Corymbia eximia</i>	1(1-1)	10	1(1-2)	2
<i>Eucalyptus globoidea</i>	1(1-1)	20	2(1-2)	12
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	20	1(1-2)	3
<i>Eucalyptus piperita</i>	2(1-2)	20	2(1-3)	9
<i>Eucalyptus punctata</i>	1(1-1)	20	2(1-3)	9
<i>Eucalyptus tereticornis</i>	1(1-1)	10	2(1-3)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	10	2(1-3)	8



Locations of survey sites allocated to WSF p153. Grey shading indicates extant native vegetation cover within the study area.

**WSF p168: Shale-Basalt Sheltered Forest**

Plate p168. Shale-Basalt Sheltered Forest (Map Unit p168) on the Illawarra Range between Mount Murray Road and Macquarie Pass, where a very tall canopy of *Eucalyptus obliqua* and *E. cypellocarpa* towers above scattered *Acacia melanoxylon*, a sparse shrub layer including *Coprosma quadrifida* and *Cyathea australis*, and a dense groundcover dominated by *Poa labillardierei*, *Blechnum cartilagineum* and *Lomandra longifolia*.

Sample Sites: 51

Area Extant (ha): 2500

Estimated % remaining: 20-35%

Area in conservation reserves (ha): 350

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

No. taxa (total / unique): 337 / 1

No. taxa per plot ( $\pm$ sd): 38.6 (10.8)

Class: Southern Tableland Wet Sclerophyll Forests

Related TECs: includes Blue Mountains Shale Cap Forest EEC (TSC).

Shale-Basalt Sheltered Forest (WSF p168) is identical to WSF 168 identified by Tindall *et al.* (2004). It represents a tall eucalypt forest with an open shrub layer and a moist herbaceous groundcover. This unit is distributed along moist elevated ridgetops and peaks on fertile soils in the Blue Mountains, the upper Woronora plateau and in the Southern Highlands. Examples can be found near Bilpin, Mt Wilson, Mt Banks, Mt Hay and Mt Tomah in the Blue Mountains and near Wingello and Robertson on the Southern Highlands plateau. Within this distribution Shale-Basalt Sheltered Forest occurs on shale derived soils and soils developed along the shale/basalt boundary between 450 and 900m ASL, usually in areas receiving a mean annual rainfall of more than 1200mm. On the Southern Highlands plateau Shale-Basalt Sheltered Forest grades into Southern Highlands Shale Forest (WSF p268) with decreasing rainfall. On adjacent Basalt substrates Shale-Basalt Sheltered Forest is replaced by either Southern Highlands Basalt Forest (WSF p266) or Blue Mountains Basalt Forest (WSF p72).

Substantial areas of Shale-Basalt Sheltered Forest have been cleared, particularly around Bilpin and in the Southern Highlands. Remaining areas face ongoing threats from weed invasion, grazing, and continuing small scale clearing associated with subdivision developments.

**Floristic Summary:**

**Trees:** *Eucalyptus piperita*, *E. globoidea*, *E. cypellocarpa*. **Shrubs:** *Leucopogon lanceolatus*, *Indigofera australis*, *Goodenia ovata*, *Polyscias sambucifolia subsp. A*. **Climbers:** *Tylophora barbata*, *Eustrephus latifolius*, *Glycine clandestina*, *Clematis aristata*. **Groundcover:** *Dianella caerulea*, *Microlaena stipoides*, *Lomandra longifolia*, *Pteridium esculentum*, *Viola hederacea*, *Dichondra spp.*, *Pratia purpurascens*, *Doodia aspera*, *Hydrocotyle peduncularis*, *Adiantum aethiopicum*, *Blechnum cartilagineum*, *Galium binifolium*.

**Vegetation structure:**

Stratum	Frequency (n=41)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	24.5 (8)	33.3 (7.9)
Small tree	71	7.6 (4.1)	21 (22.6)
Shrub	49	2 (0.6)	15.3 (13.7)
Ground cover	100	0.9 (0.3)	53.2 (30.9)

**Diagnostic Species:**

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

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	1(1-2)	22	1(1-2)	2
<i>Acacia longifolia</i>	1(1-1)	27	1(1-2)	9
<i>Acacia melanoxylon</i>	1(1-1)	20	1(1-1)	6
<i>Adiantum aethiopicum</i>	1(1-1)	31	1(1-2)	9
<i>Billardiera scandens</i>	1(1-1)	59	1(1-1)	27
<i>Blechnum cartilagineum</i>	2(1-3)	47	1(1-2)	11
<i>Calochlaena dubia</i>	1(1-2)	24	1(1-3)	9
<i>Carex longebrachiata</i>	1(1-1)	16	1(1-2)	3
<i>Clematis aristata</i>	1(1-1)	55	1(1-1)	20
<i>Dianella caerulea</i>	1(1-1)	94	1(1-1)	28
<i>Dichondra spp.</i>	1(1-2)	49	1(1-2)	25
<i>Entolasia marginata</i>	1(1-1)	35	1(1-1)	11
<i>Eucalyptus cypellocarpa</i>	2(1-3)	33	2(1-2)	10
<i>Eucalyptus globoidea</i>	2(1-3)	39	2(1-2)	12
<i>Eucalyptus piperita</i>	2(1-3)	53	2(1-3)	9
<i>Eucalyptus smithii</i>	2(1-2)	14	1(1-2)	2
<i>Eustrephus latifolius</i>	1(1-1)	49	1(1-1)	19
<i>Galium binifolium</i>	1(1-1)	27	1(1-1)	3
<i>Glycine clandestina</i>	1(1-1)	53	1(1-1)	26
<i>Gonocarpus teucroides</i>	1(1-1)	49	1(1-1)	17
<i>Goodenia ovata</i>	1(1-2)	27	1(1-1)	7
<i>Helichrysum elatum</i>	1(1-1)	29	1(1-1)	2
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	35	1(1-1)	10
<i>Hibbertia scandens</i>	1(1-2)	33	1(1-1)	5
<i>Hydrocotyle peduncularis</i>	2(1-2)	29	1(1-1)	9
<i>Indigofera australis</i>	1(1-2)	31	1(1-1)	9
<i>Kennedia rubicunda</i>	1(1-2)	24	1(1-1)	6
<i>Lachnagrostis filiformis</i>	1(1-1)	16	1(1-1)	3
<i>Leptospermum polygalifolium</i>	1(1-2)	27	1(1-2)	8
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	86	1(1-1)	23
<i>Lomandra longifolia</i>	1(1-2)	84	1(1-1)	44
<i>Microlaena stipoides</i>	1(1-2)	67	1(1-2)	36
<i>Notelaea venosa</i>	1(1-1)	29	1(1-1)	12



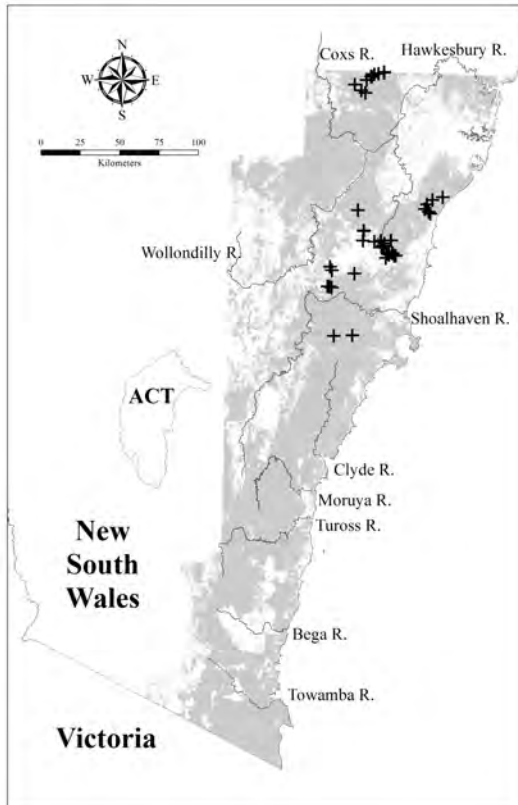
<i>Persoonia mollis</i> subsp. <i>mollis</i>	1(1-1)	16	1(1-1)	1
<i>Polyscias sambucifolia</i>	1(1-1)	37	1(1-1)	6
<i>Poranthera microphylla</i>	1(1-1)	45	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	69	1(1-1)	17
<i>Pteridium esculentum</i>	1(1-2)	86	1(1-2)	37
<i>Smilax australis</i>	2(1-2)	33	1(1-1)	16
<i>Tylophora barbata</i>	2(1-2)	69	1(1-1)	16
<i>Veronica plebeia</i>	1(1-1)	31	1(1-1)	10
<i>Viola hederacea</i>	1(1-1)	75	1(1-1)	22

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Entolasia stricta</i>	1(1-2)	37	1(1-2)	34
<i>Gonocarpus tetragynus</i>	1(1-1)	31	1(1-1)	20
<i>Lepidosperma laterale</i>	1(1-1)	31	1(1-1)	29
<i>Persoonia linearis</i>	1(1-1)	39	1(1-1)	29

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	2(1-4)	6	1(1-3)	7
<i>Angophora floribunda</i>	1(1-1)	2	1(1-2)	9
<i>Corymbia gummifera</i>	1(1-3)	6	2(1-2)	16
<i>Eucalyptus blaxlandii</i>	3(2-4)	10	1(1-3)	1
<i>Eucalyptus deanei</i>	3(1-4)	6	3(1-3)	1
<i>Eucalyptus dives</i>	3(3-3)	6	2(1-3)	4
<i>Eucalyptus elata</i>	4(3-4)	4	2(1-2)	5
<i>Eucalyptus fastigata</i>	3(3-3)	4	2(1-3)	6
<i>Eucalyptus notabilis</i>	2(2-2)	2	1(1-1)	1
<i>Eucalyptus obliqua</i>	2(1-2)	14	2(1-3)	4
<i>Eucalyptus oreades</i>	1(1-1)	2	3(1-3)	<1
<i>Eucalyptus ovata</i>	3(1-3)	6	2(1-2)	1
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	8	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(2-2)	2	2(1-3)	5
<i>Eucalyptus punctata</i>	3(1-3)	14	1(1-3)	9
<i>Eucalyptus quadrangulata</i>	2(1-3)	6	3(1-3)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-2)	12	2(1-3)	6
<i>Eucalyptus saligna</i> X <i>botryoides</i>	3(1-3)	6	2(1-3)	2
<i>Eucalyptus sieberi</i>	1(1-2)	6	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	1(1-1)	2	2(1-3)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	3(3-3)	14	2(1-3)	8



Locations of survey sites allocated to WSF p168. Grey shading indicates extant native vegetation cover within the study area.

### DSF p202: Burragarang Rocky Slopes Woodland



Plate p202. Burragarang Rocky Slopes Woodland (Map Unit p202) on the Douglas Scarp, Burragarang Valley. The tree canopy is comprised of *Callitris endlicheri* and *Eucalyptus crebra*, with a distinct shrub layer dominated by *Leucopogon muticus* and *Lissanthe strigosa*, and a sparse groundcover with a moderate diversity of grasses and forbs.

Sample Sites: 14  
 Area Extant (ha): 2200  
 Estimated % remaining: 45-65%  
 Area in conservation reserves (ha): 2200  
 Estimated % of pre-clearing area in conservation reserves: 45-55%  
 No. taxa (total / unique): 209 / 2  
 No. taxa per plot ( $\pm$ sd): 41.8 (7.8)

Class: Cumberland Dry Sclerophyll Forests  
Related TEC: n/a

Burratorang Rocky Slopes Woodland (DSF p202) is identical to DSF 202 identified by Tindall *et al.* (2004). It is a eucalypt woodland with an open understorey of sclerophyll shrubs and grasses. It occurs at 150 – 450m ASL on loamy soils on the dry rocky escarpment slopes of the lower Nattai and Wollondilly river valleys, and adjacent to the upper reaches of Lake Burratorang, where average annual rainfall varies from 770 to 950mm. Large areas are thus protected in the Warragamba catchment area within Blue Mountains National Park. Burratorang Rocky Slopes Woodland shows some floristic variability associated with topographic variation from the rocky Douglas Scarp to the gently sloping foreshores of Lake Burratorang. Stands in this latter area resemble Castlereagh Shale-Gravel Transition Forest (GW p502).

#### Floristic Summary:

**Trees:** *Eucalyptus crebra*, *Acacia binervia*. **Shrubs:** *Lissanthe strigosa*, *Persoonia linearis*, *Astroloma humifusum*, *Phyllanthus hirtellus*, *Leucopogon muticus*, *Olearia viscidula*, *Ozothamnus diosmifolius*. **Climbers:** *Glycine clandestina*. **Groundcover:** *Cheilanthes sieberi*, *Pomax umbellata*, *Pratia purpurascens*, *Dichondra* spp., *Lepidosperma laterale*, *Aristida vagans*, *Goodenia hederacea*, *Solanum prinophyllum*, *Lomandra filiformis* ssp *coriacea*, *Cymbopogon refractus*.

#### Vegetation structure:

Stratum	Frequency (n=11)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	22.5 (8.2)	26.8 (11.8)
Small tree	55	10.8 (5.1)	14.5 (13.6)
Shrub	91	2.3 (0.4)	16 (12.5)
Ground cover	100	0.7 (0.3)	24.5 (17.1)

#### 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 36 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 13 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervia</i>	1(1-3)	43	1(1-3)	<1
<i>Allocasuarina verticillata</i>	1(1-3)	21	1(1-2)	<1
<i>Aristida vagans</i>	1(1-2)	64	1(1-2)	8
<i>Astroloma humifusum</i>	1(1-2)	71	1(1-1)	4
<i>Austrodanthonia tenuior</i>	1(1-2)	21	1(1-2)	2
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	1(1-1)	36	1(1-1)	3
<i>Brachyscome angustifolia</i>	1(1-1)	29	1(1-1)	2
<i>Brunoniella australis</i>	1(1-3)	36	2(1-2)	4
<i>Callitris endlicheri</i>	3(1-3)	29	1(1-2)	<1
<i>Cheilanthes distans</i>	1(1-1)	21	1(1-1)	2
<i>Cheilanthes sieberi</i>	1(1-2)	86	1(1-1)	14
<i>Chloris ventricosa</i>	1(1-1)	21	1(1-2)	1
<i>Cymbopogon refractus</i>	1(1-2)	50	1(1-1)	4
<i>Dichondra</i> spp.	1(1-1)	64	1(1-2)	25
<i>Digitaria ramularis</i>	1(1-2)	21	1(1-1)	2
<i>Eragrostis brownii</i>	1(1-1)	29	1(1-1)	3
<i>Eucalyptus crebra</i>	3(2-3)	71	2(1-3)	3
<i>Eucalyptus fibrosa</i>	3(1-4)	29	2(1-3)	3
<i>Eucalyptus moluccana</i>	4(3-4)	29	3(1-3)	2
<i>Gahnia aspera</i>	2(1-3)	36	1(1-1)	4

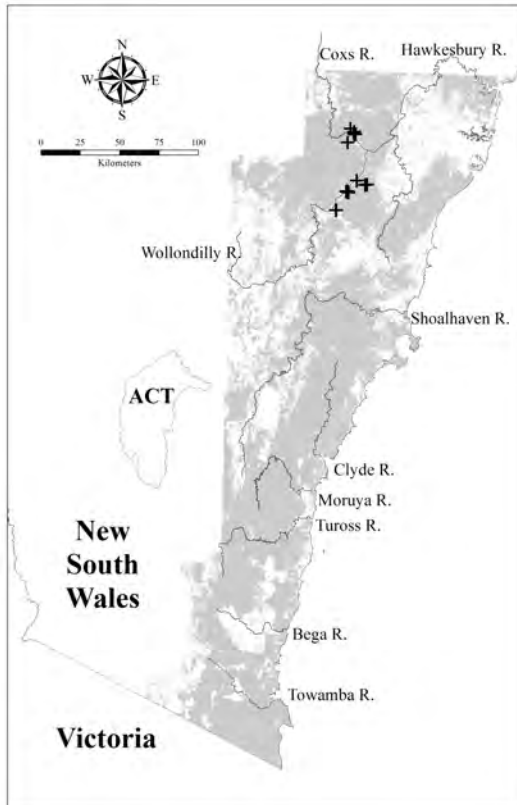
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	64	1(1-2)	14
<i>Hibbertia diffusa</i>	1(1-1)	21	1(1-1)	3
<i>Jacksonia scoparia</i>	1(1-1)	29	1(1-1)	2
<i>Laxmannia gracilis</i>	1(1-1)	36	1(1-1)	4
<i>Lepidosperma laterale</i>	1(1-2)	71	1(1-1)	29
<i>Leucopogon muticus</i>	2(1-3)	50	1(1-1)	1
<i>Lissanthe strigosa</i>	1(1-3)	79	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-1)	57	1(1-2)	10
<i>Notodanthonia longifolia</i>	1(1-3)	29	1(1-2)	5
<i>Olearia viscidula</i>	2(1-2)	43	1(1-2)	5
<i>Opercularia hispida</i>	1(1-1)	21	1(1-1)	3
<i>Ozothamnus diosmifolius</i>	1(1-1)	43	1(1-1)	9
<i>Panicum effusum</i>	1(1-1)	29	1(1-1)	2
<i>Persoonia linearis</i>	1(1-1)	71	1(1-1)	29
<i>Phyllanthus hirtellus</i>	1(1-1)	57	1(1-1)	14
<i>Pomax umbellata</i>	1(1-1)	86	1(1-1)	14
<i>Pratia purpurascens</i>	1(1-1)	71	1(1-1)	17
<i>Sida corrugata</i>	1(1-3)	36	1(1-1)	<1
<i>Solanum prinophyllum</i>	1(1-1)	57	1(1-1)	6
<i>Stackhousia viminea</i>	1(1-2)	29	1(1-1)	3
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-2)	36	1(1-1)	4
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	1(1-2)	29	1(1-1)	1

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	57	1(1-1)	28
<i>Desmodium varians</i>	1(1-3)	36	1(1-1)	21
<i>Echinopogon ovatus</i>	1(1-1)	36	1(1-1)	14
<i>Entolasia stricta</i>	1(1-1)	64	1(1-2)	34
<i>Glycine clandestina</i>	1(1-1)	57	1(1-1)	26
<i>Hypericum gramineum</i>	1(1-1)	36	1(1-1)	16
<i>Lomandra longifolia</i>	1(1-3)	36	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	57	1(1-1)	25
<i>Microlaena stipoides</i>	1(1-1)	43	1(1-2)	36
<i>Poranthera microphylla</i>	1(1-1)	43	1(1-1)	15

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-3)	21	1(1-2)	9
<i>Eucalyptus eugenioides</i>	1(1-2)	21	2(1-3)	4
<i>Eucalyptus punctata</i>	1(1-1)	7	2(1-3)	9
<i>Eucalyptus sideroxylon</i>	4(4-4)	7	3(1-3)	<1
<i>Eucalyptus tereticornis</i>	1(1-3)	29	2(1-3)	7



Locations of survey sites allocated to DSF p202. Grey shading indicates extant native vegetation cover within the study area.

### RF p210: Temperate Littoral Rainforest



Plate p210. Temperate Littoral Rainforest (Map Unit p210) on a southeast-facing slope beside Lawrence Hargrave Drive south of the Seacliff Bridge at Clifton. A dense, wind-sculpted, closed canopy contains a diverse array of rainforest and coastal trees including *Acmena smithii*, *Guioa semiglauca*, *Eucalyptus botryoides*, *Pittosporum undulatum* and *Banksia integrifolia* subsp. *integrifolia*, with vines including *Geitonoplesium cymosum* and a very sparse groundcover of ferns and grasses.

Sample Sites: 31

Area Extant (ha): 470

Estimated % remaining: 70-90%

Area in conservation reserves (ha): 360

Estimated % of pre-clearing area in conservation reserves: 50-65%

No. taxa (total / unique): 176 / 1  
 No. taxa per plot ( $\pm$ sd): 33.5 (6.3)  
 Class: Littoral Rainforests  
 Related TEC: Littoral Rainforest EEC (TSC).

Temperate Littoral Rainforest (RF p210) is an extension of RF 210 identified by Tindall *et al.* (2004) to the south to include assemblage 5 (Bunga Head Rainforest) of Keith & Bedward (1999). This revised unit includes some changes to modelling in the far south.

This unit is a closed forest characterised by a dense tree canopy, lianas, a sparse shrub stratum and an open groundcover. This rainforest is restricted to sandspits and coastal gullies within a few hundred metres of the ocean. Within the study area small occurrences are distributed along the coast south from Sutherland in places where annual rainfall exceeds 950mm. Local concentrations occur from Garie to Stanwell Park and on the Beecroft Peninsula. Temperate Littoral Rainforest shares some species with Subtropical Dry Rainforest, Subtropical Complex Rainforest and Warm Temperate Layered Forest (RF p111, RF p112 and WSF p110) and replaces these units where Littoral influences predominate.

Temperate Littoral Rainforest has been significantly depleted by clearing for coastal development and, in the Kiama district, for agricultural development. Some stands are represented within conservation reserves, but these face intense pressures from recreational use and weed invasion.

#### Floristic Summary:

**Trees:** *Acmena smithii*, *Guioa semiglauca*, *Livistona australis*, *Diospyros australis*, *Podocarpus elatus*, *Eucalyptus botryoides*, *Pittosporum undulatum*, *Synoum glandulosum*, *Cassine australis*. **Shrubs:** *Eupomatia laurina*, *Ripogonum album*. **Climbers:** *Marsdenia rostrata*, *Sarcopetalum harveyanum*, *Stephania japonica*, *Smilax australis*, *Eustrephus latifolius*, *Cissus hypoglauca*, *Geitonoplesium cymosum*. **Groundcover:** *Oplismenus imbecillis*, *Viola hederacea*, *Pellaea falcata*, *Gahnia aspera*.

#### Vegetation structure:

Stratum	Frequency (n=9)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	44	14.8 (3.8)	12.5 (11.9)
Tree canopy	89	14.1 (9)	63.4 (25.9)
Small tree	44	10.5 (3.3)	47.5 (26.6)
Shrub	44	2.3 (0.6)	12.5 (6.5)
Ground cover	100	1 (0.5)	30 (22.4)

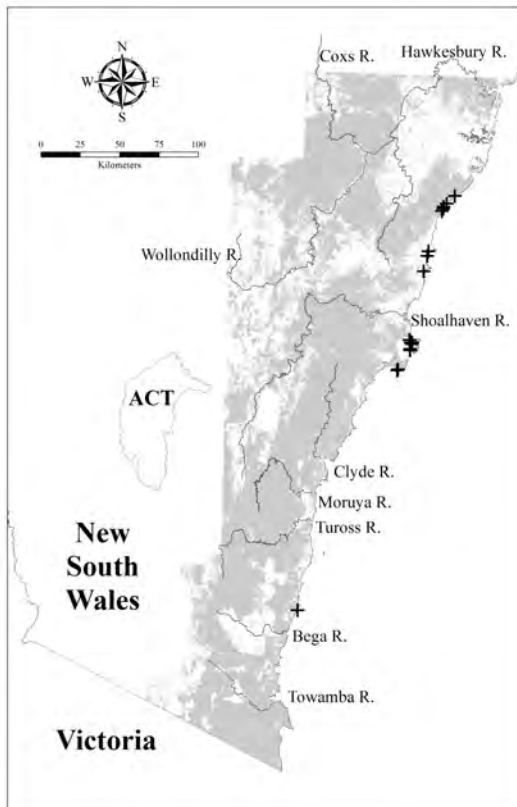
#### Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 16 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 29 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 16 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia maidenii</i>	1(1-1)	26	1(1-1)	3
<i>Acmena smithii</i>	1(1-3)	74	2(1-3)	9
<i>Acronychia oblongifolia</i>	1(1-2)	23	1(1-3)	1
<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	1(1-3)	23	1(1-2)	2
<i>Breynia oblongifolia</i>	1(1-1)	35	1(1-1)	12
<i>Cassine australis</i> var. <i>australis</i>	1(1-3)	87	1(1-3)	2
<i>Cissus antarctica</i>	1(1-1)	39	1(1-2)	3
<i>Cissus hypoglauca</i>	1(1-1)	58	1(1-2)	9
<i>Claoxylon australe</i>	1(1-1)	35	1(1-2)	3
<i>Cryptocarya microneura</i>	1(1-1)	26	1(1-3)	2
<i>Diospyros australis</i>	2(1-3)	68	1(1-2)	3
<i>Doodia aspera</i>	2(2-3)	32	1(1-2)	12
<i>Endiandra sieberi</i>	1(1-3)	32	1(1-2)	<1
<i>Eucalyptus botryoides</i>	1(1-3)	58	2(1-3)	3
<i>Eupomatia laurina</i>	1(1-1)	61	1(1-2)	4

<i>Eustrephus latifolius</i>	1(1-1)	71	1(1-1)	19
<i>Ficus coronata</i>	1(1-1)	32	1(1-2)	4
<i>Gahnia aspera</i>	1(1-1)	65	1(1-1)	4
<i>Gahnia sieberiana</i>	1(1-1)	29	1(1-1)	5
<i>Geitonoplesium cymosum</i>	1(1-1)	61	1(1-1)	16
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-1)	32	1(1-1)	2
<i>Guioa semiglauca</i>	1(1-3)	61	1(1-2)	1
<i>Hibbertia scandens</i>	1(1-1)	32	1(1-1)	5
<i>Livistona australis</i>	1(1-3)	65	1(1-1)	6
<i>Marsdenia rostrata</i>	1(1-1)	77	1(1-2)	12
<i>Morinda jasminoides</i>	1(1-1)	39	1(1-2)	9
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-1)	52	1(1-1)	7
<i>Notelaea venosa</i>	1(1-1)	48	1(1-1)	12
<i>Oplismenus imbecillis</i>	1(1-1)	84	1(1-2)	14
<i>Parsonsia straminea</i>	1(1-1)	29	1(1-1)	7
<i>Pellaea falcata</i>	1(1-1)	71	1(1-2)	10
<i>Pittosporum revolutum</i>	1(1-1)	29	1(1-1)	8
<i>Pittosporum undulatum</i>	2(1-3)	52	1(1-1)	14
<i>Platycerium bifurcatum</i>	1(1-1)	29	1(1-1)	1
<i>Podocarpus elatus</i>	1(1-2)	52	1(1-3)	<1
<i>Pseuderanthemum variabile</i>	1(1-2)	52	1(1-2)	9
<i>Rapanea variabilis</i>	1(1-1)	35	1(1-1)	4
<i>Ripogonum album</i>	1(1-1)	45	1(1-2)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	61	1(1-1)	4
<i>Sarcomelicope simplicifolia</i> subsp. <i>simplicifolia</i>	1(1-1)	29	1(1-3)	<1
<i>Schelhammera undulata</i>	1(1-1)	26	1(1-1)	7
<i>Smilax australis</i>	1(1-1)	58	1(1-1)	16
<i>Stellaria flaccida</i>	1(1-1)	39	1(1-1)	10
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	61	1(1-1)	6
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	1(1-1)	68	1(1-2)	7
<i>Viola hederacea</i>	1(1-1)	81	1(1-1)	22
<b>Constant:</b>				
Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-1)	55	1(1-1)	44
<b>Other tree species occurring less frequently in this community:</b>				
Species	C/A	Freq	C/A O	Freq O
<i>Corymbia gummifera</i>	2(2-2)	3	2(1-2)	16
<i>Eucalyptus longifolia</i>	1(1-1)	3	1(1-2)	2
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	3(1-3)	16	1(1-2)	3
<i>Eucalyptus pilularis</i>	3(1-3)	6	2(1-3)	5
<i>Eucalyptus punctata</i>	1(1-1)	3	2(1-3)	9
<i>Eucalyptus robusta</i>	3(3-3)	3	2(1-3)	<1
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	4(4-4)	16	2(1-3)	8



Locations of survey sites allocated to RF p210. Grey shading indicates extant native vegetation cover within the study area.

### DSF p219: Wombeyan Caves Woodland



Plate p219. Wombeyan Caves Woodland (Map Unit p219) west of Wombeyan Caves visitor centre. A sparse woodland canopy of *Eucalyptus bridgesiana* and *Brachychiton populneus* grows above scattered shrubs including *Acacia chalkeri* and *Cassinia laevis*, and groundcover dominated by tussocks of *Lomandra longifolia* and *Poa sieberiana* var. *sieberiana* between outcropping limestone.

Sample Sites: 4  
 Area Extant (ha): 310  
 Estimated % remaining: 60-80%  
 Area in conservation reserves (ha): 0  
 Estimated % of pre-clearing area in conservation reserves: <1%  
 No. taxa (total / unique): 70 / 1  
 No. taxa per plot ( $\pm$ sd): 26.5 (9.8)  
 Class: Central Gorge Dry Sclerophyll Forests  
 Related TEC: n/a



Wombeyan Caves Woodland (DSF p219) is equivalent to DSF 219 identified by Tindall *et al.* (2004). This unit is a eucalypt forest with a sparse shrub layer and a groundcover of herbs and grass. This unit occurs exclusively on dry clay soils derived from limestone. Its distribution is restricted to less than 300ha in a single location around Wombeyan Caves, representing less than two-thirds of its original extent. Average annual rainfall is approximately 750mm in this area and elevation ranges from 550 to 700m ASL. Wombeyan Caves Woodland shares some species with Abercrombie-Tarlo Footslope Woodland (DSF p19), but is distinguished by the locally endemic shrub, *Acacia chalkeri*. With an extremely small range, Wombeyan Caves Woodland may be at risk from continuing attrition and degradation.

#### Floristic Summary:

**Trees:** *Eucalyptus bridgesiana*, *Brachychiton populneus*. **Shrubs:** *Acacia chalkeri*, *Cassinia laevis*, *C. longifolia*, *Hymenanthera dentata*. **Groundcover:** *Dichondra* spp., *Lomandra longifolia*, *Hydrocotyle laxiflora*, *Poa sieberiana*, *Acaena novae-zelandiae*, *Austrostipa rudis* subsp. *nervosa*, *Cymbopogon refractus*, *Elymus scaber*, *Galium propinquum*, *Grevillea arenaria*, *Oxalis exilis*, *Plantago hispida*, *Wahlenbergia stricta*.

#### Vegetation structure:

Stratum	Frequency (n=3)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	8 (6.1)	30 (18)
Small tree	33	4 (-)	5 (-)
Shrub	-	- (-)	- (-)
Ground cover	100	0.7 (0.4)	21.7 (2.9)

#### Diagnostic Species:

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

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-1)	25	1(1-1)	1
<i>Acacia chalkeri</i>	2(1-2)	100	0(0-0)	0
<i>Austrodanthonia caespitosa</i>	1(1-1)	25	1(1-2)	1
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	1(1-1)	50	1(1-1)	3
<i>Brachyscome graminea</i>	1(1-1)	25	1(1-1)	<1
<i>Bulbine bulbosa</i>	1(1-1)	25	1(1-1)	<1
<i>Cassinia laevis</i>	2(2-3)	75	1(1-1)	1
<i>Cassinia longifolia</i>	1(1-1)	50	1(1-2)	6
<i>Cassinia uncata</i>	1(1-1)	25	1(1-1)	<1
<i>Chamaesyce drummondii</i>	1(1-1)	25	1(1-1)	<1
<i>Convolvulus erubescens</i>	1(1-1)	25	1(1-1)	1
<i>Cymbopogon refractus</i>	1(1-1)	50	1(1-1)	4
<i>Dianella revoluta</i> var. <i>revoluta</i>	2(1-2)	75	1(1-1)	15
<i>Dichondra</i> spp.	2(1-2)	100	1(1-2)	25
<i>Dodonaea viscosa</i> subsp. <i>angustifolia</i>	1(1-1)	25	1(1-1)	1
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	50	1(1-1)	5
<i>Eucalyptus bridgesiana</i>	1(1-2)	75	1(1-3)	1
<i>Grevillea arenaria</i> subsp. <i>arenaria</i>	4(3-4)	50	1(1-1)	1
<i>Hydrocotyle laxiflora</i>	1(1-1)	75	1(1-1)	16
<i>Lomandra longifolia</i>	2(1-2)	100	1(1-1)	44
<i>Luzula densiflora</i>	1(1-1)	25	1(1-1)	1
<i>Myoporum montanum</i>	1(1-1)	25	1(1-1)	<1
<i>Notelaea neglecta</i>	1(1-1)	25	1(1-1)	<1

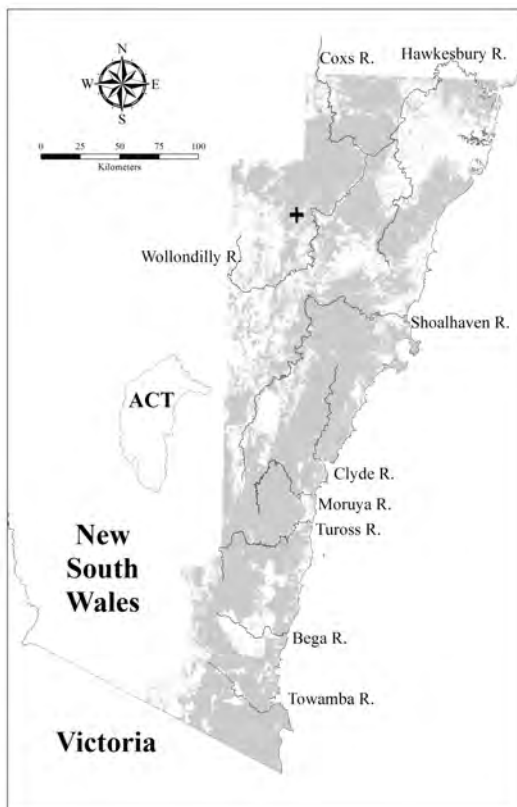
<i>Oxalis exilis</i>	1(1-1)	50	1(1-1)	3
<i>Plantago hispida</i>	1(1-1)	50	1(1-1)	<1
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-1)	75	1(1-2)	11
<i>Senna odorata</i>	1(1-1)	25	1(1-2)	<1
<i>Solanum aviculare</i>	1(1-1)	25	1(1-1)	1
<i>Wahlenbergia stricta</i> subsp. <i>stricta</i>	2(1-2)	50	1(1-1)	5

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acaena novae-zelandiae</i>	1(1-1)	50	1(1-1)	7
<i>Austrostipa rudis</i>	2(1-2)	50	1(1-2)	6
<i>Clematis aristata</i>	1(1-1)	50	1(1-1)	20
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	50	1(1-1)	10
<i>Galium propinquum</i>	1(1-1)	50	1(1-1)	7
<i>Hibbertia obtusifolia</i>	1(1-1)	50	1(1-1)	11
<i>Hymenanchera dentata</i>	1(1-1)	50	1(1-1)	6
<i>Lomandra glauca</i>	1(1-1)	50	1(1-1)	10
<i>Plectranthus parviflorus</i>	1(1-1)	50	1(1-1)	8

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus dives</i>	1(1-1)	25	2(1-3)	4
<i>Eucalyptus melliodora</i>	1(1-1)	25	1(1-3)	2



Locations of survey sites allocated to DSF p219. Grey shading indicates extant native vegetation cover within the study area.

**GW p220: Southern Tableland Flats Forest**

Plate p220. Southern Tableland Flats Forest (Map Unit p220) at Gilligan Park on the Araluen Road. The large tree in the centre is *Eucalyptus viminalis*, flanked on the right by *Acacia melanoxylon* and on the left by *Acacia dealbata*. Tussocks of *Poa labillardierei* var. *labillardierei* occupy the foreground.

Sample Sites: 57

Area Extant (ha): 58600

Estimated % remaining: 10-30%

Area in conservation reserves (ha): 22100

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

No. taxa (total / unique): 358 / 2

No. taxa per plot ( $\pm$ sd): 33.4 (14.6)

Class: Tableland Clay Grassy Woodlands

Related TEC: n/a

Southern Tableland Flats Forest (GW p220) represents a significant revision and extension of GW 220 identified by Tindall *et al.* (2004). This revision is based on a larger dataset over a wider study area. The revised unit is defined by sites originally allocated to GW 220 and to assemblages 23A (Monaro Grassland) and part of 23B (Monaro Basalt Grass Woodland) by Keith & Bedward (1999), plus a number of new far southern tableland sites.

Southern Tableland Flats Forest is an open eucalypt forest with a sparse shrub layer and continuous grassy groundcover. This unit is distributed over a wide range, from Boro east to Reidsdale and south to Snowball, Kybeyan, Cathcart and Coolmooka. It occurs on flat to gently undulating terrain from 600–1150m ASL and generally where average annual rainfall is at least 800mm. It is found largely on granite or acid volcanic soils, but includes a few records from basalts in the Nimmitabel, Glen Allen and Cathcart areas.

Southern Tableland Flats Forest shares a number of species with both Tableland Granite Grassy Woodland (GW p420) and Tableland Swamp Flats Forest (GW p520). These three units are all found predominantly on granite soils, but their distributions do not overlap extensively. Tableland Granite Grassy Woodland typically occurs on rolling hills and is generally restricted to areas north of Braidwood. Tableland Swamp Flats Forest occurs throughout the tablelands but is largely restricted to poorly drained alluvial soils.

Southern Tableland Flats Forest has been extensively cleared. Small extant areas are reserved in Tallaganda, Deua and Wadbilliga National Parks. Most remnants on private lands are subject to continuing degradation through grazing and weed invasion, and attrition through small scale clearing.

**Floristic Summary:**

**Trees:** *Eucalyptus viminalis*, *E. pauciflora*, *Acacia melanoxylon*, *E. radiata*. **Shrubs:** *Rubus parvifolius*.

**Groundcover:** *Microlaena stipoides*, *Dichondra* spp., *Glycine clandestina*, *Desmodium varians*, *Lomandra longifolia*, *Themeda australis*, *Pteridium esculentum*, *Acaena novae-zelandiae*, *Poa labillardierei*, *Gonocarpus tetragynus*, *Hypericum gramineum*.

**Vegetation structure:**

Stratum	Frequency (n=46)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	89	20.4 (6.3)	29 (10.6)
Small tree	63	9.5 (5.1)	20 (17.7)
Shrub	46	2.6 (1.1)	10.4 (12.1)
Ground cover	100	0.6 (0.3)	56.8 (30.9)

**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 22 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 13 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-2)	25	1(1-2)	5
<i>Acacia melanoxylon</i>	1(1-1)	49	1(1-1)	6
<i>Acaena echinata</i>	1(1-1)	19	1(1-1)	2
<i>Acaena novae-zelandiae</i>	1(1-1)	72	1(1-1)	7
<i>Acrotriche serrulata</i>	1(1-1)	23	1(1-1)	3
<i>Ajuga australis</i>	1(1-1)	21	1(1-1)	3
<i>Asperula conferta</i>	1(1-1)	25	1(1-1)	4
<i>Asperula scoparia</i>	1(1-1)	33	1(1-1)	2
<i>Austrodanthonia laevis</i>	1(1-1)	21	1(1-2)	1
<i>Austrodanthonia pilosa</i>	1(1-2)	19	1(1-1)	3
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-1)	26	1(1-2)	6
<i>Austrostipa rudis</i>	1(1-2)	26	1(1-2)	6
<i>Bossiaea buxifolia</i>	1(1-2)	26	1(1-1)	3
<i>Bursaria spinosa</i>	2(1-2)	33	1(1-2)	14
<i>Carex breviculmis</i>	1(1-1)	16	1(1-1)	4
<i>Carex inversa</i>	1(1-1)	14	1(1-1)	3
<i>Cymbonotus preissianus</i>	1(1-1)	16	1(1-1)	1
<i>Daviesia mimosoides</i>	1(1-2)	12	1(1-2)	2
<i>Desmodium varians</i>	1(1-1)	56	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	21	1(1-1)	4
<i>Dichelachne inaequiglumis</i>	1(1-1)	23	1(1-1)	3
<i>Dichondra</i> spp.	1(1-2)	72	1(1-2)	25
<i>Einadia nutans</i>	1(1-1)	18	1(1-1)	3
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	46	1(1-1)	5
<i>Epilobium billardioreanum</i>	1(1-1)	14	1(1-1)	2
<i>Eucalyptus pauciflora</i>	2(1-2)	72	1(1-2)	3
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(2-4)	30	2(1-3)	6
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-2)	12	1(1-2)	1
<i>Eucalyptus stellulata</i>	1(1-2)	19	1(1-2)	<1
<i>Eucalyptus viminalis</i>	3(2-3)	84	2(1-3)	4
<i>Euchiton gymnocephalus</i>	1(1-1)	26	1(1-1)	7
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	30	1(1-1)	8
<i>Glycine clandestina</i>	1(1-2)	61	1(1-1)	26

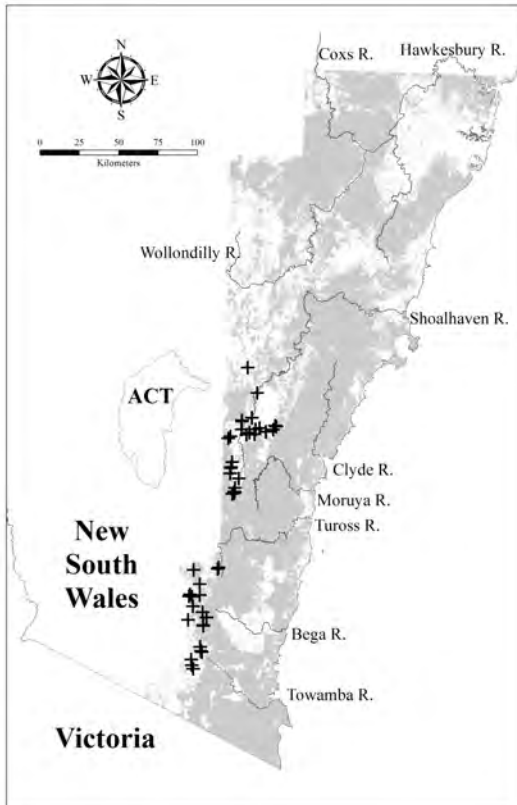
<i>Gonocarpus tetragynus</i>	1(1-1)	53	1(1-1)	20
<i>Helichrysum scorpioides</i>	1(1-1)	33	1(1-1)	7
<i>Hibbertia obtusifolia</i>	1(1-1)	28	1(1-1)	11
<i>Hovea linearis</i>	1(1-1)	30	1(1-1)	9
<i>Hydrocotyle laxiflora</i>	1(1-1)	46	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-1)	46	1(1-1)	16
<i>Microlaena stipoides</i>	2(1-3)	67	1(1-2)	36
<i>Oreomyrrhis eriopoda</i>	1(1-1)	25	1(1-1)	1
<i>Plantago varia</i>	1(1-1)	21	1(1-1)	2
<i>Poa meionectes</i>	2(1-3)	40	1(1-2)	16
<i>Poa sieberiana</i> var. <i>cyanophylla</i>	1(1-1)	14	1(1-2)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-3)	42	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-3)	63	1(1-2)	11
<i>Rubus parvifolius</i>	1(1-2)	56	1(1-1)	9
<i>Rumex brownii</i>	1(1-1)	18	1(1-1)	5
<i>Schoenus apogon</i>	1(1-1)	12	1(1-1)	2
<i>Scleranthus biflorus</i>	1(1-1)	44	1(1-1)	2
<i>Senecio prenanthoides</i>	1(1-1)	42	1(1-1)	8
<i>Stellaria pungens</i>	1(1-1)	46	1(1-1)	6
<i>Stylidium graminifolium</i>	1(1-1)	23	1(1-1)	9
<i>Themeda australis</i>	1(1-2)	74	1(1-3)	17
<i>Veronica calycina</i>	1(1-1)	37	1(1-1)	6
<i>Viola betonicifolia</i>	1(1-1)	32	1(1-1)	5

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-1)	63	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	32	1(1-1)	25
<i>Pteridium esculentum</i>	1(1-2)	46	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora floribunda</i>	1(1-1)	2	1(1-2)	9
<i>Eucalyptus cypellocarpa</i>	2(2-2)	2	2(1-2)	10
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	2(1-2)	11	1(1-2)	3
<i>Eucalyptus dives</i>	1(1-3)	9	2(1-3)	4
<i>Eucalyptus elata</i>	1(1-1)	2	2(1-3)	5
<i>Eucalyptus fastigata</i>	4(4-4)	2	2(1-3)	6
<i>Eucalyptus macrorhyncha</i>	3(3-3)	2	2(1-3)	3
<i>Eucalyptus moorei</i>	2(2-2)	2	3(3-3)	<1
<i>Eucalyptus ovata</i>	3(2-3)	4	2(1-2)	1
<i>Eucalyptus parvula</i>	1(1-1)	4	2(1-2)	<1
<i>Eucalyptus smithii</i>	1(1-1)	2	1(1-2)	2



Locations of survey sites allocated to GW p220. Grey shading indicates extant native vegetation cover within the study area.

**DSF p239: Agnes Banks Woodland**



Plate p239. Agnes Banks Woodland (Map Unit p239) at Agnes Banks, showing a tree layer of *Eucalyptus sclerophylla* and *Angophora bakeri*, *Banksia aemula* in the understorey and a diverse array of sedges dominating the groundcover.

Sample Sites: 2  
 Area Extant (ha): 90  
 Estimated % remaining: 15-25%

Area in conservation reserves (ha): 30  
 Estimated % of pre-clearing area in conservation reserves: <10%  
 No. taxa (total / unique): 52 / 0  
 No. taxa per plot ( $\pm$ sd): 33 (4.2)  
 Class: Sydney Sand Flats Dry Sclerophyll Forests  
 Related TEC: Agnes Banks Woodland EEC (TSC).

Agnes Banks Woodland (DSF p239) was identified by Tindall *et al.* (2004) as DSF 239, and is a low eucalypt woodland with a sclerophyll shrub stratum and a groundcover dominated by sedges and forbs (Benson 1981, Tozer 2003). This unit is restricted to small areas of old podsolised sand deposits overlying Tertiary clays and gravels at Agnes Banks on the east bank of the Hawkesbury River near Richmond. In low-lying, poorly drained areas with clay soils, this unit grades into Castlereagh Ironbark Forest (DSF p1). On higher ground where the sand deposits give way to alluvial sandy loams, this unit intergrades with Castlereagh Scribbly Gum Woodland (DSF p7). Agnes Banks Woodland is floristically related to Eastern Suburbs Banksia Scrub (HL p563) and Coastal Sandplain Heath (HL p139), which occur on podsolised sand dunes in higher rainfall coastal areas at Port Hacking and Jervis Bay.

The restricted natural distribution of Agnes Banks Woodland has been depleted by sand mining and rural residential development. About 170 ha persists, representing one-third of the original area, and some of this is within Agnes Banks Nature Reserve.

#### Floristic Summary:

**Trees:** *Angophora bakeri*, *Eucalyptus sclerophylla*. **Shrubs:** *Banksia aemula*, *B. oblongifolia*, *Conospermum taxifolium*, *Dillwynia sericea*, *Leptospermum trinervium*, *Monotoca scoparia*, *Persoonia nutans*, *Pimelea linifolia*, *Platysace ericoides*. **Groundcover:** *Lepidosperma urophorum*, *Stylidium graminifolium*, *Trachymene incisa*.

#### Vegetation structure:

Stratum	Frequency (n=2)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Tree canopy	100	15 (-)	12.5 (3.5)
Small tree	50	8 (-)	50 (-)
Shrub	100	2 (1.4)	25 (7.1)
Ground cover	100	- (-)	22.5 (24.7)

#### 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 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 20 positive diagnostic species.

#### Positive Diagnostic Species:

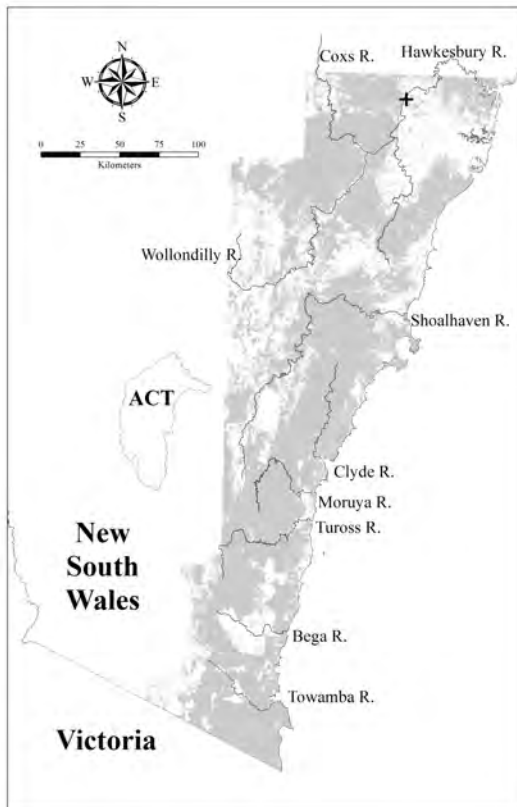
Species	C/A	Freq	C/A O	Freq O
<i>Acacia brownii</i>	1(1-1)	50	1(1-1)	1
<i>Acacia elongata</i>	1(1-1)	50	1(1-1)	1
<i>Angophora bakeri</i>	4(1-4)	100	1(1-2)	2
<i>Baekkea diosmifolia</i>	1(1-1)	50	1(1-1)	1
<i>Banksia aemula</i>	3(3-3)	50	2(2-2)	<1
<i>Banksia oblongifolia</i>	2(1-2)	100	1(1-1)	2
<i>Bossiaea rhombifolia</i> subsp. <i>rhombifolia</i>	2(2-2)	50	1(1-3)	1
<i>Caleana major</i>	2(2-2)	50	1(1-1)	<1
<i>Callistemon citrinus</i>	1(1-1)	50	1(1-2)	1
<i>Callistemon linearis</i>	1(1-1)	50	1(1-1)	<1
<i>Conospermum taxifolium</i>	2(1-2)	100	1(1-1)	1
<i>Dillwynia floribunda</i>	1(1-1)	50	1(1-1)	2
<i>Dillwynia sericea</i>	1(1-1)	100	1(1-1)	2
<i>Eucalyptus sclerophylla</i>	3(3-3)	100	2(1-3)	4
<i>Gompholobium huegelii</i>	1(1-1)	50	1(1-1)	2
<i>Haemodorum corymbosum</i>	1(1-1)	50	1(1-1)	1
<i>Hibbertia fasciculata</i>	1(1-1)	50	1(1-1)	<1

<i>Isopogon anethifolius</i>	1(1-1)	50	1(1-1)	2
<i>Kunzea capitata</i>	2(2-2)	50	1(1-2)	1
<i>Lepidosperma urophorum</i>	2(2-2)	100	1(1-2)	7
<i>Leptocarpus tenax</i>	3(3-3)	50	1(1-2)	2
<i>Leptospermum trinervium</i>	2(2-2)	100	1(1-2)	16
<i>Leucopogon virgatus</i>	1(1-1)	50	1(1-1)	2
<i>Mitrasacme polymorpha</i>	1(1-1)	100	1(1-1)	3
<i>Monotoca scoparia</i>	2(1-2)	100	1(1-1)	12
<i>Olax stricta</i>	1(1-1)	50	1(1-1)	1
<i>Persoonia nutans</i>	1(1-1)	100	1(1-1)	<1
<i>Philotheca salsolifolia</i> subsp. <i>salsolifolia</i>	2(2-2)	50	1(1-2)	<1
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	2(1-2)	100	1(1-1)	13
<i>Platysace ericoides</i>	2(2-2)	100	1(1-1)	3
<i>Ricinocarpos pinifolius</i>	2(2-2)	50	1(1-1)	1
<i>Schizaea bifida</i>	1(1-1)	50	1(1-1)	1
<i>Schoenus imberbis</i>	1(1-1)	50	1(1-1)	1
<i>Stylidium graminifolium</i>	2(2-2)	100	1(1-1)	9
<i>Trachymene incisa</i> subsp. <i>incisa</i>	2(2-2)	100	1(1-2)	1
<i>Xanthorrhoea minor</i> subsp. <i>minor</i>	1(1-1)	50	1(1-1)	1

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia ulicifolia</i>	1(1-1)	50	1(1-1)	10
<i>Amperea xiphoclada</i>	2(2-2)	50	1(1-1)	7
<i>Bossiaea heterophylla</i>	1(1-1)	50	1(1-1)	6
<i>Brachyloma daphnoides</i>	2(2-2)	50	1(1-1)	7
<i>Cassutha glabella</i>	1(1-1)	50	1(1-1)	8
<i>Cassutha pubescens</i>	1(1-1)	50	1(1-1)	8
<i>Cyathochaeta diandra</i>	3(3-3)	50	1(1-2)	8
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	50	1(1-1)	15
<i>Isopogon anemonifolius</i>	1(1-1)	50	1(1-1)	8
<i>Lepidosperma laterale</i>	1(1-1)	50	1(1-1)	29
<i>Leptospermum polygalifolium</i>	3(3-3)	50	1(1-2)	8
<i>Lepyrodia scariosa</i>	4(4-4)	50	1(1-2)	6
<i>Lomandra glauca</i>	2(2-2)	50	1(1-1)	10
<i>Persoonia linearis</i>	1(1-1)	50	1(1-1)	29
<i>Petrophile pulchella</i>	1(1-1)	50	1(1-1)	6
<i>Themeda australis</i>	1(1-1)	50	1(1-3)	17





Locations of survey sites allocated to DSF p239. Grey shading indicates extant native vegetation cover within the study area.

### DSF p244: Megalong-Tonalli Sandstone Forest



Plate p244. Megalong-Tonalli Sandstone Forest (Map Unit p244) at Pope's Creek on the Cox's River arm of Lake Burragorang. Overstorey is dominated by *Angophora costata*, *Eucalyptus piperita* and *C. gummifera*, with an understorey of *Ceratopetalum gummiferum*, *Acacia linearis*, *Banksia spinulosa* var. *spinulosa* and a sparse groundcover including *Stypandra glauca*.

Sample Sites: 77

Area Extant (ha): 29500

Estimated % remaining: >90%

Area in conservation reserves (ha): 26300

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

No. taxa (total / unique): 425 / 0

No. taxa per plot ( $\pm$ sd): 45.2 (10.3)  
 Class: Sydney Hinterland Dry Sclerophyll Forests  
 Related TEC: n/a

Megalong-Tonalli Sandstone Forest (DSF p244) was identified by Tindall *et al.* (2004) as DSF 244, and is a eucalypt forest with a sclerophyll shrub stratum and a groundcover of sedges & forbs. This forest is distributed between Bell and the Tonalli range in the western Blue Mountains between 150-800m ASL. The distribution of this unit roughly follows the outcrop of Permian sandstones and conglomerates along the western scarp of the Blue Mountains plateau south from Hartley Vale, and through the Megalong, Jamison, Kedumba, Grose and parts of the Burratorang valleys where average annual rainfall is 820-1100mm. In the area of Lacys Tableland this unit occurs on Tertiary (Hawkesbury) sandstone. With increasing clay content of the soil this unit is replaced by Burratorang Escarpment Forest (DSF p88) and Burratorang Hillslope Forest (DSF p5).

While some clearing of Megalong-Tonalli Sandstone Forest has occurred in the Megalong valley, much of this unit's original distribution is within Blue Mountains National Park.

#### Floristic Summary:

**Trees:** *Eucalyptus piperita*, *E. punctata*, *E. sclerophylla*, *Angophora costata*. **Shrubs:** *Banksia spinulosa*, *Lomatia silaifolia*, *Phyllanthus hirtellus*, *Persoonia linearis*, *Pimelea linifolia*, *Persoonia levis*, *Bossiaea obcordata*, *Leptospermum trinervium*, *Podolobium ilicifolium*, *Leucopogon lanceolatus*. **Climbers:** *Billardiera scandens*. **Groundcover:** *Entolasia stricta*, *Goodenia hederacea*, *Lomandra obliqua*, *L. multiflora*, *Dianella caerulea*, *D. revoluta*, *Pomax umbellata*, *Cyathochaeta diandra*, *Gonocarpus tetragynus*, *Patersonia glabrata*.

#### Vegetation structure:

Stratum	Frequency (n=64)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Tree canopy	100	18.2 (4)	26.9 (8.8)
Small tree	64	7.2 (2.9)	14.4 (14.2)
Shrub	89	2.2 (0.8)	27.4 (18.1)
Ground cover	100	0.7 (0.3)	24.6 (18.2)

#### Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 23 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 37 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 23 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia buxifolia</i> subsp. <i>buxifolia</i>	1(1-2)	9	1(1-1)	1
<i>Acacia linifolia</i>	1(1-2)	32	1(1-1)	6
<i>Acacia obtusifolia</i>	1(1-2)	26	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	45	1(1-1)	11
<i>Acacia ulicifolia</i>	1(1-1)	34	1(1-1)	10
<i>Actinotus helianthi</i>	1(1-1)	8	1(1-1)	2
<i>Amperea xiphocladia</i>	1(1-2)	30	1(1-1)	7
<i>Angophora costata</i>	2(1-3)	35	1(1-3)	7
<i>Anisopogon avenaceus</i>	1(1-1)	16	1(1-2)	5
<i>Austrostipa pubescens</i>	1(1-2)	16	1(1-2)	5
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-2)	88	1(1-2)	15
<i>Billardiera scandens</i>	1(1-1)	61	1(1-1)	27
<i>Bossiaea obcordata</i>	1(1-2)	58	1(1-2)	6
<i>Bursaria longisepala</i>	1(1-2)	18	1(1-1)	1
<i>Caladenia carnea</i> var. <i>carnea</i>	1(1-2)	6	1(1-1)	<1
<i>Calochilus robertsonii</i>	1(1-1)	10	1(1-1)	<1
<i>Cassinia aureonitens</i>	1(1-2)	8	1(1-2)	<1
<i>Corymbia gummifera</i>	3(2-3)	35	2(1-2)	16

<i>Cyathochaeta diandra</i>	3(2-3)	49	1(1-2)	8
<i>Dampiera purpurea</i>	1(1-1)	36	1(1-1)	4
<i>Daviesia ulicifolia</i>	1(1-1)	26	1(1-1)	6
<i>Dianella caerulea</i>	1(1-1)	58	1(1-1)	28
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	52	1(1-1)	15
<i>Dillwynia phyllicoides</i>	1(1-3)	13	1(1-1)	1
<i>Dillwynia retorta</i>	2(1-2)	25	1(1-2)	6
<i>Drosera auriculata</i>	1(1-2)	8	1(1-1)	1
<i>Entolasia stricta</i>	1(1-2)	94	1(1-2)	33
<i>Eucalyptus agglomerata</i>	3(1-3)	26	2(1-3)	7
<i>Eucalyptus eugenioides</i>	3(1-3)	13	2(1-3)	4
<i>Eucalyptus piperita</i>	3(1-3)	64	2(1-3)	8
<i>Eucalyptus punctata</i>	1(1-3)	43	2(1-3)	8
<i>Eucalyptus sclerophylla</i>	3(1-3)	38	2(1-3)	3
<i>Eucalyptus sparsifolia</i>	2(1-3)	23	2(1-3)	2
<i>Gompholobium grandiflorum</i>	1(1-1)	10	1(1-1)	3
<i>Gompholobium latifolium</i>	1(1-1)	23	1(1-1)	3
<i>Gonocarpus tetragynus</i>	1(1-2)	44	1(1-1)	20
<i>Goodenia bellidifolia</i> subsp. <i>bellidifolia</i>	1(1-1)	18	1(1-1)	4
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	73	1(1-2)	14
<i>Goodenia heterophylla</i>	1(1-2)	19	1(1-1)	2
<i>Grevillea arenaria</i> subsp. <i>arenaria</i>	1(1-1)	9	1(1-1)	1
<i>Haemodorum planifolium</i>	1(1-1)	9	1(1-1)	1
<i>Hakea dactyloides</i>	1(1-2)	32	1(1-1)	12
<i>Hakea salicifolia</i>	1(1-2)	19	1(1-2)	1
<i>Hakea sericea</i>	1(1-2)	21	1(1-1)	7
<i>Hardenbergia violacea</i>	1(1-1)	51	1(1-1)	17
<i>Helichrysum rutidolepis</i>	1(1-2)	8	1(1-2)	1
<i>Helichrysum scorpioides</i>	1(1-1)	25	1(1-1)	7
<i>Hibbertia acicularis</i>	1(1-1)	14	1(1-1)	1
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-2)	35	1(1-1)	6
<i>Hovea linearis</i>	1(1-1)	40	1(1-1)	9
<i>Hybanthus monopetalus</i>	1(1-1)	13	1(1-1)	2
<i>Isopogon anemonifolius</i>	1(1-2)	25	1(1-1)	8
<i>Lambertia formosa</i>	2(1-3)	26	1(1-2)	9
<i>Leptomeria acida</i>	1(1-1)	14	1(1-1)	4
<i>Leptospermum polygalifolium</i>	1(1-2)	42	1(1-2)	8
<i>Leptospermum trinervium</i>	1(1-2)	61	1(1-2)	15
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	49	1(1-1)	23
<i>Leucopogon muticus</i>	1(1-1)	8	1(1-1)	1
<i>Lindsaea microphylla</i>	1(1-1)	43	1(1-1)	5
<i>Lissanthe sapida</i>	1(1-1)	6	1(1-1)	1
<i>Lomandra cylindrica</i>	1(1-2)	23	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	26	1(1-2)	10
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	32	1(1-1)	10
<i>Lomandra glauca</i>	1(1-2)	25	1(1-1)	10

<i>Lomandra gracilis</i>	1(1-2)	27	1(1-1)	3
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	64	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-2)	75	1(1-1)	13
<i>Lomatia silaifolia</i>	1(1-2)	87	1(1-1)	9
<i>Mirbelia rubiifolia</i>	1(1-2)	10	1(1-1)	3
<i>Mitrasacme polymorpha</i>	1(1-1)	18	1(1-1)	3
<i>Monotoca scoparia</i>	1(1-1)	48	1(1-1)	12
<i>Opercularia hispida</i>	2(1-2)	10	1(1-1)	3
<i>Patersonia glabrata</i>	1(1-2)	53	1(1-1)	9
<i>Patersonia longifolia</i>	1(1-1)	16	1(1-1)	2
<i>Patersonia sericea</i>	1(1-1)	22	1(1-1)	9
<i>Persoonia laurina</i>	1(1-1)	16	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	61	1(1-1)	13
<i>Persoonia linearis</i>	1(1-1)	74	1(1-1)	28
<i>Petrophile pedunculata</i>	1(1-2)	22	1(1-1)	3
<i>Phyllanthus hirtellus</i>	1(1-2)	86	1(1-1)	14
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-2)	61	1(1-1)	13
<i>Platysace ericoides</i>	1(1-2)	40	1(1-1)	2
<i>Platylobium formosum</i>	1(1-1)	10	1(1-1)	3
<i>Podolobium ilicifolium</i>	1(1-1)	51	1(1-1)	8
<i>Pomaderris ferruginea</i>	1(1-2)	6	1(1-1)	1
<i>Pomax umbellata</i>	1(1-2)	56	1(1-1)	13
<i>Poranthera corymbosa</i>	1(1-1)	19	1(1-1)	1
<i>Poranthera ericifolia</i>	1(1-2)	19	1(1-1)	1
<i>Pultenaea paleacea</i>	2(1-2)	6	1(1-2)	<1
<i>Stackhousia viminea</i>	1(1-2)	27	1(1-1)	2
<i>Stypandra glauca</i>	1(1-2)	29	1(1-2)	5
<i>Telopea speciosissima</i>	1(1-2)	8	1(1-1)	2
<i>Tetratheca decora</i>	1(1-2)	10	1(1-1)	<1
<i>Xanthosia pilosa</i>	1(1-1)	18	1(1-1)	8
<i>Xylomelum pyriforme</i>	1(1-2)	25	1(1-1)	3

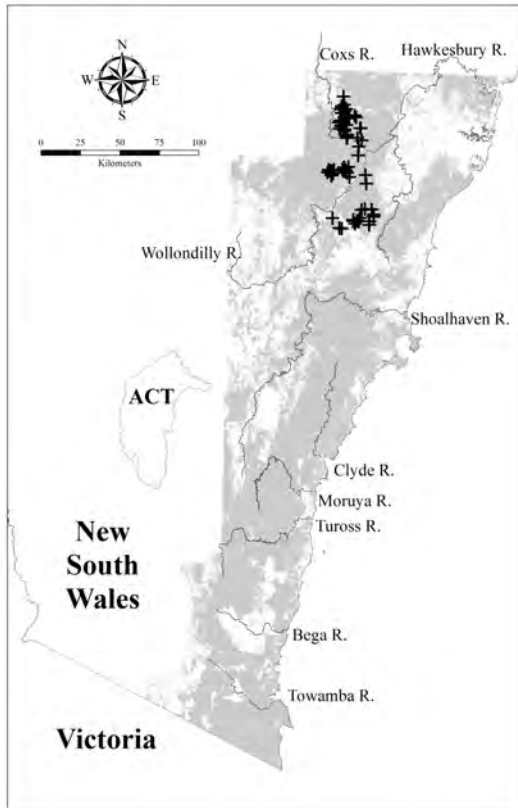
## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lomandra longifolia</i>	1(1-2)	56	1(1-1)	44
<i>Pteridium esculentum</i>	1(1-2)	43	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	2(1-3)	6	1(1-2)	2
<i>Angophora floribunda</i>	2(1-3)	5	1(1-2)	9
<i>Eucalyptus apiculata</i>	2(2-2)	1	3(1-3)	<1
<i>Eucalyptus blaxlandii</i>	3(1-3)	3	1(1-3)	1
<i>Eucalyptus considieniana</i>	1(1-1)	1	2(1-2)	2
<i>Eucalyptus crebra</i>	1(1-1)	1	2(1-3)	3
<i>Eucalyptus cypellocarpa</i>	1(1-1)	6	2(1-2)	10
<i>Eucalyptus elata</i>	1(1-3)	4	2(1-3)	5

<i>Eucalyptus fibrosa</i>	1(1-3)	6	2(1-3)	3
<i>Eucalyptus globoidea</i>	3(1-3)	9	2(1-2)	12
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(3-3)	1	2(1-3)	6
<i>Eucalyptus rossii</i>	1(1-1)	1	3(1-3)	2
<i>Eucalyptus sieberi</i>	1(1-3)	14	2(1-3)	16
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-3)	9	2(1-3)	8



Locations of survey sites allocated to DSF p244. Grey shading indicates extant native vegetation cover within the study area.

**DSF p246: Yalwal Shale-Sandstone Transition Forest**

Plate p246. Yalwal Shale-Sandstone Transition Forest (Map Unit p246) beside the Yalwal Fire Trail in Morton National Park. Prominent tree species include *Eucalyptus punctata*, *E. tereticornis* and *E. globoidea*, with *E. fibrosa* in the background. The sparse shrub layer contains *Persoonia linearis*, *Allocasuarina littoralis* and *Macrozamia communis*, with a very sparse groundcover of scattered grasses and forbs.

Sample Sites: 22

Area Extant (ha): 21100

Estimated % remaining: >85%

Area in conservation reserves (ha): 15300

Estimated % of pre-clearing area in conservation reserves: 55-75%

No. taxa (total / unique): 246 / 2

No. taxa per plot ( $\pm$ sd): 46.5 (26.3)

Class: Sydney Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Yalwal Shale-Sandstone Transition Forest (DSF p246) was identified by Tindall *et al.* (2004) as DSF 246, and is a eucalypt forest with a mixed open understorey of shrubs, sedges, forbs and grasses. This unit has a wide distribution in the valleys of the lower Shoalhaven River and its tributaries (Kangaroo River and Yarramunmun, Danjera, Bundundah, Bundanoon and Ettrema Creeks), from Lake Yarrunga through Yalwal east to Colymea Creek. Within this distribution Yalwal Shale-Sandstone Transition Forest occurs on ridges and slopes between 100-250m elevation, primarily on loamy soils derived from Conjola conglomerate and Wandrawandian siltstone. On lower valley slopes where metasediments underlying the Sydney Basin are exposed, this unit merges into Ettrema Gorge Forest (DSF p84). With increasing rainfall and/or shelter Yalwal Shale-Sandstone Transition Forest is replaced by Southern Turpentine Forest (WSF p95). Yalwal Shale-Sandstone Transition Forest shares some species with Sydney Hinterland Transition Woodland (DSF p146), both occurring on soils derived from sandstone strata with a significant clay content, though with widely separate distributions.

Only a small proportion of Yalwal Shale-Sandstone Transition Forest has been cleared, and large areas are in Morton National Park.

**Floristic Summary:**

**Trees:** *Corymbia gummifera*, *Eucalyptus punctata*, *Syncarpia glomulifera*. **Shrubs:** *Persoonia linearis*, *Lomandra obliqua*, *Macrozamia communis*, *Podolobium ilicifolium*. **Climbers:** *Glycine clandestina*, *Hardenbergia violacea*. **Groundcover:** *Entolasia stricta*, *Pomax umbellata*, *Patersonia sericea*, *Lepidosperma laterale*, *Lomandra multiflora*, *Phyllanthus hirtellus*, *Dianella revoluta*, *Goodenia hederacea*, *Panicum simile*, *Lomandra confertifolia* ssp *rubiginosa*.

**Vegetation structure:**

Stratum	Frequency (n=20)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Tree canopy	75	20.9 (5.6)	29.9 (12.1)
Small tree	50	7.3 (3.6)	18.4 (19.3)
Shrub	60	2.3 (0.7)	9.4 (6)
Ground cover	95	0.6 (0.2)	17.7 (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 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia ulicifolia</i>	1(1-1)	45	1(1-1)	10
<i>Allocasuarina littoralis</i>	1(1-2)	45	1(1-2)	17
<i>Aristida vagans</i>	1(1-1)	41	1(1-2)	8
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	1(1-1)	45	1(1-2)	15
<i>Bossiaea buxifolia</i>	1(1-1)	23	1(1-1)	3
<i>Bossiaea obcordata</i>	2(1-2)	36	1(1-2)	7
<i>Brunoniella pumilio</i>	1(1-1)	41	1(1-1)	4
<i>Cheilanthes sieberi</i>	1(1-1)	41	1(1-1)	14
<i>Corymbia gummifera</i>	2(1-2)	73	2(1-2)	16
<i>Corymbia maculata</i>	2(2-2)	41	2(1-3)	3
<i>Daviesia ulicifolia</i>	1(1-1)	36	1(1-1)	7
<i>Dianella caerulea</i>	1(1-2)	64	1(1-1)	28
<i>Dianella revoluta</i> var. <i>revoluta</i>	1(1-1)	55	1(1-1)	15
<i>Dillwynia sieberi</i>	1(1-3)	23	1(1-1)	1
<i>Entolasia stricta</i>	1(1-2)	91	1(1-2)	34
<i>Eucalyptus fibrosa</i>	2(1-2)	32	2(1-3)	3
<i>Eucalyptus punctata</i>	2(1-3)	73	1(1-3)	8
<i>Glycine clandestina</i>	1(1-1)	59	1(1-1)	26
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	59	1(1-2)	14
<i>Hakea sericea</i>	1(1-2)	50	1(1-1)	7
<i>Hardenbergia violacea</i>	1(1-1)	59	1(1-1)	17
<i>Hovea linearis</i>	1(1-1)	36	1(1-1)	9
<i>Jacksonia scoparia</i>	1(1-1)	27	1(1-1)	2
<i>Lagenifera gracilis</i>	1(1-1)	27	1(1-1)	3
<i>Laxmannia gracilis</i>	1(1-1)	36	1(1-1)	4
<i>Lepidosperma gunnii</i>	1(1-1)	36	1(1-1)	5
<i>Lepidosperma laterale</i>	1(1-1)	68	1(1-1)	28
<i>Lindsaea microphylla</i>	1(1-1)	27	1(1-1)	5
<i>Lomandra confertifolia</i> subsp. <i>rubiginosa</i>	1(1-2)	55	1(1-1)	4
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	1(1-1)	45	1(1-1)	11
<i>Lomandra glauca</i>	1(1-1)	41	1(1-1)	10
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	73	1(1-1)	25
<i>Lomandra obliqua</i>	1(1-1)	86	1(1-1)	14
<i>Macrozamia communis</i>	1(1-1)	77	1(1-2)	4
<i>Melichrus urceolatus</i>	1(1-1)	23	1(1-1)	4
<i>Opercularia aspera</i>	1(1-1)	41	1(1-1)	8
<i>Panicum simile</i>	1(1-1)	55	1(1-1)	6
<i>Patersonia sericea</i>	1(1-1)	73	1(1-1)	9
<i>Persoonia linearis</i>	1(1-1)	86	1(1-1)	29
<i>Persoonia mollis</i> subsp. <i>leptophylla</i>	1(1-2)	23	1(1-1)	1



<i>Petrophile pedunculata</i>	1(1-1)	41	1(1-2)	3
<i>Phyllanthus hirtellus</i>	1(1-1)	73	1(1-1)	14
<i>Podolobium ilicifolium</i>	1(1-1)	50	1(1-1)	9
<i>Pomax umbellata</i>	1(1-1)	77	1(1-1)	14
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(1-3)	64	2(1-3)	7
<i>Themeda australis</i>	1(1-1)	45	1(1-3)	17

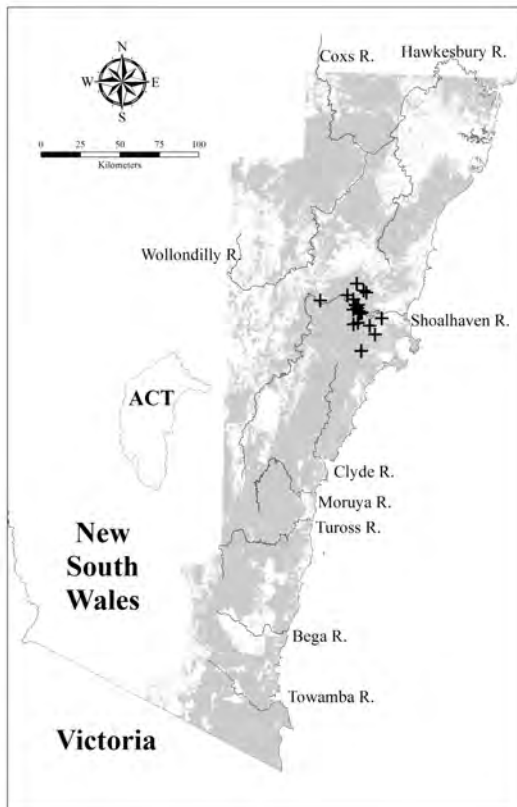
## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia terminalis</i>	1(1-1)	32	1(1-1)	11
<i>Billardiera scandens</i>	1(1-1)	50	1(1-1)	28
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	41	1(1-1)	24
<i>Microlaena stipoides</i>	1(1-1)	36	1(1-2)	36
<i>Monotoca scoparia</i>	1(1-1)	32	1(1-1)	12
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	36	1(1-1)	13

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	1(1-3)	18	1(1-2)	2
<i>Corymbia eximia</i>	1(1-3)	14	1(1-2)	2
<i>Eucalyptus agglomerata</i>	2(1-3)	14	2(1-3)	7
<i>Eucalyptus beyeriana</i>	2(1-2)	9	2(2-2)	<1
<i>Eucalyptus consideniana</i>	1(1-1)	5	2(1-2)	2
<i>Eucalyptus eugenioides</i>	2(1-2)	18	2(1-3)	4
<i>Eucalyptus globoidea</i>	3(1-3)	14	2(1-2)	12
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	5	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(1-3)	14	2(1-3)	5
<i>Eucalyptus piperita</i>	1(1-1)	9	2(1-3)	9
<i>Eucalyptus saligna</i> X <i>botryoides</i>	1(1-1)	5	2(1-3)	2
<i>Eucalyptus sclerophylla</i>	3(1-3)	9	2(1-3)	4
<i>Eucalyptus sieberi</i>	3(3-3)	5	2(1-3)	16
<i>Eucalyptus sparsifolia</i>	3(3-3)	9	2(1-3)	2





Locations of survey sites allocated to DSF p246. Grey shading indicates extant native vegetation cover within the study area.

#### DSF p248: Morton-Budawang Sandstone Woodland



Plate p248. Morton-Budawang Sandstone Woodland (Map Unit p248) beside Tolwong Road at Bulee in Morton National Park. A low canopy of *Eucalyptus consideriana*, *E. agglomerata* and *E. sclerophylla* grows above a diverse shrub layer including *Leptospermum trinervium*, *Persoonia levis*, *Petrophile pedunculata* and *Isopogon anethifolius*, while the sparse groundcover includes the characteristic weeping tufts of *Lepidosperma urophorum*.

Sample Sites: 17  
 Area Extant (ha): 11600  
 Estimated % remaining: >90%  
 Area in conservation reserves (ha): 7700  
 Estimated % of pre-clearing area in conservation reserves: 60-80%  
 No. taxa (total / unique): 151 / 0  
 No. taxa per plot ( $\pm$ sd): 32.8 (5.9)

Class: Sydney Montane Dry Sclerophyll Forests  
Related TEC: n/a

Morton-Budawang Sandstone Woodland (DSF p248) was identified by Tindall *et al.* (2004) as DSF 248, and is a eucalypt woodland with a mixed understorey of shrubs, sedges, forbs and grasses. This unit occurs in elevated sandstone country on the Morton plateau from Tolwong south to the Nerriga road, from the Endrick River to Wog Wog Mountain and on ridges just east of the Budawang range from Yadbore Creek to Currowan Creek. Within this distribution Morton-Budawang Sandstone Woodland occurs on sandy loams on dry sandstone slopes and ridges up to 750m ASL, where average annual rainfall varies from 900 to 1100mm. Morton-Budawang Sandstone Woodland shares several species with Shoalhaven Sandstone Forest (DSF p148) which occurs at lower elevations on the eastern Morton plateau and coastal lowlands west of Nowra.

The original distribution of Morton-Budawang Sandstone Woodland remains largely intact, with several thousand hectares in Morton and Budawang National Parks.

#### Floristic Summary:

**Trees:** *Eucalyptus sieberi*, *E. consideriana*. **Shrubs:** *Banksia spinulosa*, *Lomatia ilicifolia*, *Persoonia levis*, *Leptospermum trinervium*, *Tetratheca thymifolia*, *Acacia obtusifolia*, *Isopogon anemonifolius*, *Monotoca scoparia*, *Petrophile pedunculata*, *Acacia terminalis*, *Amperea xiphoclada*, *Phyllota phyllicoides*, *Pimelea linifolia* ssp *linifolia*, *Podolobium ilicifolium*. **Groundcover:** *Patersonia glabrata*, *Lomandra obliqua*, *L. glauca*, *Caustis flexuosa*.

#### Vegetation structure:

Stratum	Frequency (n=14)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	100	18.5 (3.1)	25.1 (13.4)
Small tree	50	10.1 (9)	19.3 (15.7)
Shrub	64	2.3 (0.4)	23.3 (19.2)
Ground cover	100	1 (0.4)	28.4 (26.2)

#### 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 obtusifolia</i>	1(1-1)	76	1(1-2)	9
<i>Acacia terminalis</i>	1(1-1)	53	1(1-1)	11
<i>Amperea xiphoclada</i>	1(1-1)	59	1(1-1)	7
<i>Banksia paludosa</i>	1(1-1)	35	1(1-2)	3
<i>Banksia spinulosa</i> var. <i>spinulosa</i>	2(1-2)	100	1(1-2)	15
<i>Bossiaea obcordata</i>	1(1-1)	41	1(1-2)	7
<i>Caustis flexuosa</i>	1(1-1)	59	1(1-2)	7
<i>Cyathochaeta diandra</i>	2(1-3)	35	1(1-2)	8
<i>Entolasia stricta</i>	1(1-1)	76	1(1-2)	34
<i>Eucalyptus consideriana</i>	2(1-2)	65	1(1-2)	2
<i>Eucalyptus sieberi</i>	2(1-2)	88	2(1-3)	16
<i>Gompholobium glabratum</i>	1(1-1)	24	1(1-1)	2
<i>Gompholobium latifolium</i>	1(1-1)	24	1(1-1)	3
<i>Hakea dactyloides</i>	1(1-1)	47	1(1-1)	12
<i>Hibbertia empetrifolia</i> subsp. <i>empetrifolia</i>	1(1-1)	35	1(1-1)	6
<i>Isopogon anemonifolius</i>	1(1-1)	71	1(1-1)	8
<i>Lepidosperma urophorum</i>	1(1-2)	29	1(1-2)	7
<i>Leptospermum trinervium</i>	1(1-2)	82	1(1-2)	15
<i>Lomandra glauca</i>	1(1-2)	82	1(1-1)	10
<i>Lomatia ilicifolia</i>	1(1-1)	94	1(1-1)	6

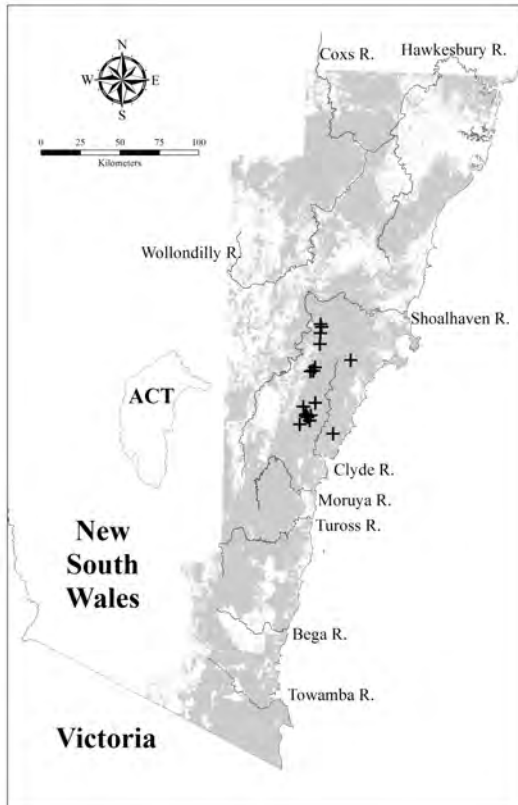
<i>Lomandra obliqua</i>	1(1-1)	94	1(1-1)	14
<i>Monotoca scoparia</i>	1(1-1)	71	1(1-1)	12
<i>Patersonia glabrata</i>	1(1-2)	94	1(1-1)	10
<i>Patersonia longifolia</i>	1(1-2)	41	1(1-1)	2
<i>Persoonia levis</i>	1(1-1)	94	1(1-1)	13
<i>Petrophile pedunculata</i>	1(1-1)	65	1(1-2)	3
<i>Phyllota phyllicoides</i>	1(1-2)	53	1(1-2)	3
<i>Pimelea linifolia</i> subsp. <i>linifolia</i>	1(1-1)	47	1(1-1)	13
<i>Podolobium ilicifolium</i>	1(1-1)	47	1(1-1)	9
<i>Pomax umbellata</i>	1(1-1)	47	1(1-1)	14
<i>Stylidium graminifolium</i>	1(1-1)	35	1(1-1)	9
<i>Tetratheca thymifolia</i>	1(1-1)	82	1(1-1)	6
<i>Xanthorrhoea concava</i>	1(1-1)	29	1(1-1)	4

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-1)	35	1(1-2)	14
<i>Lepidosperma laterale</i>	1(1-1)	35	1(1-1)	29
<i>Persoonia linearis</i>	1(1-1)	41	1(1-1)	29
<i>Platysace lanceolata</i>	1(1-1)	35	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>	2(1-2)	12	2(1-2)	16
<i>Eucalyptus agglomerata</i>	1(1-2)	24	2(1-3)	7
<i>Eucalyptus dendromorpha</i>	2(2-2)	6	2(1-2)	<1
<i>Eucalyptus globoidea</i>	1(1-1)	18	2(1-2)	12
<i>Eucalyptus imitans</i>	1(1-1)	6	1(1-3)	<1
<i>Eucalyptus mannifera</i>	1(1-1)	6	2(1-3)	4
<i>Eucalyptus obstans</i>	2(2-2)	6	1(1-2)	1
<i>Eucalyptus piperita</i>	1(1-1)	12	2(1-3)	9
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	4(1-4)	18	2(1-3)	6
<i>Eucalyptus sclerophylla</i>	1(1-1)	6	2(1-3)	4
<i>Eucalyptus smithii</i>	1(1-1)	6	1(1-2)	2
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	2(2-2)	6	2(1-3)	8



Locations of survey sites allocated to DSF p248. Grey shading indicates extant native vegetation cover within the study area.

### GL p257: Tableland Flats Grassland



Plate p257. Tableland Flats Grassland (Map Unit p257) on the alluvial flat of a tributary of the Mulwaree River at Tarago, with the characteristic dominance of *Poa labillardierei* var. *labillardierei* tussocks.

Sample Sites: 0  
 Area Extant (ha): 10900  
 Estimated % remaining: <10%  
 Area in conservation reserves (ha): 0  
 Estimated % of pre-clearing area in conservation reserves: 0  
 No. Taxa (total / unique): n/a  
 No. Taxa per Plot ( $\pm$ sd): n/a  
 Class: Temperate Montane Grasslands

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

Tableland Flats Grassland Map unit GL p257 was identified by Tindall *et al.* (2004) as GL 257, and is a closed tussock grassland that once covered extensive flats and depressions on the southern tableland from 650 to 750 m elevation. The original community has been so heavily modified by land clearing, livestock grazing, pasture improvement and cultivation that examples still dominated by native species are extremely scarce. Consequently, no samples were recorded for Tableland Flats Grassland and this unit is not shown on the map of extant native vegetation. However, the likely pre-European distribution of this vegetation has been estimated from maps of topography and soil, aerial photographs and field reconnaissance. Extensive flat or rolling plains that lack living or dead remnant eucalypts to the south and west of Goulburn (Mulwaree and Wollogorang Plains) and south of Braidwood (Jembaicumbene valley) are likely to have been the major areas of Tableland Flats Grassland within the study area. These areas would have included stands of Riparian Herbfield (FrW p55) along drainage lines, Tableland Lacustrine Herbfield (FrW p51) in lake beds and stands of Frost Hollow Woodland (GW p22) on higher ground, such as rocky knolls or around the margins of the grassland. An understanding of the botanical character of Tableland Flats Grasslands may be gained from reference to grasslands of the Monaro Tableland, further south (Benson 1994). Likely dominant plants include *Poa* spp., *Carex* spp., *Juncus* spp., *Themeda australis*, *Austrodanthonia* spp. and *Austrostipa* spp.. Tableland Flats Grassland is also likely to have included a number of species present in the groundcover of Frost Hollow Woodland (GW p22).

### WSF p266: Southern Highlands Basalt Forest



Plate p266. Southern Highlands Basalt Forest (Map Unit p266) beside Turpentine Road at Sassafras. *Eucalyptus fastigata*, *E. radiata* subsp. *radiata*, and *E. cypellocarpa* form a dense forest canopy above a dense grassy groundcover dominated by *Poa labillardierei* var. *labillardierei*, *Lomandra longifolia*, *Pteridium esculentum* and *Microlaena stipoides*.

Sample Sites: 15

Area Extant (ha): 2000

Estimated % remaining: 20-35%

Area in conservation reserves (ha): 690

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

No. taxa (total / unique): 169 / 1

No. taxa per plot ( $\pm$ sd): 38.2 (8.5)

Class: Southern Escarpment Wet Sclerophyll Forests

Related TECs: includes Robertson Basalt Tall Open-forest EEC and Mount Gibraltar Forest EEC (TSC).

Southern Highlands Basalt Forest (WSF p266) was identified by Tindall *et al.* (2004) as WSF 266, and is a tall eucalypt forest with an open shrub layer and a moist herbaceous groundcover. This unit is restricted to moist, elevated areas on fertile soils associated with Tertiary volcanics on the Robertson plateau, Sassafras and at The Vines in Morton National Park. Southern Highlands Basalt Forest occurs on soils derived from Tertiary basalt, basanite and microsyenite between 650 and 850m ASL, where mean annual rainfall is between 1000-1350mm. Southern Highlands Basalt Forest grades into High Range Sheltered Forest (WSF p66) with decreasing rainfall and soil fertility.

About two-thirds of the original distribution of Southern Highlands Basalt Forest has been cleared, and remnants are exposed to the ongoing impacts of weed invasion, grazing and small-scale clearing.

### Floristic Summary:

**Trees:** *Acacia melanoxylon*, *Eucalyptus fastigata*, *E. cypellocarpa*, *E. radiata*. **Climbers:** *Clematis aristata*, *Tylophora barbata*, *Eustrephus latifolius*, *Glycine clandestina*, *Hibbertia scandens*, *Hardenbergia violacea*. **Groundcover:** *Lomandra longifolia*, *Pteridium esculentum*, *Viola hederacea*, *Dichondra* spp., *Microlaena stipoides*, *Poa labillardierei*, *Dianella caerulea*, *Hydrocotyle peduncularis*, *Poranthera microphylla*, *Echinopogon ovatus*, *Geranium potentilloides*, *Helichrysum scorpioides*, *Schelhammera undulata*, *Stellaria pungens*, *Veronica plebeia*, *Adiantum aethiopicum*, *Austrostipa rudis*, *Galium propinquum*, *Stellaria flaccida*.

#### Vegetation structure:

Stratum	Frequency (n=14)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	29 (7.2)	37.9 (11.9)
Small tree	64	9.8 (4.2)	12.4 (12.4)
Shrub	57	2 (0.7)	5.6 (6.6)
Ground cover	100	0.8 (0.3)	71.1 (22.5)

#### Diagnostic Species:

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

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxylon</i>	1(1-1)	80	1(1-1)	6
<i>Acaena novae-zelandiae</i>	1(1-1)	47	1(1-1)	7
<i>Adiantum aethiopicum</i>	1(1-2)	47	1(1-1)	9
<i>Asperula conferta</i>	1(1-2)	33	1(1-1)	4
<i>Austrostipa rudis</i>	2(1-2)	40	1(1-2)	6
<i>Carex breviculmis</i>	1(1-1)	33	1(1-1)	4
<i>Clematis aristata</i>	1(1-2)	87	1(1-1)	20
<i>Desmodium varians</i>	1(1-2)	60	1(1-1)	21
<i>Dianella longifolia</i>	1(1-2)	27	1(1-1)	4
<i>Dichelachne inaequiglumis</i>	2(1-2)	20	1(1-1)	3
<i>Dichondra</i> spp.	2(1-2)	87	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-2)	47	1(1-1)	14
<i>Eucalyptus cypellocarpa</i>	3(1-3)	40	2(1-2)	10
<i>Eucalyptus fastigata</i>	4(3-4)	67	2(1-3)	6
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(1-3)	40	2(1-3)	6
<i>Eustrephus latifolius</i>	1(1-2)	67	1(1-1)	19
<i>Galium propinquum</i>	1(1-1)	40	1(1-1)	7
<i>Geranium potentilloides</i>	1(1-2)	53	1(1-1)	6
<i>Glycine clandestina</i>	1(1-1)	80	1(1-1)	26
<i>Hardenbergia violacea</i>	2(1-2)	53	1(1-1)	17
<i>Hedycarya angustifolia</i>	1(1-1)	27	1(1-3)	4
<i>Helichrysum scorpioides</i>	1(1-1)	47	1(1-1)	7
<i>Hibbertia scandens</i>	1(1-2)	67	1(1-1)	5
<i>Hydrocotyle peduncularis</i>	2(1-2)	53	1(1-1)	9
<i>Lomandra longifolia</i>	2(1-2)	100	1(1-1)	44
<i>Luzula flaccida</i>	1(1-1)	33	1(1-1)	4
<i>Microlaena stipoides</i>	2(1-3)	80	1(1-2)	36
<i>Plantago debilis</i>	1(1-1)	40	1(1-1)	7

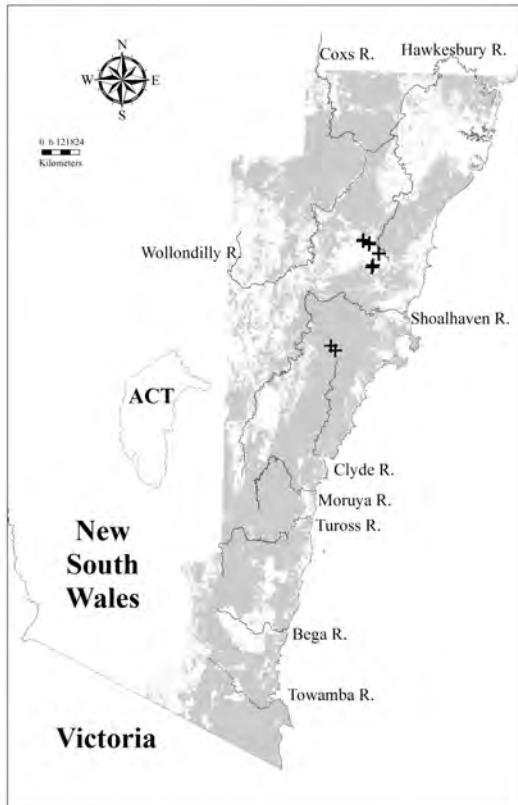
<i>Poa affinis</i>	1(1-4)	20	1(1-2)	2
<i>Poa labillardierei</i> var. <i>labillardierei</i>	3(2-3)	67	1(1-2)	12
<i>Poranthera microphylla</i>	1(1-1)	53	1(1-1)	15
<i>Pteridium esculentum</i>	2(1-2)	87	1(1-2)	37
<i>Rubus parvifolius</i>	1(1-2)	47	1(1-1)	9
<i>Schelhammera undulata</i>	2(1-2)	53	1(1-1)	7
<i>Senecio diaschides</i>	1(1-1)	20	1(1-1)	1
<i>Stellaria flaccida</i>	2(1-2)	53	1(1-1)	11
<i>Stellaria pungens</i>	2(1-2)	53	1(1-1)	6
<i>Tylophora barbata</i>	2(2-3)	73	1(1-1)	17
<i>Veronica plebeia</i>	1(1-1)	47	1(1-1)	10
<i>Viola hederacea</i>	1(1-2)	87	1(1-1)	22

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Blechnum cartilagineum</i>	2(1-5)	33	1(1-2)	11
<i>Dianella caerulea</i>	1(1-2)	60	1(1-1)	28
<i>Gonocarpus tetragynus</i>	1(1-1)	47	1(1-1)	20
<i>Hypericum gramineum</i>	1(1-1)	33	1(1-1)	16
<i>Lagenifera stipitata</i>	1(1-1)	40	1(1-1)	14
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	40	1(1-1)	24
<i>Smilax australis</i>	1(1-2)	33	1(1-1)	16
<i>Wahlenbergia gracilis</i>	1(1-1)	33	1(1-1)	11

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus elata</i>	3(3-3)	7	2(1-3)	5
<i>Eucalyptus eugenioides</i>	1(1-1)	7	2(1-3)	4
<i>Eucalyptus obliqua</i>	3(3-3)	13	2(1-3)	4
<i>Eucalyptus piperita</i>	3(1-3)	27	2(1-3)	9
<i>Eucalyptus smithii</i>	3(3-3)	7	1(1-2)	2
<i>Eucalyptus viminalis</i>	2(2-2)	7	2(1-3)	5



Locations of survey sites allocated to WSF p266. Grey shading indicates extant native vegetation cover within the study area.

### WSF p268: Southern Highlands Shale Woodland



Plate p268. Southern Highlands Shale Woodland (Map Unit p268) shown at the eastern end of its range on the Wingecarribee Plateau. Tree species include *Eucalyptus tereticornis* and *E. radiata* subsp. *radiata*. The grass-dominated ground cover has been heavily grazed.

Sample Sites: 8

Area Extant (ha): 5400

Estimated % remaining: 10-25%

Area in conservation reserves (ha): 20

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

No. taxa (total / unique): 132 / 0

No. taxa per plot ( $\pm$ sd): 31.6 (9.1)



Class: Southern Tableland Wet Sclerophyll Forests  
 Related TEC: Southern Highlands Shale Woodland EEC (TSC).

Southern Highlands Shale Woodland (WSF p268) was identified by Tindall *et al.* (2004) as WSF 268. This unit is a eucalypt open forest or woodland with a sparse shrub stratum and a dense groundcover dominated by grasses and herbs. This unit occurs on the Southern Highlands plateau from Mittagong to Bundanoon where it is restricted to soils derived from Wianamatta group shales with an average annual rainfall below 1300mm.

In higher rainfall areas east of Wingecarribee reservoir, Southern Highlands Shale Woodland is replaced by Shale-Basalt Sheltered Forest (WSF p168). On localised outcrops of residual shale on sandstone plateaux to the northeast this unit is replaced by Nepean Shale Cap Forest (WSF p68). Occupying rich clay soils on flat land, this unit has been extensively cleared for agriculture, leaving relatively few small remnants, many of which are degraded and are threatened by continued clearing, grazing and weed invasion.

#### Floristic Summary:

**Trees:** *Eucalyptus cypelloarpa*, *E. radiata*, *E. quadrangulata*, *E. globoidea*. **Shrubs:** *Leucopogon lanceolatus*, *Ozothamnus diosmifolius*, *Persoonia linearis*. **Ground Cover:** *Hardenbergia violacea*, *Lomandra longifolia*, *L. multiflora*, *Microlaena stipoides* var. *stipoides*, *Austrostipa rudis* ssp *nervosa*, *Dichondra* spp, *Gonocarpus tetragynus*, *Peridium esculentum*, *Opercularia diphylla*.

#### Vegetation structure:

Stratum	Frequency (n=7)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	24 (2.2)	32 (7.6)
Small tree	57	7.8 (6.2)	3.3 (0.6)
Shrub	43	1.5 (1)	7.3 (11)
Ground cover	100	0.7 (0.3)	70 (20.9)

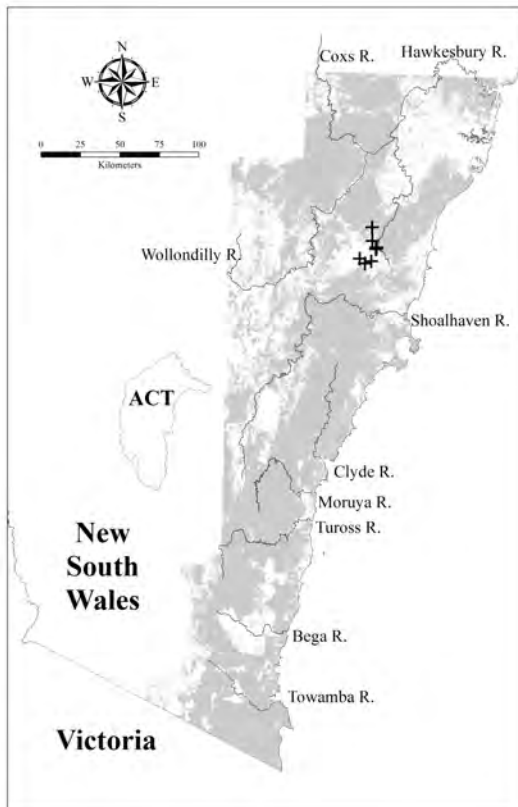
#### Diagnostic Species:

The relatively small number of plots available for this Map Unit may pose difficulties for definitive identification. 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 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 3 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia binervata</i>	1(1-2)	38	1(1-2)	2
<i>Austrostipa rudis</i>	3(2-3)	38	1(1-2)	6
<i>Brachyscome angustifolia</i>	2(1-2)	25	1(1-1)	2
<i>Einadia nutans</i>	1(1-1)	25	1(1-1)	3
<i>Eucalyptus cypelloarpa</i>	3(1-3)	75	2(1-2)	10
<i>Eucalyptus quadrangulata</i>	2(1-2)	38	3(1-3)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	4(3-4)	38	2(1-3)	6
<i>Hardenbergia violacea</i>	1(1-1)	75	1(1-1)	17
<i>Hibbertia scandens</i>	1(1-1)	38	1(1-1)	5
<i>Hypericum gramineum</i>	1(1-1)	63	1(1-1)	16
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	75	1(1-1)	25
<i>Olearia viscidula</i>	1(1-1)	38	1(1-2)	5
<i>Opercularia diphylla</i>	1(1-1)	50	1(1-1)	7
<i>Stackhousia viminea</i>	2(1-2)	25	1(1-1)	3

Constant:				
Species	C/A	Freq	C/A O	Freq O
<i>Billardiera scandens</i>	1(1-1)	50	1(1-1)	28
<i>Clematis aristata</i>	1(1-1)	38	1(1-1)	20
<i>Desmodium varians</i>	1(1-2)	38	1(1-1)	22
<i>Dianella caerulea</i>	1(1-2)	63	1(1-1)	28
<i>Dichondra spp.</i>	2(1-2)	50	1(1-2)	25
<i>Entolasia stricta</i>	2(1-3)	38	1(1-2)	34
<i>Eucalyptus globoidea</i>	1(1-2)	38	2(1-2)	12
<i>Galium propinquum</i>	1(1-1)	38	1(1-1)	7
<i>Gonocarpus tetragynus</i>	2(1-2)	50	1(1-1)	20
<i>Gonocarpus teucrioides</i>	1(1-1)	38	1(1-1)	18
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	38	1(1-2)	14
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-2)	50	1(1-1)	24
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-3)	38	1(1-2)	10
<i>Lomandra longifolia</i>	1(1-2)	88	1(1-1)	44
<i>Microlaena stipoides</i>	3(3-4)	63	1(1-2)	36
<i>Persoonia linearis</i>	1(1-1)	38	1(1-1)	29
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-1)	38	1(1-2)	11
<i>Poranthera microphylla</i>	1(1-1)	50	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-1)	50	1(1-1)	17
<i>Pteridium esculentum</i>	1(1-3)	63	1(1-2)	37
<i>Themeda australis</i>	1(1-2)	38	1(1-3)	17
<i>Tylophora barbata</i>	1(1-2)	50	1(1-1)	17
<i>Veronica plebeia</i>	1(1-1)	38	1(1-1)	10
<i>Viola hederacea</i>	1(1-1)	50	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)	25	1(1-2)	9
<i>Eucalyptus agglomerata</i>	1(1-1)	13	2(1-3)	7
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	1(1-1)	13	2(1-3)	1
<i>Eucalyptus elata</i>	3(3-3)	13	2(1-3)	5
<i>Eucalyptus piperita</i>	3(1-3)	25	2(1-3)	9
<i>Eucalyptus viminalis</i>	1(1-1)	13	2(1-3)	5



Locations of survey sites allocated to WSF p268. Grey shading indicates extant native vegetation cover within the study area.

### FrW p313: Coastal Freshwater Lagoon



Plate p313. Coastal Freshwater Lagoon (Map Unit p313) in Korrongulla Swamp at Primbee, with a dense cover of *Phragmites australis* growing over various other aquatic herbs.

Sample Sites: 6  
 Area Extant (ha): 3700  
 Estimated % remaining: 30-70%  
 Area in conservation reserves (ha): 480  
 Estimated % of pre-clearing area in conservation reserves: <15%  
 No. Taxa (total / unique): 21 / 0  
 No. Taxa per Plot ( $\pm$ sd): 6.5 (3.9)  
 Class: Coastal Freshwater Lagoons

Related TECs: Sydney Freshwater Wetland EEC and Freshwater Wetlands on Coastal Floodplains EEC (TSC).

Coastal Freshwater Lagoon (FrW p313) represents an extension of FrW 313 identified by Tindall *et al.* (2004). Areas of this unit commonly have a mosaic of tall reeds, dense patches of taller shrubs, herbfields and open water. These coastal lagoons are scattered throughout the coastline of the study area, in areas of shallow sandy alluvium inundated by freshwater or slightly brackish water below 10m ASL. Lagoons are typically permanently inundated and associated with depressions in coastal sand plains and river flats. At their margins, they may grade into Coastal Sand Swamp Forest (FoW p45) or Floodplain Swamp Forest (FoW p105). With increasing salinity and access to tidal/estuarine waters, Coastal Freshwater Lagoon is replaced by Estuarine Creekflat Scrub (FoW p107). None of the abiotic modelling variables available had sufficient precision to delineate the specific habitat of Coastal Freshwater Lagoon. The mapped distribution of this unit (both pre clearing and extant) is therefore dependent on API delineation of extant lowland swamps and is likely to be underestimated.

Many coastal lagoons have been cleared or filled during coastal development, while others may be affected by polluted runoff, weed invasion and changes to hydrology. Larger examples include Coomonderry Swamp (Nowra), Pitt Town and Longneck Lagoons (Wilberforce), Marley and Jibbon Lagoons (Royal NP), Waldron and Pedro Swamps (Moruya), Bobundara Swamp (Akolele), and Penooka and Betunga Swamps (Bega).

Lagoons on coastal sand sheets in the Sydney Basin bioregion are recognised as threatened, with many examples (such as the Lachlan and Botany Swamps) destroyed or highly modified. Lagoons on coastal floodplains are also listed as threatened in NSW.

#### Floristic Summary:

**Shrubs:** *Melaleuca ericifolia*. **Groundcover:** *Baumea articulata*, *Persicaria praetermissa*, *Phragmites australis*, *Triglochin procerum*, *Typha orientalis*, *Cladium procerum*.

#### Vegetation structure:

Stratum	Frequency (n=6)	Height (m) (±StDev)	Cover (%) (±StDev)
Tree canopy	50	16 (-)	50 (-)
Shrub	50	3 (-)	95 (-)
Ground cover	100	1.6 (2.1)	51 (69.3)

#### Diagnostic Species:

A 0.04 ha plot located in this Map Unit is expected to contain at least 2 positive diagnostic species (95% confidence interval) provided the total number of native species in the plot is 4 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 2 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/AO	FreqO
<i>Baumea articulata</i>	1	100	1	0
<i>Baumea teretifolia</i>	1	67	2	0
<i>Melaleuca ericifolia</i>	1	83	3	1
<i>Persicaria praetermissa</i>	3	33	2	0
<i>Phragmites australis</i>	1	67	3	1
<i>Samolus repens</i>	1	33	2	1
<i>Triglochin procerum</i>	1	33	2	0
<i>Typha orientalis</i>	5	33	2	0

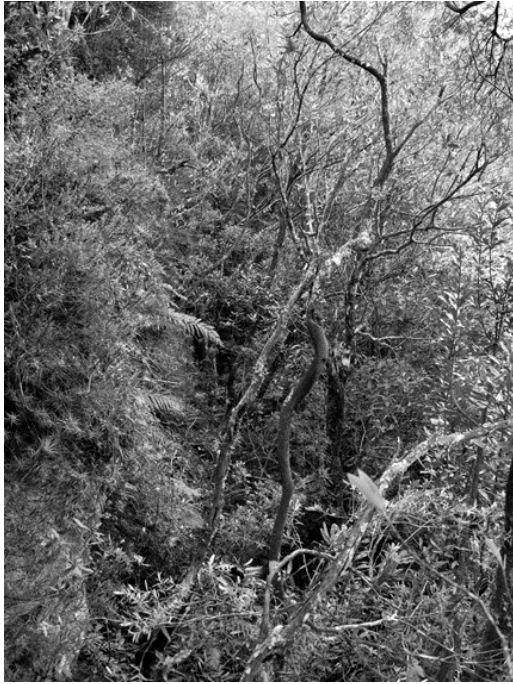
**RF p314: Budderoo Temperate Rainforest**

Plate p314. Budderoo Temperate Rainforest (Map Unit p314) hugging the base of the high, misty sandstone escarpment below Jamberoo Lookout. A tall dense canopy of *Ceratopetalum apetalum*, *Eucryphia moorei* and *Quintinia sieberi* grows beside a moist rock face supporting a jumble of shrubs and ferns including *Todea barbara*, *Blechnum indicum*, *Dracophyllum secundum* and *Pyrrosia rupestris*.

Sample Sites: 4

Area Extant (ha): 400

Estimated % remaining: >95%

Area in conservation reserves (ha): 230

Estimated % of pre-clearing area in conservation reserves: 45-65%

No. taxa (total / unique): 60 / 0

No. taxa per plot ( $\pm$ sd): 26.7 (15.3)

Class: Northern Warm Temperate Rainforests

Related TEC: n/a

Budderoo Temperate Rainforest (RF p314) is equivalent to RF 314 identified by Tindall *et al.* (2004) and represents a simple closed forest with a dense tree canopy, a prominent shrub stratum and a fern/sedge dominated groundcover. This rainforest is restricted to moist gullies below sandstone cliffs between Mt Kembla and the Budderoo plateau. It has been recorded from sites at elevations between 460 - 650m ASL and with annual rainfall greater than 1500mm. Budderoo Temperate Rainforest is closely related to Sandstone Scarp Warm Temperate Rainforest (RF p114), both occurring below sandstone cliffs at higher altitudes, however Budderoo Temperate Rainforest is restricted to the highest elevations of the very high rainfall areas on the Illawarra Scarp. Its originally small distribution is unlikely to have been depleted by land clearing.

**Floristic Summary:**

**Trees:** *Ceratopetalum apetalum*, *Quintinia sieberi*, *Eucryphia moorei*. **Shrubs:** *Coprosma quadrifida*, *Dracophyllum secundum*, *Epacris longiflora*, *Tasmannia insipida*, *Todea barbara*, *Tristaniopsis collina*. **Climbers:** *Tmesipteris truncata*. **Groundcover:** *Gleichenia microphylla*, *Grammitis billardierei*, *Gahnia sieberiana*, *Pyrrosia rupestris*.

**Vegetation structure:**

Stratum	Frequency (n=3)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	19 (11.3)	71.7 (2.9)
Small tree	67	10 (2.8)	40 (14.1)
Shrub	33	3 (-)	60 (-)
Ground cover	100	0.8 (0.3)	26.7 (5.8)

**Diagnostic Species:**

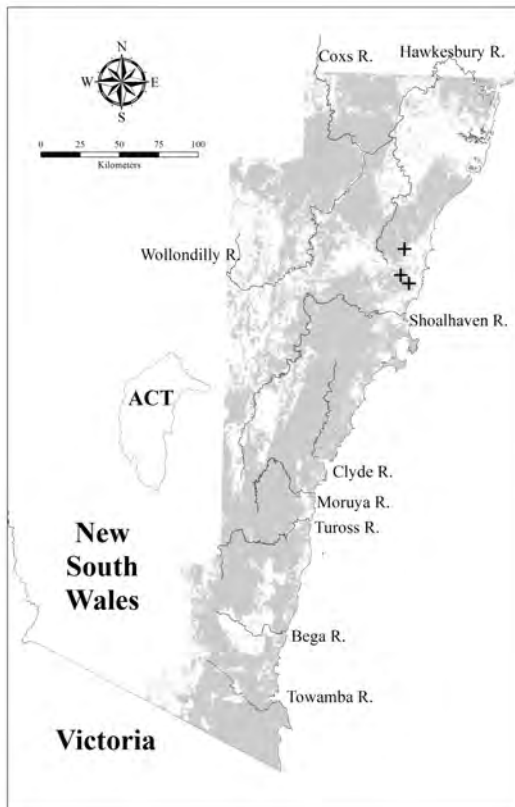
A 0.04ha plot located in this Map Unit is expected to contain at least 10 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 14 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 10 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Blechnum indicum</i>	3(3-3)	25	1(1-1)	<1
<i>Blechnum wattsii</i>	2(2-2)	50	1(1-2)	2
<i>Bossiaea kiamensis</i>	2(2-2)	25	2(1-3)	<1
<i>Bulbophyllum exiguum</i>	1(1-1)	25	1(1-2)	<1
<i>Ceratopetalum apetalum</i>	4(3-5)	100	3(1-3)	3
<i>Daviesia alata</i>	1(1-1)	25	1(1-2)	<1
<i>Dracophyllum secundum</i>	2(1-2)	50	1(1-1)	<1
<i>Epacris calvertiana</i> var. <i>versicolor</i>	1(1-1)	25	0(0-0)	0
<i>Epacris longiflora</i>	1(1-1)	50	1(1-2)	1
<i>Eucalyptus moorei</i>	3(3-3)	25	3(2-3)	<1
<i>Eucryphia moorei</i>	3(2-3)	50	3(2-3)	1
<i>Fieldia australis</i>	3(2-3)	50	1(1-3)	2
<i>Gahnia sieberiana</i>	1(1-1)	50	1(1-1)	5
<i>Gleichenia microphylla</i>	2(1-3)	75	1(1-2)	1
<i>Grammitis billardierei</i>	1(1-1)	100	1(1-1)	<1
<i>Hymenophyllum cupressiforme</i>	1(1-1)	50	1(1-1)	1
<i>Leptospermum morrisonii</i>	2(2-2)	25	1(1-2)	<1
<i>Olearia elliptica</i>	1(1-1)	25	1(1-1)	<1
<i>Parsonsia brownii</i>	1(1-1)	50	1(1-2)	2
<i>Polyosma cunninghamii</i>	2(2-2)	25	1(1-2)	1
<i>Prostanthera incisa</i>	1(1-1)	25	1(1-1)	1
<i>Pyrrosia rupestris</i>	1(1-1)	75	1(1-2)	6
<i>Quintinia sieberi</i>	3(1-3)	100	1(1-2)	<1
<i>Rapanea variabilis</i>	1(1-1)	50	1(1-1)	4
<i>Schizomeria ovata</i>	1(1-1)	25	1(1-2)	1
<i>Sticherus lobatus</i>	2(2-2)	25	1(1-3)	1
<i>Syzygium australe</i>	1(1-1)	25	1(1-3)	<1
<i>Tasmannia insipida</i>	1(1-3)	75	1(1-2)	2
<i>Tmesipteris truncata</i>	1(1-1)	50	1(1-1)	<1
<i>Todea barbara</i>	2(1-5)	75	1(1-2)	1
<i>Tristaniopsis collina</i>	3(1-3)	50	1(1-2)	2
<i>Zieria arborescens</i>	3(3-3)	25	1(1-2)	<1

Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acmena smithii</i>	2(1-2)	50	2(1-3)	9
<i>Banksia serrata</i>	1(1-1)	50	1(1-2)	9
<i>Coprosma quadrifida</i>	1(1-1)	50	1(1-1)	10
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-1)	50	1(1-1)	24
<i>Pandorea pandorana</i>	1(1-1)	50	1(1-1)	18
<i>Parsonsia straminea</i>	1(1-1)	50	1(1-1)	7
<i>Pittosporum undulatum</i>	2(1-2)	50	1(1-1)	14
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	2(1-2)	50	1(1-2)	7



Locations of survey sites allocated to RF p314. Grey shading indicates extant native vegetation cover within the study area.

**RF p317: Southeast Cool Temperate Rainforest**

Plate p317. Southeast Cool Temperate Rainforest (Map Unit p317) above Pooh Corner on the Kings Highway at Clyde Mountain. In this steep south-facing gully a closed canopy with *Eucryphia moorei* and *Doryphora sassafras* shelters a moist understorey dominated by vines and ferns including *Dicksonia antarctica*, and a dense groundcover of *Blechnum patersonii* subsp. *patersonii*.

Sample Sites: 69

Area Extant (ha): 3000

Estimated % remaining: >95%

Area in conservation reserves (ha): 2400

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

No. taxa (total / unique): 158 / 3

No. taxa per plot ( $\pm$ sd): 27.7 (11.7)

Class: Cool Temperate Rainforests

Related TEC: n/a

Southeast Cool Temperate Rainforest (RF p317) represents a revision of RF 317 (Clyde-Deua Cool Temperate Rainforest) of Tindall *et al.* (2004) based on additional samples over a larger study area. This revised map unit includes original RF 317 sites and cooler southern RF 116 (Intermediate Temperate Rainforest) sites of Tindall *et al.* (2004); sites assigned to assemblage 8 (Cool Temperate Rainforest) by Keith & Bedward (1999); and a small number of additional sites assigned by Beukers (undated) to units Warm Temperate Rainforest and Cool Temperate Rainforest.

RF p317 is characterised by a simple closed forest structure, with an understorey of tree ferns, mesic shrubs and ground ferns. It is restricted to cool, higher altitude escarpment slopes and moist sheltered gullies with loamy soils, generally on sedimentary or granitic substrates, between 400 and 1050m ASL and receiving a mean annual rainfall of at least 900mm. This unit is generally restricted to small patches of less than 20 ha, scattered along the escarpment from near Wog Wog mountain on the Budawang range south to Burragate and Narrabarba. Local concentrations include areas near Clyde Mountain and Monga State Forest, at Bumbo in Dampier State Forest, on Mount Dromedary, in the Yowrie area and in Glenbog State Forest.

Southeast Cool Temperate Rainforest is replaced at lower, warmer sites in the north of the study area by RF p116 (Intermediate Temperate Rainforest), and in the south by RF e6e7 (Southeast Warm Temperate Rainforest). All 3 of these rainforest units occur at Mount Dromedary, with p317 on the peak grading into e6e7 at intermediate elevations and p116 on lower slopes.

Most of the original distribution of Southeast Cool Temperate Rainforest remains unaffected by land clearing, and fires pose the principal threat to its diversity and extent.

**Floristic Summary:**

**Trees:** *Eucryphia moorei*, *Elaeocarpus holopetalus* in the south. **Shrubs:** *Dicksonia antarctica*, *Cyathea australis*, *Hedycarya angustifolia*. **Climbers:** *Smilax australis*, *Microsorium pustulatum*, *M. scandens*, *Parsonsia brownii*, *Pandorea pandorana*. **Groundcover:** *Fieldia australis*, *Polyphlebium venosum*, *Pyrrosia rupestris*, *Lastreopsis acuminata*, *Australina pusilla*, *Blechnum patersonii*, *B. wattsi*, *Polystichum proliferum*, *Asplenium flabellifolium*.



**Vegetation structure:**

Stratum	Frequency (n=4)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	25	20 (-)	65 (-)
Small tree	100	20 (9.7)	72.5 (18.5)
Shrub	75	3.7 (1)	26.7 (20.8)
Ground cover	100	0.6 (0.4)	41.8 (38)

**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 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 17 positive diagnostic species.

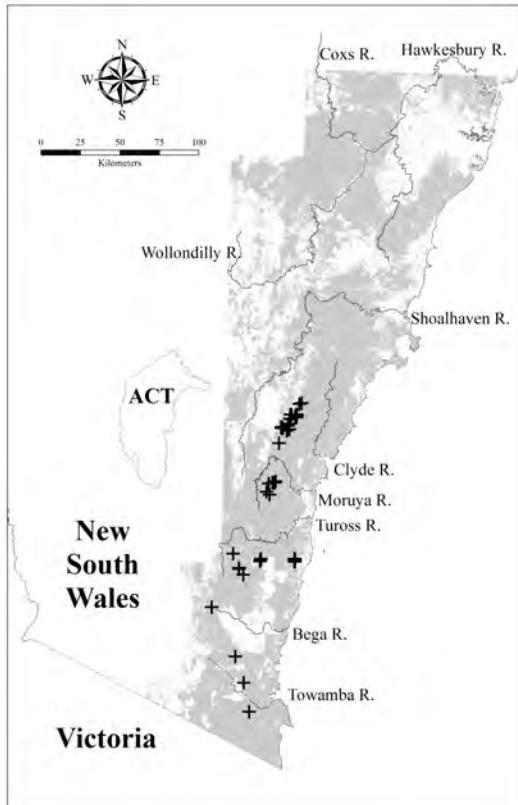
**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxylon</i>	1(1-1)	28	1(1-1)	6
<i>Acmena smithii</i>	2(1-3)	43	2(1-3)	9
<i>Aphanopetalum resinosum</i>	2(1-3)	16	2(1-3)	4
<i>Asplenium bulbiferum</i> subsp. <i>gracillimum</i>	1(1-1)	35	1(1-1)	<1
<i>Asplenium flabellifolium</i>	2(1-3)	67	1(1-1)	11
<i>Asplenium flaccidum</i> subsp. <i>flaccidum</i>	1(1-1)	12	1(1-1)	<1
<i>Australina pusilla</i>	2(1-2)	62	1(1-1)	1
<i>Bedfordia arborescens</i>	1(1-3)	16	1(1-2)	3
<i>Blechnum patersonii</i> subsp. <i>patersonii</i>	2(1-3)	78	1(1-2)	2
<i>Blechnum wattsi</i>	2(1-3)	52	1(1-2)	2
<i>Cissus hypoglauca</i>	1(1-2)	28	1(1-2)	10
<i>Clematis aristata</i>	1(1-1)	42	1(1-1)	20
<i>Coprosma quadrifida</i>	1(1-2)	52	1(1-1)	9
<i>Cyathea australis</i>	1(1-2)	70	1(1-1)	8
<i>Dendrobium pugioniforme</i>	2(1-3)	30	1(1-1)	1
<i>Dennstaedtia davallioides</i>	1(1-2)	13	1(1-2)	1
<i>Dicksonia antarctica</i>	3(3-3)	99	1(1-2)	3
<i>Diplazium australe</i>	1(1-2)	38	1(1-2)	1
<i>Doryphora sassafras</i>	2(2-3)	19	3(1-3)	3
<i>Elaeocarpus holopetalus</i>	1(1-2)	16	1(1-1)	<1
<i>Elatostema reticulatum</i>	2(1-3)	25	1(1-2)	<1
<i>Eucryphia moorei</i>	3(3-3)	88	1(1-2)	<1
<i>Fieldia australis</i>	3(1-3)	93	1(1-2)	1
<i>Grammitis billardierei</i>	1(1-3)	22	1(1-1)	<1
<i>Hedycarya angustifolia</i>	1(1-3)	65	1(1-2)	3
<i>Histiopteris incisa</i>	1(1-1)	46	1(1-1)	1
<i>Hymenophyllum cupressiforme</i>	1(1-2)	22	1(1-1)	1
<i>Hymenophyllum flabellatum</i>	1(1-2)	30	1(1-2)	<1
<i>Lastreopsis acuminata</i>	2(2-3)	57	1(1-2)	1
<i>Lastreopsis decomposita</i>	2(1-2)	10	2(1-3)	3
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	2(1-3)	23	2(1-3)	4
<i>Marsdenia rostrata</i>	1(1-2)	29	1(1-2)	12
<i>Microsorium pustulatum</i>	2(1-3)	70	1(1-1)	1

<i>Microsorium scandens</i>	2(2-3)	65	2(1-3)	3
<i>Morinda jasminoides</i>	2(1-2)	23	1(1-2)	9
<i>Olearia argophylla</i>	1(1-1)	42	1(1-2)	3
<i>Pandorea pandorana</i>	2(1-2)	71	1(1-1)	18
<i>Parsonsia brownii</i>	2(1-3)	62	1(1-1)	1
<i>Pellaea falcata</i>	2(1-2)	30	1(1-1)	10
<i>Pellaea nana</i>	1(1-2)	20	1(1-1)	2
<i>Pittosporum multiflorum</i>	1(1-2)	14	1(1-2)	4
<i>Plectorrhiza tridentata</i>	1(1-3)	13	1(1-2)	1
<i>Polystichum proliferum</i>	2(1-2)	62	1(1-2)	3
<i>Polyphlebium venosum</i>	2(1-3)	80	1(1-1)	<1
<i>Pteris umbrosa</i>	2(1-3)	28	2(1-3)	2
<i>Pyrrosia rupestris</i>	2(1-3)	87	1(1-2)	6
<i>Rapanea howittiana</i>	1(1-2)	26	1(1-1)	5
<i>Rubus rosifolius</i>	1(1-1)	30	1(1-1)	3
<i>Rumohra adiantiformis</i>	1(1-2)	13	1(1-1)	<1
<i>Sambucus australasica</i>	1(1-1)	14	1(1-1)	1
<i>Sarcochilus falcatus</i>	1(1-2)	26	1(1-2)	<1
<i>Smilax australis</i>	1(1-2)	81	1(1-1)	16
<i>Solanum aviculare</i>	1(1-1)	14	1(1-1)	1
<i>Stellaria flaccida</i>	1(1-2)	30	1(1-1)	10
<i>Synoum glandulosum</i> subsp. <i>glandulosum</i>	2(1-2)	25	1(1-2)	7
<i>Tasmania insipida</i>	1(1-2)	10	1(1-2)	2
<i>Tasmania lanceolata</i>	1(1-1)	13	1(1-2)	1
<i>Tmesipteris parva</i>	1(1-2)	19	1(1-1)	<1
<i>Tristaniopsis laurina</i>	1(1-1)	16	1(1-3)	1
<i>Urtica incisa</i>	1(1-1)	49	1(1-1)	5

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus cypellocarpa</i>	1(1-1)	1	2(1-2)	10
<i>Eucalyptus elata</i>	1(1-1)	1	2(1-3)	5
<i>Eucalyptus fastigata</i>	1(1-1)	6	2(2-3)	6
<i>Eucalyptus nitens</i>	1(1-1)	1	2(1-3)	<1



Locations of survey sites allocated to RF p317. Grey shading indicates extant native vegetation cover within the study area.

### WSF p338: Southern Range Wet Forest



Plate p338. Southern Range Wet Forest (Map Unit p338) on a moist sheltered slope above the Palerang Fire Trail in Tallaganda State Forest. A tall canopy of mighty *Eucalyptus fastigata* towers above scattered *Dicksonia antarctica* and a dense moist groundcover including *Blechnum nudum*, *Polystichum proliferum*, *Pteridium esculentum* and *Stellaria pungens* interwoven with *Smilax australis*.

Sample Sites: 135  
 Area Extant (ha): 87800  
 Estimated % remaining: >90%  
 Area in conservation reserves (ha): 38000  
 Estimated % of pre-clearing area in conservation reserves: 30-40%  
 No. taxa (total / unique): 381 / 8

No. taxa per plot ( $\pm$ sd): 31.5 (8.4)  
 Class: Southern Escarpment Wet Sclerophyll Forests  
 Related TEC: n/a

Southern Range Wet Forest (WSF p338) represents a substantial revision and extension of WSF 338 (Tallaganda Wet Forest) identified by Tindall *et al.* (2004). This revision is based on significant additional samples over a wider study area. The revised unit replaces WSF 338 and southern parts of WSF 73 (Cool Montane Wet Forest) of Tindall *et al.* (2004), and parts of assemblages 16 (Basalt Wet Herb Forest) and W4 (Kydra Flats Grass Forest) identified by Keith & Bedward (1999).

Southern Range Wet Forest is a tall eucalypt forest with frequent small tree and shrub layers and diverse groundcover of forbs & grasses. This forest occurs on higher elevations on tableland ranges, from the Gourock Range and Kybeyan Range south to Glenbog State Forest and Cathcart. From Tantawangalo south, WSF p338 grades into and is replaced by e15 (Southeast Mountain Wet Herb Forest). Scattered samples assigned to WSF p338 in the far south (e.g. at Coolangubra, Bondi Gulf and Rockton) were not separated from e15 and modelled by the current project.

Within the study area, Southern Range Wet Forest occurs on moist soils derived largely from granite, acid volcanic or metamorphosed sedimentary substrates. It is found on sheltered slopes and high ridges generally from 700 to 1400m ASL where mean annual rainfall varies between 800 and 1150mm. With decreasing elevation Tallaganda Wet Forest is replaced by Southern Tableland Flats Forest (WSF p220) in the north of its distribution, and in the south by Southeast Mountain Wet Herb Forest (e15).

The majority of mapped stands of Southern Range Wet Forest are within state forests and conservation reserves.

#### Floristic Summary:

**Trees:** *Eucalyptus fastigata*, *E. pauciflora*. **Shrubs:** *Acacia dealbata*, *Coprosma quadrifida*, *Persoonia silvatica*. **Climbers:** *Clematis aristata*. **Groundcover:** *Stellaria pungens*, *Acaena novae-zelandiae*, *Poa meionectes*, *Poranthera microphylla*, *Asperula scoparia*, *Dianella tasmanica*, *Helichrysum scorpioides*, *Pteridium esculentum*, *Veronica calycina*, *Lagenifera stipitata*, *Leptinella filicula*, *Viola betonicifolia*, *V. hederacea*, *Ranunculus lappaceus*.

#### Vegetation structure:

Stratum	Frequency (n=56)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	4	37.5 (3.5)	45 (28.3)
Tree canopy	96	29 (6.6)	33.6 (13.7)
Small tree	61	10.6 (5.5)	17 (13.9)
Shrub	73	2.4 (0.9)	19.1 (17)
Ground cover	100	0.7 (0.3)	60.7 (26.9)

#### 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 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

#### Positive Diagnostic Species:

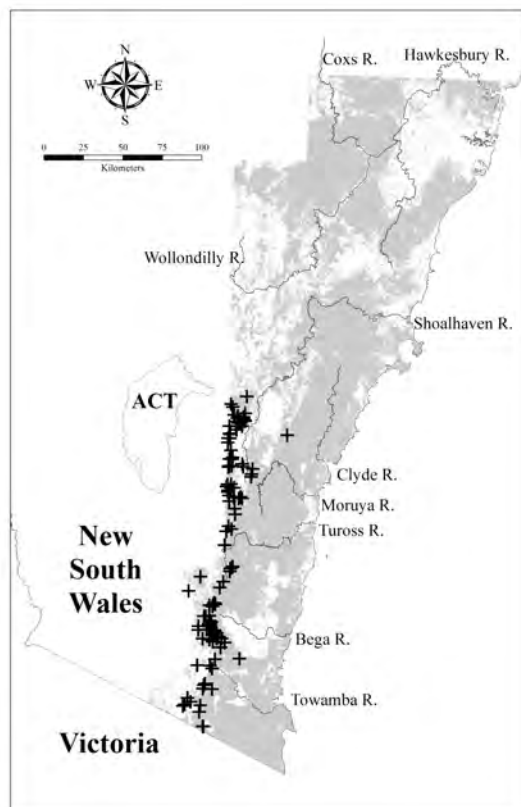
Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-2)	54	1(1-2)	4
<i>Acacia melanoxylon</i>	1(1-1)	31	1(1-2)	6
<i>Acacia obliquinervia</i>	1(1-2)	13	1(1-1)	1
<i>Acaena novae-zelandiae</i>	1(1-1)	58	1(1-1)	6
<i>Acrotriche divaricata</i>	1(1-3)	9	1(1-1)	1
<i>Acrotriche serrulata</i>	1(1-1)	12	1(1-1)	3
<i>Ajuga australis</i>	1(1-1)	10	1(1-1)	3
<i>Asperula scoparia</i>	1(1-1)	57	1(1-1)	2
<i>Austrodanthonia penicillata</i>	1(1-1)	4	1(1-2)	<1
<i>Blechnum nudum</i>	1(1-3)	11	1(1-2)	3
<i>Brachyscome spathulata</i>	1(1-1)	5	1(1-1)	1
<i>Caladenia catenata</i>	1(1-1)	2	1(1-1)	<1
<i>Caladenia gracilis</i>	1(1-1)	2	1(1-1)	<1
<i>Chiloglottis pluricallata</i>	1(1-1)	12	1(1-1)	<1

<i>Chiloglottis reflexa</i>	1(1-1)	2	1(1-1)	<1
<i>Choretrum candollei</i>	1(1-2)	4	1(1-1)	1
<i>Clematis aristata</i>	1(1-1)	70	1(1-1)	19
<i>Coprosma hirtella</i>	1(1-1)	7	1(1-1)	1
<i>Coprosma quadrifida</i>	1(1-1)	40	1(1-1)	9
<i>Cotula alpina</i>	1(1-2)	3	1(1-1)	<1
<i>Craspedia canens</i>	1(1-1)	2	1(1-1)	<1
<i>Craspedia coolaminica</i>	1(1-1)	3	0(0-0)	0
<i>Cullen microcephalum</i>	1(1-1)	2	1(1-1)	<1
<i>Cymbonotus preissianus</i>	1(1-1)	13	1(1-1)	1
<i>Daviesia ulicifolia</i>	1(1-1)	14	1(1-1)	6
<i>Deyeuxia gunniana</i>	1(1-2)	2	1(1-1)	<1
<i>Deyeuxia monticola</i>	1(1-2)	4	1(1-1)	1
<i>Deyeuxia quadriseta</i>	1(1-1)	8	1(1-1)	2
<i>Dianella tasmanica</i>	2(1-2)	86	1(1-1)	6
<i>Dichondra spp.</i>	1(1-1)	54	1(1-2)	25
<i>Drymophila cyanocarpa</i>	1(1-1)	10	1(1-1)	<1
<i>Echinopogon ovatus</i>	1(1-1)	24	1(1-1)	14
<i>Epilobium billardioreanum</i>	1(1-1)	6	1(1-1)	2
<i>Eucalyptus cypellocarpa</i>	2(1-2)	20	2(1-2)	10
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	1(1-2)	20	1(1-3)	3
<i>Eucalyptus fastigata</i>	2(1-3)	69	2(2-3)	5
<i>Eucalyptus nitens</i>	2(1-3)	8	2(1-3)	<1
<i>Eucalyptus obliqua</i>	2(1-3)	19	2(1-3)	4
<i>Eucalyptus pauciflora</i>	1(1-2)	18	1(1-3)	3
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	2(1-2)	46	2(1-3)	6
<i>Eucalyptus robertsonii</i> subsp. <i>robertsonii</i>	4(2-4)	4	3(1-3)	<1
<i>Eucalyptus viminalis</i>	2(1-2)	44	2(1-3)	4
<i>Euchiton gymnocephalus</i>	1(1-1)	27	1(1-1)	7
<i>Galium ciliare</i>	1(1-1)	2	1(1-1)	<1
<i>Galium propinquum</i>	1(1-1)	16	1(1-1)	7
<i>Geranium potentilloides</i>	1(1-1)	37	1(1-1)	5
<i>Geranium retrorsum</i>	1(1-1)	4	1(1-1)	<1
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-1)	16	1(1-1)	8
<i>Glycine clandestina</i>	1(1-1)	52	1(1-1)	26
<i>Gonocarpus tetragynus</i>	1(1-1)	55	1(1-1)	20
<i>Goodia lotifolia</i>	1(1-1)	12	1(1-1)	2
<i>Hakea eriantha</i>	1(1-1)	17	1(1-1)	2
<i>Helichrysum scorpioides</i>	1(1-1)	53	1(1-1)	7
<i>Hydrocotyle laxiflora</i>	1(1-1)	34	1(1-1)	15
<i>Juncus australis</i>	1(1-1)	4	1(1-1)	1
<i>Juncus pauciflorus</i>	1(1-1)	3	1(1-1)	<1
<i>Lagenifera stipitata</i>	1(1-1)	67	1(1-1)	13
<i>Leptinella filicula</i>	1(1-1)	24	1(1-1)	<1
<i>Leptospermum myrtifolium</i>	1(1-1)	5	1(1-1)	1
<i>Leptostigma reptans</i>	1(1-1)	4	1(1-1)	<1

<i>Leucopogon gelidus</i>	1(1-1)	4	1(1-1)	<1
<i>Leucopogon hookeri</i>	1(1-2)	19	1(1-1)	<1
<i>Leucopogon lanceolatus</i> var. <i>lanceolatus</i>	1(1-2)	57	1(1-1)	23
<i>Lomatia fraseri</i>	1(1-1)	11	1(1-1)	1
<i>Lomandra longifolia</i>	1(1-2)	68	1(1-1)	43
<i>Lomatia myricoides</i>	1(1-1)	30	1(1-1)	4
<i>Luzula flaccida</i>	1(1-1)	26	1(1-1)	3
<i>Microlaena stipoides</i>	1(1-1)	57	1(1-2)	36
<i>Nestegis ligustrina</i>	1(1-1)	2	1(1-1)	<1
<i>Olearia erubescens</i>	1(1-1)	17	1(1-1)	2
<i>Olearia megalophylla</i>	1(1-1)	13	1(1-1)	<1
<i>Olearia phlogopappa</i>	1(1-1)	4	1(1-1)	<1
<i>Oreomyrrhis eriopoda</i>	1(1-1)	15	1(1-1)	1
<i>Persoonia silvatica</i>	1(1-1)	28	1(1-1)	1
<i>Pittosporum bicolor</i>	1(1-1)	4	1(1-1)	<1
<i>Poa clivicola</i>	1(1-1)	4	3(1-3)	<1
<i>Poa ensiformis</i>	1(1-2)	8	1(1-2)	2
<i>Poa meionectes</i>	3(2-3)	82	1(1-2)	15
<i>Polystichum proliferum</i>	1(1-1)	19	1(1-2)	3
<i>Polyscias sambucifolia</i>	1(1-1)	13	1(1-1)	6
<i>Pomaderris aspera</i>	1(1-1)	13	1(1-2)	5
<i>Poranthera microphylla</i>	1(1-1)	56	1(1-1)	15
<i>Pratia pedunculata</i>	1(1-1)	5	1(1-1)	<1
<i>Pratia puberula</i>	1(1-1)	6	1(1-2)	<1
<i>Pteridium esculentum</i>	2(1-2)	86	1(1-2)	36
<i>Ranunculus lappaceus</i>	1(1-1)	18	1(1-1)	1
<i>Ranunculus pimpinellifolius</i>	1(1-1)	4	1(1-1)	<1
<i>Ranunculus plebeius</i>	1(1-1)	16	1(1-1)	1
<i>Ranunculus scapiger</i>	1(1-1)	4	1(1-1)	<1
<i>Rubus parvifolius</i>	1(1-1)	28	1(1-1)	9
<i>Senecio glomeratus</i>	1(1-1)	5	1(1-1)	<1
<i>Senecio prenanthoides</i>	1(1-1)	50	1(1-1)	8
<i>Stackhousia monogyna</i>	1(1-1)	11	1(1-1)	2
<i>Stellaria pungens</i>	1(1-1)	64	1(1-2)	5
<i>Stylidium graminifolium</i>	1(1-1)	26	1(1-1)	9
<i>Tasmania lanceolata</i>	1(1-1)	20	1(1-2)	1
<i>Veronica calycina</i>	1(1-1)	58	1(1-1)	5
<i>Veronica notabilis</i>	1(1-1)	4	1(1-1)	1
<i>Viola betonicifolia</i>	1(1-1)	31	1(1-1)	5
<i>Viola hederacea</i>	1(1-1)	83	1(1-1)	21
<i>Xerochrysum bracteatum</i>	1(1-1)	15	1(1-1)	2

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus angophoroides</i>	1(1-1)	1	1(1-2)	1
<i>Eucalyptus badjensis</i>	2(1-2)	1	2(1-3)	<1
<i>Eucalyptus bosistoana</i>	1(1-1)	1	1(1-2)	3
<i>Eucalyptus dives</i>	2(1-2)	1	2(1-3)	4
<i>Eucalyptus elata</i>	3(1-3)	2	2(1-3)	5
<i>Eucalyptus fraxinoides</i>	2(1-3)	2	2(1-3)	1
<i>Eucalyptus maidenii</i>	2(1-2)	1	2(1-2)	2
<i>Eucalyptus ovata</i>	1(1-1)	1	2(1-3)	1
<i>Eucalyptus parvula</i>	1(1-1)	1	1(1-2)	<1
<i>Eucalyptus pilularis</i>	2(2-2)	1	2(1-3)	5
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-2)	2	1(1-2)	2
<i>Eucalyptus smithii</i>	2(1-2)	1	1(1-2)	2
<i>Eucalyptus stellulata</i>	3(1-3)	1	1(1-2)	1



Locations of survey sites allocated to WSF p338. Grey shading indicates extant native vegetation cover within the study area.



**DSF p343: Araluen Scarp Grassy Forest**

Plate p343. Araluen Scarp Grassy Forest (Map Unit p343) above the Araluen Road at Bells Mountain, where a canopy of *Eucalyptus maidenii*, *E. tereticornis* and *E. melliodora* grows above scattered understorey shrubs including *Acacia mearnsii* and *Hymenanthera dentata* and a sparse groundcover of forbs, ferns and vines.

Sample Sites: 12

Area Extant (ha): 8800

Estimated % remaining: 75-90%

Area in conservation reserves (ha): 2400

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

No. taxa (total / unique): 153 / 1

No. taxa per plot ( $\pm$ sd): 35.9 (11.8)

Class: Southern Hinterland Dry Sclerophyll Forests

Related TEC: n/a

Araluen Scarp Grassy Forest (DSF p343) was identified by Tindall *et al.* (2004) as DSF 343. It is a eucalypt woodland with an open shrub layer and a grassy groundcover, restricted to the escarpment and associated ridges bounding the northern and western sides of the Araluen valley, as far south as Moodong Creek. It occurs exclusively on sandy loams derived from granite, usually on steep slopes between 200-700m ASL. This distribution falls within a rainshadow zone, where mean annual rainfall is 890-1000mm. Similar rainshadows exist in the gorges of the Bega, Towamba, Shoalhaven, Wollondilly and Kowmung Rivers, and these support related grassy dry sclerophyll forests. Locally, Araluen Scarp Grassy Forest is replaced on the gently undulating valley floor by Araluen Valley Grassy Woodland (GW e20p229). On the summit of the escarpment, it grades into Southern Tablelands Flats Forest (GW p220), or Mountain Wet Fern Forest (WSF e12) on higher peaks.

Steep terrain has prevented extensive clearing of Araluen Scarp Grassy Forest, although much of this forest is used for rough-country cattle grazing. The understorey and erodible soils are also impacted by feral goats. These forests also suffered extensive dieback of eucalypt crowns and understorey during the 2003-04 drought, particularly on the spurs of the escarpment. Some stands of this unit are represented in conservation reserves.

**Floristic Summary:**

**Trees:** *Acacia mearnsii*, *Eucalyptus maidenii*, *E. melliodora*, *Angophora floribunda*, *E. globoidea*. **Shrubs:** *Hymenanthera dentata*, *Pittosporum undulatum*. **Climbers:** *Pandorea pandorana*, *Geitonoplesium cymosum*, *Clematis glycinoides* var. *glycinoides*. **Groundcover:** *Microlaena stipoides*, *Desmodium varians*, *Oplismenus imbecillis*, *Pellaea falcata*, *Stellaria pungens*.

**Vegetation structure:**

Stratum	Frequency (n=12)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	8	20 (-)	1 (-)
Tree canopy	100	17.9 (6.9)	35 (14.6)
Small tree	67	8.4 (3.1)	13.9 (11.7)
Shrub	67	2.5 (0.7)	13 (15.3)
Ground cover	83	0.4 (0.2)	36.5 (27.3)



**Diagnostic Species:**

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

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia mearnsii</i>	2(2-3)	75	1(1-2)	7
<i>Angophora floribunda</i>	3(1-3)	50	1(1-2)	9
<i>Arthropodium minus</i>	1(1-2)	25	1(1-1)	1
<i>Carex breviculmis</i>	1(1-1)	50	1(1-1)	4
<i>Cenchrus caliculatus</i>	1(1-1)	25	1(1-1)	1
<i>Cheilanthes sieberi</i>	1(1-1)	58	1(1-1)	14
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	50	1(1-1)	10
<i>Crassula sieberiana</i>	1(1-1)	25	1(1-1)	3
<i>Daucus glochidiatus</i>	1(1-2)	33	1(1-1)	2
<i>Desmodium varians</i>	1(1-1)	67	1(1-1)	21
<i>Dichondra</i> spp.	2(1-2)	67	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-2)	58	1(1-1)	14
<i>Einadia hastata</i>	1(1-2)	50	1(1-1)	3
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	33	1(1-1)	5
<i>Eucalyptus maidenii</i>	2(2-3)	67	2(1-2)	2
<i>Eucalyptus melliodora</i>	3(1-3)	67	1(1-3)	2
<i>Eucalyptus tereticornis</i>	1(1-3)	50	2(1-3)	7
<i>Euchiton gymnocephalus</i>	1(1-1)	42	1(1-1)	7
<i>Ficus rubiginosa</i>	1(1-4)	25	1(1-2)	1
<i>Geitonoplesium cymosum</i>	1(1-1)	58	1(1-1)	16
<i>Hymenanchera dentata</i>	1(1-2)	83	1(1-1)	6
<i>Microlaena stipoides</i>	1(1-2)	83	1(1-2)	36
<i>Notodanthonia longifolia</i>	1(1-2)	50	1(1-2)	5
<i>Oplismenus imbecillis</i>	1(1-2)	67	1(1-2)	14
<i>Oxalis perennans</i>	1(1-1)	58	1(1-1)	13
<i>Pandorea pandorana</i>	1(1-1)	58	1(1-1)	18
<i>Pellaea falcata</i>	1(1-1)	67	1(1-1)	10
<i>Pittosporum undulatum</i>	1(1-3)	67	1(1-1)	14
<i>Plantago debilis</i>	1(1-2)	42	1(1-1)	7
<i>Plectranthus parviflorus</i>	1(1-1)	50	1(1-1)	8
<i>Rumex brownii</i>	1(1-2)	42	1(1-1)	5
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	1(1-1)	58	1(1-1)	7
<i>Solanum pungetium</i>	1(1-1)	33	1(1-1)	6
<i>Stellaria pungens</i>	1(1-1)	42	1(1-1)	6
<i>Veronica plebeia</i>	1(1-1)	42	1(1-1)	10
<i>Xerochrysum bracteatum</i>	2(1-3)	33	1(1-1)	2

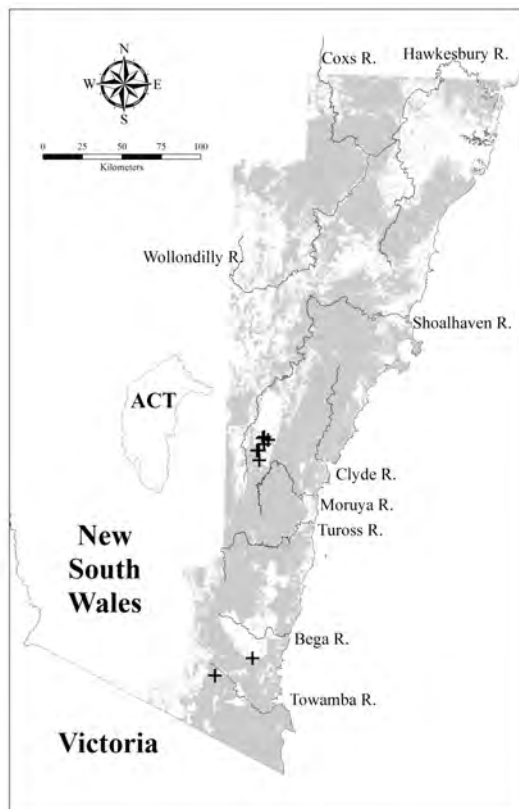
**Constant:**

Species	C/A	Freq	C/A O	Freq O
<i>Asplenium flabellifolium</i>	1(1-1)	33	1(1-1)	12
<i>Clematis aristata</i>	1(1-1)	42	1(1-1)	20

<i>Glycine clandestina</i>	1(1-1)	42	1(1-1)	26
<i>Hydrocotyle laxiflora</i>	1(1-1)	42	1(1-1)	16
<i>Lagenifera stipitata</i>	1(1-2)	33	1(1-1)	14
<i>Lomandra longifolia</i>	1(1-1)	67	1(1-1)	44
<i>Marsdenia rostrata</i>	1(1-1)	33	1(1-2)	12
<i>Tylophora barbata</i>	1(1-1)	33	1(1-1)	17

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus polyanthemos</i> subsp. <i>tarda</i>	1(1-1)	8	1(1-2)	<1
<i>Eucalyptus angophoroides</i>	1(1-1)	8	1(1-2)	1
<i>Eucalyptus elata</i>	2(2-3)	25	2(1-3)	5
<i>Eucalyptus eugenioides</i>	3(1-3)	17	2(1-3)	4
<i>Eucalyptus globoidea</i>	2(1-2)	25	2(1-2)	12
<i>Eucalyptus kartzoffiana</i>	1(1-1)	8	0(0-0)	0
<i>Eucalyptus muelleriana</i>	1(1-1)	8	2(1-2)	6
<i>Eucalyptus pilularis</i>	1(1-1)	8	2(1-3)	5



Locations of survey sites allocated to DSF p343. Grey shading indicates extant native vegetation cover within the study area.

**GW p420: Tableland Granite Grassy Woodland**

Plate p420. Tableland Granite Grassy Woodland (Map Unit p420) beside the Jenolan Caves Road, south of Hampton, where a tall canopy of *Eucalyptus viminalis* and *E. pauciflora* grows above a sparse small tree layer of *Acacia melanoxydon* and a dense groundcover dominated by *Poa labillardierei* var. *labillardierei*, *Lomandra longifolia*, *Pteridium esculentum* and *Microlaena stipoides*.

Sample Sites: 24

Area Extant (ha): 8400

Estimated % remaining: 20-35%

Area in conservation reserves (ha): 20

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

No. taxa (total / unique): 194 / 0

No. taxa per plot ( $\pm$ sd): 29.7 (9.3)

Class: Southern Tableland Grassy Woodland

Related TEC: n/a

Tableland Granite Grassy Woodland (GW p420) is equivalent to GW 420 identified by Tindall *et al.* (2004). This unit is a eucalypt woodland with a sparse shrub layer and grassy groundcover, found on the tablelands in the Coxs River valley south of Lithgow and the Crookwell and Taralga districts. Scattered records also exist from granite areas near Durran Durra and Braidwood, however these occurrences are not mapped separately from Southern Tablelands Flats Forest (Map Unit 220). Throughout its distribution this woodland occurs on rolling terrain on granite-derived soils, at elevations from 550 to 1050m ASL and with average annual rainfall ranging from 700 to 950mm.

Tableland Granite Grassy Woodland shares species with both Southern Tableland Flats Forest (GW p220), which is only found south of the Mount Fairy/Larbert area, and Tableland Swamp Flats Forest (GW p520), which is generally restricted to poorly drained alluvial soils.

Though once extensive, Tableland Granite Grassy Woodland is now highly fragmented by land clearing. The remaining areas are almost exclusively on freehold land, where they are exposed to continued small-scale clearing, grazing and weed invasion.

**Floristic Summary:**

**Trees:** *Eucalyptus viminalis*, *E. melliodora*. **Shrubs:** *Rubus parviflorus*, *Acacia melanoxydon*. **Climbers:** *Glycine clandestina*. **Groundcover:** *Hydrocotyle laxiflora*, *Microlaena stipoides*, *Acaena novae-zelandiae*, *Geranium solanderi*, *Lomandra filiformis* ssp. *coriacea*, *Rumex brownii*, *Dichondra* spp., *Desmodium varians*, *Stellaria pungens*, *Themeda australis*, *Austrodanthonia racemosa*, *Hypericum gramineum*.

**Vegetation structure:**

Stratum	Frequency (n=23)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	96	20.3 (4.9)	20.7 (7.6)
Small tree	52	10.2 (3.5)	9.8 (8.7)
Shrub	57	1.8 (0.7)	6.8 (7.7)
Ground cover	100	0.5 (0.3)	45.4 (23.9)

**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 22 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 10 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxylon</i>	1(1-1)	33	1(1-1)	6
<i>Acaena novae-zelandiae</i>	2(1-2)	71	1(1-1)	7
<i>Asperula conferta</i>	1(1-2)	42	1(1-1)	4
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	2(2-2)	46	1(1-2)	6
<i>Austrostipa rudis</i>	1(1-2)	29	1(1-2)	6
<i>Carex incomitata</i>	1(1-1)	25	1(1-1)	<1
<i>Carex inversa</i>	1(1-1)	25	1(1-1)	3
<i>Cheilanthes sieberi</i>	1(1-1)	38	1(1-1)	14
<i>Cymbonotus lawsonianus</i>	1(1-1)	33	1(1-1)	1
<i>Cynoglossum australe</i>	1(1-1)	29	1(1-1)	2
<i>Desmodium varians</i>	1(1-2)	58	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	25	1(1-1)	4
<i>Dichondra</i> spp.	2(1-2)	54	1(1-2)	25
<i>Einadia hastata</i>	1(1-1)	25	1(1-1)	3
<i>Einadia nutans</i>	1(1-2)	21	1(1-1)	3
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	3(3-3)	25	1(1-2)	3
<i>Eucalyptus melliodora</i>	2(1-3)	38	1(1-3)	2
<i>Eucalyptus pauciflora</i>	3(3-3)	25	1(1-2)	3
<i>Eucalyptus viminalis</i>	3(3-3)	71	2(1-3)	4
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-2)	71	1(1-1)	8
<i>Gonocarpus tetragynus</i>	1(1-1)	50	1(1-1)	20
<i>Hydrocotyle laxiflora</i>	2(1-2)	92	1(1-1)	15
<i>Hypericum gramineum</i>	1(1-2)	50	1(1-1)	16
<i>Lomandra filiformis</i> subsp. <i>coriacea</i>	1(1-2)	58	1(1-2)	10
<i>Microlaena stipoides</i>	2(1-3)	88	1(1-2)	36
<i>Oxalis exilis</i>	1(1-1)	33	1(1-1)	3
<i>Plantago varia</i>	2(2-2)	25	1(1-1)	2
<i>Poa sieberiana</i> var. <i>sieberiana</i>	2(1-3)	42	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-2)	38	1(1-2)	12
<i>Rubus parvifolius</i>	1(1-2)	42	1(1-1)	9
<i>Rumex brownii</i>	1(1-1)	63	1(1-1)	5
<i>Senecio prenanthoides</i>	1(1-1)	29	1(1-1)	8
<i>Stellaria pungens</i>	2(1-2)	50	1(1-1)	6

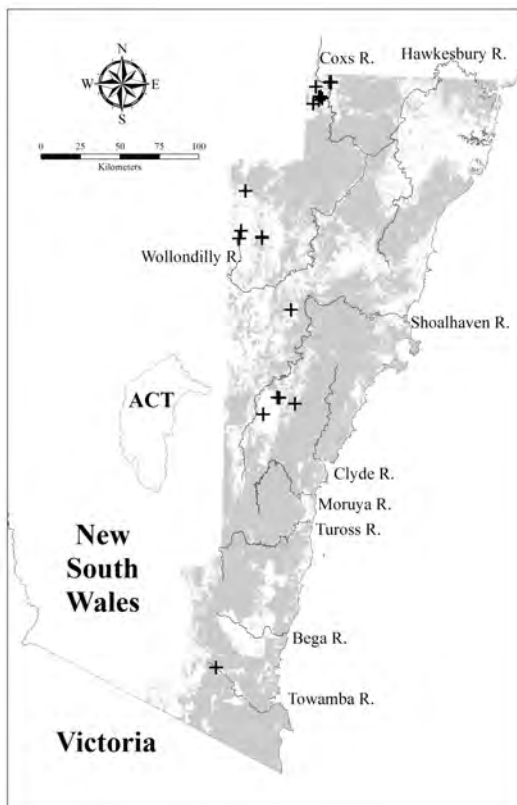
<i>Themeda australis</i>	2(1-3)	54	1(1-3)	17
<i>Viola betonicifolia</i>	1(1-1)	25	1(1-1)	5
<i>Wahlenbergia communis</i>	1(1-2)	33	1(1-1)	2

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Glycine clandestina</i>	1(1-1)	50	1(1-1)	26
<i>Lomandra longifolia</i>	1(1-3)	50	1(1-1)	44
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-1)	33	1(1-1)	25
<i>Pteridium esculentum</i>	2(1-2)	42	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus bridgesiana</i>	1(1-3)	13	1(1-3)	1
<i>Eucalyptus dives</i>	1(1-3)	13	2(1-3)	4
<i>Eucalyptus nortonii</i>	2(2-2)	4	2(1-2)	<1
<i>Eucalyptus ovata</i>	3(1-3)	8	2(1-2)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	3(3-3)	4	2(1-3)	6
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-1)	4	1(1-2)	2
<i>Eucalyptus stellulata</i>	4(3-4)	8	1(1-2)	1
<i>Eucalyptus tereticornis</i>	1(1-1)	4	2(1-3)	7



Locations of survey sites allocated to GW p420. Grey shading indicates extant native vegetation cover within the study area.

**GL p434: Headland Grassland**

Plate p434. Headland Grassland (Map Unit p434) on the south slope of Moruya Head in Eurobodalla National Park. Scattered *Banksia integrifolia* subsp. *integrifolia* stand above a dense continuous cover of *Themeda australis* and a variety of other small herbs.

Sample Sites: 15

Area Extant (ha): 30

Estimated % remaining: <30%

Area in conservation reserves (ha): 20

Estimated % of pre-clearing area in conservation reserves: 10-20%

No. taxa (total / unique): 170 / 1

No. taxa per plot ( $\pm$ sd): 31.7 (11.3)

Class: Maritime Grasslands

Related TEC: *Themeda* grassland on seacliffs and coastal headlands EEC (TSC).

Map unit GL p434 is broadly similar to GL 434 identified by Tindall *et al.* (2004), with its description updated for an expanded range. Headland Grassland is a dense tussock grassland, typically less than 0.3 m tall, with occasional shrubs up to 4 m tall. Individual stands are highly restricted (most are <5 ha), and are scattered over a broad coastal distribution from Sydney to south of Narooma. Headland Grassland is found within a few hundred metres of the sea on exposed rocky coastlines and offshore islands with shallow, black-brown, clay-loam soils derived from basic and acid volcanic rocks and from claystones. The terrain may be steep to flat and elevation is generally less than 100 m ASL. Headland Grassland has been highly modified by grazing and pasture improvement throughout its range. Some stands show signs of invasion by native and exotic shrubs where grazing regimes have changed, while all stands contain a variable component of introduced grasses and forbs. Many of the remaining stands are now threatened by urban expansion and coastal development, particularly north from Nowra, and by ongoing degradation from recreational use and weed invasion on public lands.

**Floristic Summary:**

**Shrubs:** *Banksia integrifolia* subsp. *integrifolia*, *Casuarina glauca*, *Acacia sophorae*, *Westringia fruticosa*.

**Groundcover:** *Themeda australis*, *Cynodon dactylon*, *Microlaena stipoides*, *Poa poiformis*, *Lomandra longifolia*, *Isolepis nodosa*, *Centella asiatica*, *Glycine microphylla*, *Hibbertia scandens*, *Kennedia rubicunda*, *Commelina cyanea*, *Plectranthus parviflorus*, *Viola betonicifolia*.

**Vegetation structure:**

Stratum	Frequency (n=6)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	17	4 (-)	10 (-)
Small tree	33	4 (-)	16.5 (12)
Shrub	33	1.7 (1.9)	2 (-)
Ground cover	100	0.7 (0.3)	92.2 (11.8)

**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 23 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 10 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia longifolia</i>	1(1-1)	100	1(1-2)	9
<i>Allocasuarina verticillata</i>	1(1-2)	20	1(1-2)	<1
<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	1(1-2)	80	1(1-2)	2
<i>Bossiaea prostrata</i>	1(1-2)	27	1(1-1)	3
<i>Carex longebrachiata</i>	1(1-2)	53	1(1-2)	3
<i>Casuarina glauca</i>	1(1-2)	40	2(1-3)	1
<i>Centella asiatica</i>	1(1-1)	60	1(1-1)	4
<i>Commelina cyanea</i>	1(1-1)	27	1(1-1)	4
<i>Cynodon dactylon</i>	1(1-1)	53	1(1-2)	2
<i>Dichondra</i> spp.	1(1-1)	80	1(1-2)	25
<i>Entolasia marginata</i>	1(1-1)	60	1(1-1)	11
<i>Eucalyptus botryoides</i>	1(1-4)	33	2(1-3)	3
<i>Euchiton gymnocephalus</i>	1(1-1)	33	1(1-1)	7
<i>Glycine clandestina</i>	1(1-1)	67	1(1-1)	26
<i>Glycine tabacina</i>	1(1-1)	47	1(1-1)	7
<i>Hibbertia aspera</i> subsp. <i>aspera</i>	1(1-1)	47	1(1-1)	10
<i>Hydrocotyle peduncularis</i>	1(1-1)	47	1(1-1)	9
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	60	1(1-2)	10
<i>Isolepis nodosa</i>	1(1-1)	40	1(1-1)	1
<i>Juncus homalocaulis</i>	1(1-1)	20	1(1-1)	<1
<i>Lomandra longifolia</i>	1(1-2)	87	1(1-1)	44
<i>Monotoca elliptica</i>	1(1-3)	20	1(1-1)	2
<i>Oxalis exilis</i>	1(1-1)	47	1(1-1)	3
<i>Poa poiformis</i> var. <i>poiformis</i>	2(1-3)	27	1(1-2)	<1
<i>Polymeria calycina</i>	1(1-1)	40	1(1-1)	1
<i>Pratia purpurascens</i>	1(1-1)	73	1(1-1)	17
<i>Selliera radicans</i>	1(1-2)	40	1(1-2)	<1
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-1)	20	1(1-1)	3
<i>Solanum stelligerum</i>	1(1-1)	20	1(1-1)	1
<i>Themeda australis</i>	3(2-5)	87	1(1-3)	17
<i>Veronica plebeia</i>	1(1-1)	40	1(1-1)	10
<i>Viola betonicifolia</i>	1(1-2)	27	1(1-1)	5
<i>Westringia fruticosa</i>	1(1-1)	20	1(1-2)	<1

**Constant:**

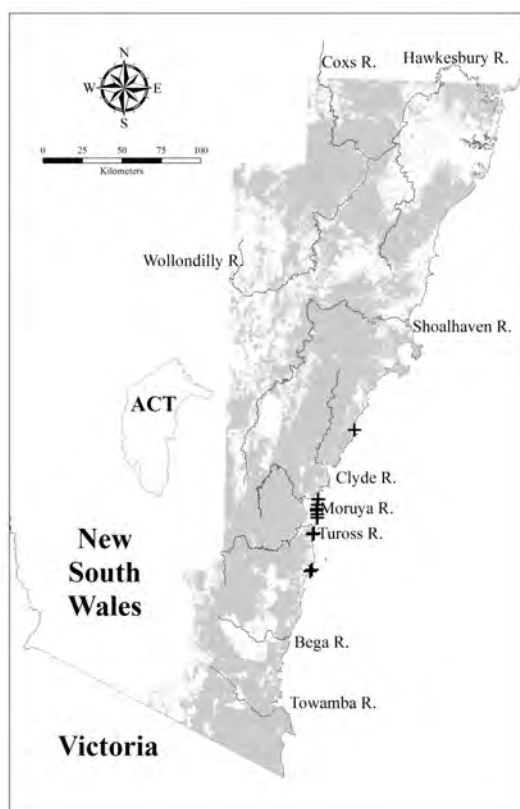
Species	C/A	Freq	C/A O	Freq O
<i>Desmodium varians</i>	1(1-1)	53	1(1-1)	21
<i>Entolasia stricta</i>	1(1-1)	33	1(1-2)	34
<i>Hypericum gramineum</i>	1(1-1)	40	1(1-1)	16
<i>Lagenifera stipitata</i>	1(1-1)	33	1(1-1)	14
<i>Lepidosperma laterale</i>	1(1-2)	33	1(1-1)	29



<i>Microlaena stipoides</i>	1(1-2)	67	1(1-2)	36
<i>Pittosporum undulatum</i>	1(1-1)	33	1(1-1)	14
<i>Poa labillardierei</i> var. <i>labillardierei</i>	1(1-5)	33	1(1-2)	12
<i>Viola hederacea</i>	1(1-1)	47	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>	2(1-2)	13	1(1-2)	9
<i>Eucalyptus agglomerata</i>	4(1-4)	13	2(1-3)	7
<i>Eucalyptus longifolia</i>	1(1-1)	7	1(1-2)	2



Locations of survey sites allocated to GL p434. Grey shading indicates extant native vegetation cover within the study area.



**DSF p463: Elderslie Banksia Scrub Forest**

Plate p463. Elderslie Banksia Scrub (Map Unit p463) at Elderslie, with scattered *Banksia integrifolia* ssp. *integrifolia*.

Sample Sites: [not sampled]  
 Area Extant (ha): 1  
 Estimated % remaining: <15%  
 Area in conservation reserves (ha): 0  
 Estimated % of pre-clearing area in conservation reserves: 0 %  
 No. Taxa (total / unique): n/a  
 No. Taxa per Plot ( $\pm$ sd): n/a  
 Class:  
 Related TEC: Elderslie Banksia Scrub Forest EEC (TSC).

Elderslie Banksia Scrub Forest (DSF p463) varies in structure from scrub to woodland to forest and has an understorey dominated by shrubs with scattered herbs, sedges and ferns. It is restricted to a highly localised flat area of sandy Tertiary alluvium near Camden at about 50 m elevation. This is one of the driest areas of the Cumberland Plain, receiving less than 750mm mean annual rainfall.

No quantitative floristic samples of this unit were available to this project, however its flora has been documented previously (Benson & Howell 1990, Urban Bushland Management Consultants 1998). Its species composition is characterised by an unusual mix of coastal floodplain flora with coastal sandplain flora. Related map units include Agnes Banks Woodland (DSF p239) and Cumberland River Flat Forest (FoW p33). Elderslie Banksia Scrub Forest belongs to the Sydney Sand Flats Dry Sclerophyll Forests vegetation class (Keith 2004).

The very restricted natural distribution of Elderslie Banksia Scrub Forest has been reduced and severely fragmented by clearing and sand extraction. Consequently, it is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act (1995)*.

**Vegetation structure:**

\* Structural data is unavailable for this Map Unit. This unit is characterised by an open-scrub or woodland structure, or may occur as remnant trees in degraded sites.

**Floristic Summary:**

\* The species list provided in the NSW Scientific Committee's Final Determination (NSW Scientific Committee, undated) is reproduced here.

**Trees:** *Angophora subvelutina*, *Eucalyptus baueriana*, *E. botryoides*, *Banksia integrifolia*, *Melaleuca decora*. **Shrubs:** *Acacia decurrens*, *A. implexa*, *A. ulicifolia*, *Aotus ericoides*, *Brachyloma daphnoides*, *Breynia oblongifolia*, *Clerodendrum tomentosum*, *Dillwynia glaberrima*, *Duboisia myoporoides*, *Kunzea ambigua*, *Ozothamnus diosmifolius*, *Persoonia linearis*, *Pimelea linifolia*, *Platysace lanceolata*, *Ricinocarpos pinifolius*. **Groundcover:** *Dianella caerulea*, *D. revoluta*, *Gahnia clarkei*, *Gleichenia dicarpa*, *Hibbertia diffusa*, *Lomandra filiformis*, *L. longifolia*, *Pteridium esculentum*.

**DSF p502: Castlereagh Shale-Gravel Transition Forest**

Plate p502. Castlereagh Shale-Gravel Transition Forest (Map Unit p502) in Windsor Downs Nature Reserve, with a canopy of *Eucalyptus crebra*, scattered patches of shrubs including *Bursaria spinosa* and *Personia nutans* and a continuous grassy groundcover dominated by *Microlaena stipoides*, *Dichelachne micrantha* and *Themeda australis*.

Sample Sites: 25

Area Extant (ha): 1700

Estimated % remaining: 25-35%

Area in conservation reserves (ha): 230

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

No. taxa (total / unique): 229 / 0

No. taxa per plot ( $\pm$ sd): 44.1 (8.7)

Class: Cumberland Dry Sclerophyll Forests

Related TEC: Shale Gravel Transition Forest EEC (TSC).

Castlereagh Shale-Gravel Transition Forest (DSF p502) is equivalent to DSF 502 identified by Tindall *et al.* (2004). This unit is a eucalypt woodland with an open layer of sclerophyll shrubs and grassy groundcover. It is restricted to the Cumberland Plain, western Sydney, where average annual rainfall varies from 750 – 950 mm. Here it is found below 100m ASL on clay soils with a high concentration of iron-indurated gravel, derived mainly from Tertiary Alluvium (Tozer 2003). Castlereagh Shale-Gravel Transition Forest shares a number of species with Cumberland Shale Plains Woodland (GW p29), and the two units intergrade extensively in the vicinity of Castlereagh, Riverstone and Holsworthy where soil properties vary in a complex and unpredictable pattern. The naturally restricted distribution of Castlereagh Shale-Gravel Transition Forest has been fragmented by land clearing and the community is listed as threatened. Small examples of Shale Gravel Transition Forest are represented in conservation reserves, but rural-residential and industrial development continue to reduce its range and degrade the remaining stands by increasing fire frequency and rubbish dumping.

**Floristic Summary:**

**Trees:** *Eucalyptus fibrosa*, *Melaleuca decora*. **Shrubs:** *Daviesia ulicifolia*, *Lissanthe strigosa*, *Bursaria spinosa*.

**Climbers:** *Glycine clandestina*. **Groundcover:** *Microlaena stipoides*, *Opercularia diphylla*, *Lomandra multiflora*, *Cheilanthes sieberi*, *Aristida vagans*, *Pratia purpurascens*, *Themeda australis*, *Wahlenbergia gracilis*, *Poranthera microphylla*, *Desmodium gunnii*, *Dichelachne micrantha*, *Goodenia hederacea*, *Lomandra filiformis*, *Dichondra repens*, *Brunonia australis*, *Dianella revoluta*, *Hypericum gramineum*, *Lepidosperma laterale*, *Oxalis perennans*, *Panicum simile*.

**Vegetation structure:**

Stratum	Frequency (n=25)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	-	- (-)	- (-)
Tree canopy	100	21.5 (2.2)	20.5 (12.9)
Small tree	72	10.7 (3.3)	18.4 (14.9)
Shrub	48	1.9 (0.7)	7.8 (8.6)
Ground cover	100	0.9 (0.2)	45 (24.8)

**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 37 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 25 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia decurrens</i>	1(1-1)	28	1(1-1)	2
<i>Acacia falcata</i>	1(1-1)	36	1(1-1)	1
<i>Acacia parramattensis</i>	1(1-2)	40	1(1-2)	4
<i>Aristida vagans</i>	1(1-2)	88	1(1-2)	8
<i>Arthropodium milleflorum</i>	1(1-1)	32	1(1-1)	5
<i>Austrodanthonia tenuior</i>	2(1-2)	48	1(1-1)	2
<i>Brunoniella australis</i>	2(2-2)	52	2(1-2)	4
<i>Brunoniella pumilio</i>	2(1-2)	28	1(1-1)	4
<i>Bursaria spinosa</i>	2(1-3)	76	1(1-2)	14
<i>Calotis cuneifolia</i>	1(1-2)	20	1(1-2)	<1
<i>Cheilanthes sieberi</i>	2(1-3)	92	1(1-1)	14
<i>Chorizema parviflorum</i>	1(1-2)	24	1(1-1)	<1
<i>Cymbopogon refractus</i>	1(1-2)	36	1(1-1)	4
<i>Daviesia ulicifolia</i>	1(1-2)	68	1(1-1)	6
<i>Desmodium varians</i>	2(1-2)	68	1(1-1)	21
<i>Dianella longifolia</i>	1(1-1)	52	1(1-1)	4
<i>Dianella revoluta</i> var. <i>revoluta</i>	2(1-2)	48	1(1-1)	15
<i>Dichelachne micrantha</i>	1(1-2)	68	1(1-1)	9
<i>Dichondra</i> spp.	2(1-2)	68	1(1-2)	25
<i>Dillwynia sieberi</i>	2(1-2)	24	1(1-1)	1
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	1(1-2)	52	1(1-1)	6
<i>Echinopogon ovatus</i>	1(1-1)	48	1(1-1)	14
<i>Entolasia stricta</i>	2(1-2)	72	1(1-2)	34
<i>Eragrostis brownii</i>	1(1-1)	32	1(1-1)	3
<i>Eragrostis leptostachya</i>	1(1-2)	32	1(1-1)	4
<i>Eucalyptus crebra</i>	3(2-3)	32	2(1-3)	3
<i>Eucalyptus eugenioides</i>	1(1-1)	24	2(1-3)	4
<i>Eucalyptus fibrosa</i>	3(1-3)	56	2(1-3)	3
<i>Eucalyptus moluccana</i>	3(1-3)	40	3(1-3)	2
<i>Eucalyptus tereticornis</i>	3(1-3)	40	2(1-3)	7
<i>Euchiton sphaericus</i>	1(1-1)	40	1(1-1)	3
<i>Fimbristylis dichotoma</i>	1(1-1)	28	1(1-1)	1
<i>Glycine clandestina</i>	1(1-2)	68	1(1-1)	26
<i>Glycine microphylla</i>	1(1-1)	28	1(1-2)	5
<i>Goodenia hederacea</i> subsp. <i>hederacea</i>	1(1-2)	64	1(1-2)	14
<i>Hardenbergia violacea</i>	1(1-2)	48	1(1-1)	17
<i>Hibbertia diffusa</i>	1(1-1)	24	1(1-1)	3
<i>Hydrocotyle peduncularis</i>	1(1-2)	40	1(1-1)	9
<i>Hypericum gramineum</i>	1(1-1)	56	1(1-1)	16
<i>Juncus usitatus</i>	1(1-2)	20	1(1-1)	2

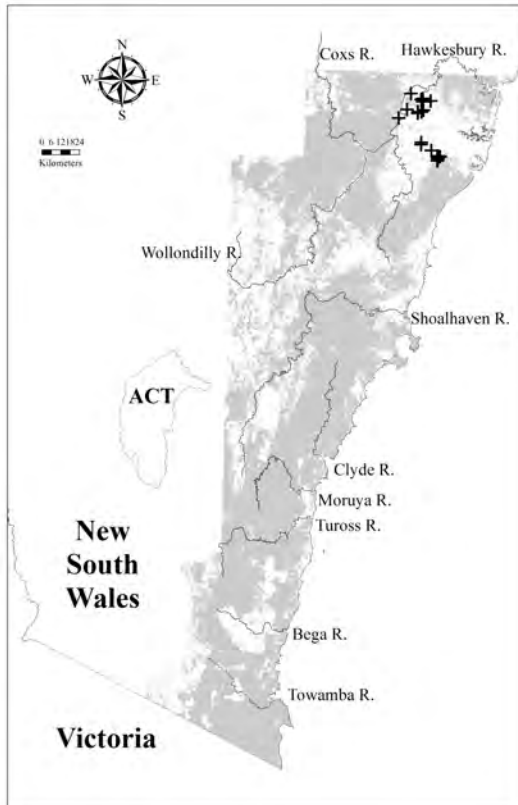
<i>Lachnagrostis filiformis</i>	1(1-1)	36	1(1-1)	3
<i>Laxmannia gracilis</i>	1(1-2)	44	1(1-1)	4
<i>Leucopogon juniperinus</i>	1(1-1)	24	1(1-1)	6
<i>Lissanthe strigosa</i>	1(1-1)	56	1(1-1)	8
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	2(1-2)	48	1(1-1)	11
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	1(1-2)	92	1(1-1)	25
<i>Melaleuca decora</i>	3(2-3)	64	2(1-3)	1
<i>Melaleuca nodosa</i>	2(1-3)	24	2(1-3)	1
<i>Microlaena stipoides</i>	2(1-3)	100	1(1-2)	36
<i>Opercularia diphylla</i>	2(1-2)	88	1(1-1)	7
<i>Oxalis perennans</i>	1(1-2)	56	1(1-1)	13
<i>Ozothamnus diosmifolius</i>	1(1-1)	28	1(1-1)	9
<i>Panicum simile</i>	1(1-2)	56	1(1-1)	6
<i>Paspalidium distans</i>	1(1-2)	40	1(1-2)	3
<i>Polymeria calycina</i>	1(1-1)	20	1(1-1)	1
<i>Pomax umbellata</i>	2(1-2)	56	1(1-1)	14
<i>Poranthera microphylla</i>	2(1-2)	72	1(1-1)	15
<i>Pratia purpurascens</i>	1(1-2)	80	1(1-1)	17
<i>Solanum prinophyllum</i>	1(1-1)	28	1(1-1)	6
<i>Stackhousia viminea</i>	1(1-2)	36	1(1-1)	3
<i>Themeda australis</i>	3(2-4)	76	1(1-2)	17
<i>Thysanotus tuberosus</i> subsp. <i>tuberosus</i>	1(1-2)	28	1(1-1)	2
<i>Tricoryne elatior</i>	2(1-2)	48	1(1-1)	3
<i>Vernonia cinerea</i> var. <i>cinerea</i>	1(1-2)	48	1(1-1)	4
<i>Veronica plebeia</i>	1(1-2)	32	1(1-1)	10
<i>Wahlenbergia gracilis</i>	1(1-2)	80	1(1-1)	10

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Lepidosperma laterale</i>	1(1-2)	52	1(1-1)	29

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora bakeri</i>	3(3-3)	4	1(1-2)	2
<i>Angophora floribunda</i>	3(3-3)	8	1(1-2)	9
<i>Angophora subvelutina</i>	1(1-1)	4	3(1-3)	<1
<i>Corymbia maculata</i>	1(1-1)	4	2(1-3)	3
<i>Eucalyptus bosistoana</i>	3(3-3)	4	1(1-2)	3
<i>Eucalyptus globoidea</i>	2(1-3)	12	2(1-2)	12
<i>Eucalyptus punctata</i>	1(1-1)	4	2(1-3)	9
<i>Eucalyptus sclerophylla</i>	3(3-3)	8	2(1-3)	4
<i>Eucalyptus sparsifolia</i>	4(4-4)	4	2(1-3)	2



Locations of survey sites allocated to DSF p502. Grey shading indicates extant native vegetation cover within the study area.

### SL p509: Estuarine Saltmarsh



Plate p509. Estuarine Saltmarsh (Map Unit p509) at Towra Point Nature Reserve adjacent to the Kurnell peninsula. A carpet of *Sarcocornia quinqueflora* stretches toward the mangroves (*Avicennia marina* subsp. *australasica*) in the background, concealing a small complement of forbs such as *Samolus repens*.

Sample Sites: 68  
 Area Extant (ha): 2200  
 Estimated % remaining: <50%  
 Area in conservation reserves (ha): 690  
 Estimated % of pre-clearing area in conservation reserves: 10-30%  
 No. taxa (total / unique): 40 / 0  
 No. taxa per plot ( $\pm$ sd): 3.9 (2.9)

Class: Saltmarshes

Related TEC: Coastal Saltmarsh EEC (TSC); Protected Marine Vegetation under the *Fisheries Management Act 1994*.

Estuarine Saltmarsh (SL p509) represents the combining of SL 509 of Tindall *et al.* (2004) and assemblage 64 (Saltmarsh) of Keith & Bedward (1999). This unit comprises a complex, fine-scale mosaic of succulent herbfields and sedgelands. It is restricted to estuarine mudflats and saline lagoons, and is found on the upper limit of the inter-tidal zone. Estuarine Saltmarsh has a scattered coastal distribution along the entire length of the study area and is likely to continue further north and south. Larger stands are found in Botany Bay, Lake Illawarra, Jervis Bay, Merimbula Lake and the Shoalhaven, Clyde, Deua and Bermagui River estuaries.

Estuarine Saltmarsh has several halophytic taxa in common with Estuarine Mangrove Forest (SL p109), and these two units intergrade readily over short distances with small changes in elevation and soil salinity. Estuarine Saltmarsh is differentiated from Estuarine Mangrove Forest (SL p109) by hypersaline conditions and the dominance of succulent herbs and sedges rather than mangroves.

Estuarine Saltmarsh's naturally restricted distribution has been depleted substantially by coastal development, and the remnants are threatened by intense recreational pressures, continuing degradation associated with foreshore and catchment development, and invasion by mangroves.

#### Floristic Summary:

**Groundcover:** *Sarcocornia quinqueflora*, *Samolus repens*, *Juncus kraussii*, *Suaeda australis*.

#### Vegetation structure:

Stratum	Frequency (n=10)	Height (m) (±StDev)	Cover (%) (±StDev)
Emergent	-	- (-)	- (-)
Tree canopy	50	8.2 (7.7)	46 (17.8)
Small tree	20	4.5 (0.7)	45 (49.5)
Shrub	10	0.5 (-)	4 (-)
Ground cover	100	0.6 (0.3)	58.5 (21.4)

#### 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.

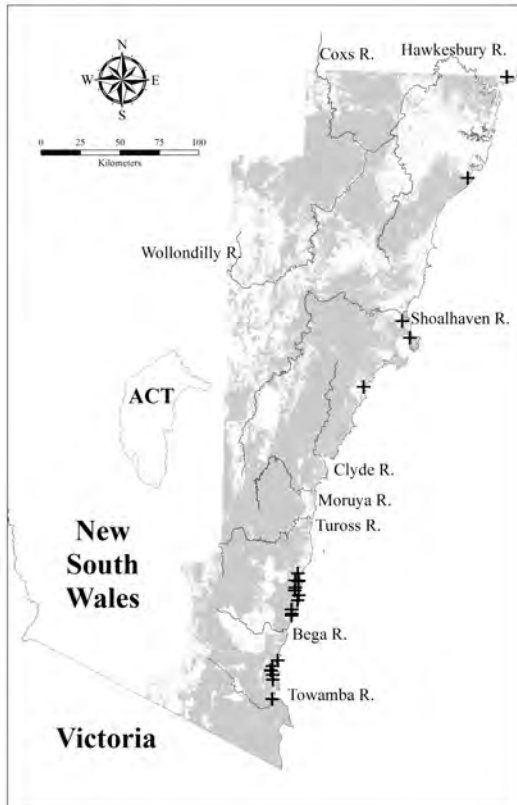
#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Atriplex australasica</i>	1(1-1)	12	1(1-2)	<1
<i>Austrostipa stipoides</i>	3(1-3)	15	1(1-1)	<1
<i>Avicennia marina</i> subsp. <i>australasica</i>	2(1-3)	37	3(2-4)	1
<i>Casuarina glauca</i>	1(1-2)	9	2(1-3)	1
<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>	2(1-2)	9	2(2-2)	<1
<i>Gahnia filum</i>	1(1-1)	9	1(1-1)	<1
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	1(1-2)	34	3(1-4)	1
<i>Limonium australe</i>	2(1-3)	13	1(1-1)	<1
<i>Samolus repens</i>	2(1-3)	15	1(1-2)	1
<i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i>	3(2-4)	99	1(1-2)	1
<i>Sclerostegia arbuscula</i>	3(2-3)	16	3(3-4)	<1
<i>Suaeda australis</i>	1(1-2)	29	1(1-1)	<1

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)	1	1(1-2)	3
<i>Eucalyptus tereticornis</i>	3(3-3)	1	2(1-3)	7





Locations of survey sites allocated to SL p509. Grey shading indicates extant native vegetation cover within the study area.

#### GW p514: Cumberland Moist Shale Woodland



Plate p514. Cumberland Moist Shale Woodland (Map Unit p514) on the steep, sheltered southern slopes of the Razorback Range. An overstorey of *Eucalyptus moluccana* and *E. tereticornis* is present with a substratum of *Allocasuarina littoralis*. *Bursaria spinosa*, *Olearia viscidula*, *Clerodendrum tomentosum* and *Notelaea longifolia* comprise a sparse shrub layer above the diverse, grass-dominated ground cover.

Sample Sites: 9

Area Extant (ha): 600

Estimated % remaining: 25-35%

Area in conservation reserves (ha): <10

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

No. Taxa (total / unique): 118 / 1

No. Taxa per Plot ( $\pm$ sd): 36.3 (8.1)  
 Class: Coastal Valley Grassy Woodlands  
 Related TEC: Moist Shale Woodland EEC (TSC)

Cumberland Moist Shale Woodland (GW p514) is equivalent to GW 514 described by Tindall *et al.* (2004), and to Moist Shale Woodland (14) identified by Tozer (2003). This unit is a eucalypt woodland with a sparse semi-mesic shrub layer and grassy groundcover. It is restricted to rugged areas at higher elevations in the southern half of the Cumberland Plain, where it occurs exclusively on soils derived from Wianamatta Shale. It has been recorded at sites with elevations from 50m to 300m ASL and mean annual rainfall of 800-900mm. This community appears to represent the endpoint of a transition from Cumberland Shale Plains Woodland through Cumberland Hills Woodland with increasing elevation, rainfall and ruggedness from the central Cumberland Plain to the Razorback Range at Picton (Tozer 2003). Cumberland Moist Shale Woodland is also related floristically to Grey Myrtle Dry Rainforest (RF p38). Like other communities on the Cumberland Plain, GW p514 is fragmented by land clearing, and threatened by continuing rural-residential development, weed invasion, high frequency fire and grazing.

#### Floristic Summary:

**Trees:** *Eucalyptus tereticornis*, *E. moluccana*. **Shrubs:** *Breynia oblongifolia*, *Clerodendrum tomentosum*, *Sigesbeckia orientalis*, *Olearia viscidula*, *Bursaria spinosa*. **Climbers:** *Cayratia clematidea*, *Glycine clandestina*. **Groundcover:** *Desmodium gunnii*, *Cyperus gracilis*, *Galium propinquum*, *Brunoniella australis*, *Desmodium brachypodum*, *Solanum prinophyllum*, *Microlaena stipoides*, *Arthropodium milleflorum*, *Echinopogon ovatus*, *Einadia hastata*, *Nyssanthus diffusa*, *Oxalis perennans*, *Plectranthus parviflorus*, *Rumex brownii*, *Wahlenbergia gracilis*.

#### Vegetation structure:

Stratum	Frequency (n=9)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Tree canopy	100	24.7 (4.6)	18.9 (7.8)
Small tree	89	10.8 (4.7)	27.6 (22.6)
Shrub	33	2.3 (0.6)	10 (8.7)
Ground cover	100	1 (-)	30.3 (25)

#### 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>Adiantum aethiopicum</i>	3(1-4)	44	1(1-1)	9
<i>Aristida ramosa</i>	1(1-2)	33	1(1-2)	5
<i>Arthropodium milleflorum</i>	1(1-2)	56	1(1-1)	5
<i>Brachychiton populneus</i> subsp. <i>populneus</i>	1(1-4)	44	1(1-1)	3
<i>Breynia oblongifolia</i>	1(1-1)	78	1(1-1)	12
<i>Brunoniella australis</i>	2(1-2)	67	2(1-2)	4
<i>Bursaria spinosa</i>	1(1-2)	67	1(1-2)	14
<i>Carex inversa</i>	1(1-1)	44	1(1-1)	3
<i>Cayratia clematidea</i>	1(1-2)	78	1(1-1)	2
<i>Celastrus australis</i>	1(1-2)	33	1(1-1)	2
<i>Cheilanthes distans</i>	1(1-2)	44	1(1-1)	2
<i>Chloris truncata</i>	1(1-1)	33	1(1-1)	<1
<i>Chloris ventricosa</i>	1(1-1)	22	1(1-2)	1
<i>Clematis glycinoides</i> var. <i>glycinoides</i>	1(1-1)	44	1(1-1)	10
<i>Clerodendrum tomentosum</i>	1(1-1)	67	1(1-1)	5
<i>Commelina cyanea</i>	1(1-1)	44	1(1-1)	4
<i>Crassula sieberiana</i>	1(1-1)	33	1(1-1)	3
<i>Cyperus gracilis</i>	1(1-2)	78	1(1-1)	2



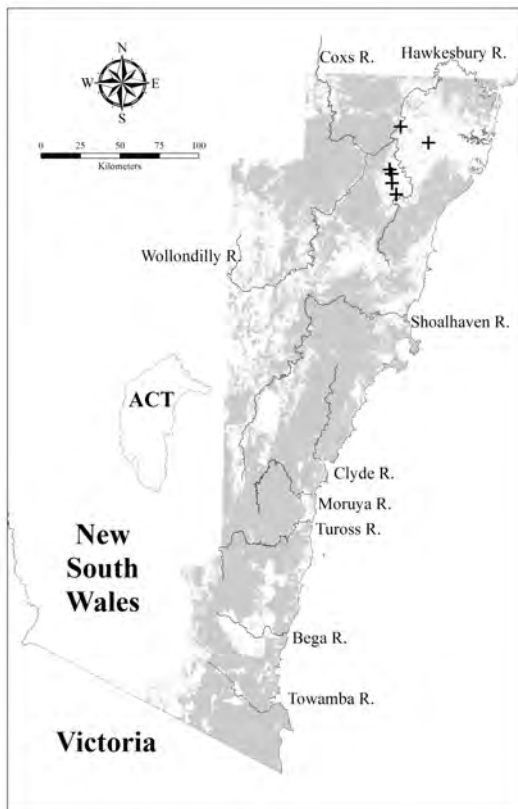
<i>Desmodium brachypodium</i>	1(1-2)	67	1(1-1)	3
<i>Desmodium rhytidophyllum</i>	1(1-1)	22	1(1-1)	1
<i>Desmodium varians</i>	1(1-1)	100	1(1-1)	21
<i>Dichondra spp.</i>	2(1-3)	100	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-1)	56	1(1-1)	14
<i>Einadia hastata</i>	1(1-1)	56	1(1-1)	3
<i>Einadia polygonoides</i>	1(1-1)	33	1(1-2)	<1
<i>Eucalyptus crebra</i>	4(3-4)	33	2(1-3)	3
<i>Eucalyptus moluccana</i>	1(1-3)	56	3(1-3)	2
<i>Eucalyptus tereticornis</i>	3(1-3)	67	2(1-3)	7
<i>Galium propinquum</i>	1(1-3)	78	1(1-1)	7
<i>Geranium homeanum</i>	1(1-1)	33	1(1-1)	3
<i>Glycine clandestina</i>	2(1-2)	78	1(1-1)	26
<i>Lagenifera gracilis</i>	1(1-1)	33	1(1-1)	3
<i>Myoporum montanum</i>	1(1-2)	56	1(1-1)	<1
<i>Nyssanthes diffusa</i>	1(1-2)	56	1(1-1)	<1
<i>Olearia viscidula</i>	1(1-2)	56	1(1-2)	5
<i>Oplismenus aemulus</i>	2(1-3)	44	1(1-2)	5
<i>Oxalis perennans</i>	1(1-2)	56	1(1-1)	13
<i>Paspalidium criniforme</i>	1(1-1)	22	1(1-2)	<1
<i>Plantago debilis</i>	1(1-1)	67	1(1-1)	7
<i>Plectranthus parviflorus</i>	1(1-2)	56	1(1-1)	8
<i>Rumex brownii</i>	1(1-1)	56	1(1-1)	5
<i>Scaevola albida</i> var. <i>albida</i>	2(1-2)	22	1(1-2)	<1
<i>Scleria mackaviensis</i>	2(1-2)	22	1(1-2)	1
<i>Senecio hispidulus</i> var. <i>hispidulus</i>	1(1-2)	33	1(1-1)	3
<i>Senecio quadridentatus</i>	2(1-2)	44	1(1-1)	1
<i>Sigesbeckia orientalis</i> subsp. <i>orientalis</i>	2(1-2)	67	1(1-1)	7
<i>Solanum pungetium</i>	1(1-1)	33	1(1-1)	6
<i>Sporobolus creber</i>	1(1-1)	22	1(1-1)	1
<i>Trema tomentosa</i> var. <i>viridis</i>	1(1-1)	22	1(1-1)	1
<i>Wahlenbergia gracilis</i>	1(1-2)	56	1(1-1)	11

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia implexa</i>	2(1-2)	33	1(1-1)	7
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-2)	33	1(1-2)	6
<i>Indigofera australis</i>	3(1-3)	33	1(1-1)	9
<i>Microlaena stipoides</i>	1(1-1)	67	1(1-2)	36
<i>Pandorea pandorana</i>	1(1-1)	33	1(1-1)	18
<i>Pellaea falcata</i>	1(1-1)	33	1(1-1)	10
<i>Poa sieberiana</i> var. <i>sieberiana</i>	3(1-4)	44	1(1-2)	11
<i>Pratia purpurascens</i>	1(1-2)	33	1(1-1)	17
<i>Solanum prinophyllum</i>	3(1-3)	33	1(1-1)	6

Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Corymbia maculata</i>	3(2-3)	22	2(1-3)	3



Locations of survey sites allocated to GW p514. Grey shading indicates extant native vegetation cover within the study area.

### RF p516: Yarrowarra Temperate Rainforest



Plate p516. Yarrowarra Temperate Rainforest (Map Unit p516) next to Robertson cemetery in the Southern Highlands. The overstorey is dominated by *Doryphora sassafras* and *Acacia melanoxylon* with *Hymenanthera dentata* and *Pittosporum multiflorum* forming an open shrub stratum. Lianes such as *Parsonsia straminea*, *Marsdenia rostrata* and *Aphanopetalum resinsum* form a prominent tangle in the understorey and mats of *Pyrrhosia rupestris* adorn the larger tree trunks.

Sample Sites: 19  
 Area Extant (ha): 870  
 Estimated % remaining: 15-30%  
 Area in conservation reserves (ha): 30  
 Estimated % of pre-clearing area in conservation reserves: <2%  
 No. taxa (total / unique): 101 / 0  
 No. taxa per plot ( $\pm$ sd): 28.3 (5.1)  
 Class: Southern Warm Temperate Rainforests  
 Related TEC: Robertson Rainforest EEC (TSC).

Yarrawa Temperate Rainforest (RF p516) is equivalent to RF 516 described by Tindall *et al.* (2004). This map unit is a closed forest characterised by a low, dense tree canopy, a mesic shrub stratum, lianas and a fern-dominated groundcover. This rainforest is restricted to basalt derived soils of the Robertson plateau from 650 to 800m ASL where annual rainfall exceeds 1300mm. Yarrawa Temperate Rainforest is closely related to Intermediate Temperate Rainforest (RF p116) which occupies fertile clay soils derived from shale on the Southern Highlands plateau or narrow bands of shales/volcanics/coal seams on the upper Illawarra Escarpment. Yarrawa Temperate Rainforest occurs in conjunction with Southern Highlands Basalt Forest (WSF p266) and their distributions may reflect historic fire frequencies.

Much of Yarrawa Temperate Rainforest's original distribution has been fragmented by clearing for agriculture.

#### Floristic Summary:

**Trees:** *Acmena smithii*, *Acacia melanoxylon*, *Doryphora sassafras*. **Shrubs:** *Dicksonia antarctica*, *Coprosma quadrifida*, *Hedycarya angustifolia*, *Rapanea howittiana*. **Climbers:** *Pandorea pandorana*, *Pyrrosia rupestris*, *Smilax australis*, *Marsdenia rostrata*, *Eustrephus latifolius*, *Microsorium scandens*, *Morinda jasminoides*. **Groundcover:** *Asplenium flabellifolium*, *Urtica incisa*, *Lastreopsis acuminata*, *Pellaea falcata*.

#### Vegetation structure:

Stratum	Frequency (n=19)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	5	50 (-)	35 (-)
Tree canopy	100	27.4 (15.3)	64.7 (21.8)
Small tree	53	14.7 (5.4)	40.3 (23.6)
Shrub	79	2.1 (0.5)	15 (18)
Ground cover	100	0.5 (0.6)	10.5 (12.4)

#### 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 25 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 17 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia melanoxylon</i>	3(1-4)	89	1(1-1)	6
<i>Acmena smithii</i>	3(1-4)	63	2(1-3)	9
<i>Alectryon subcinereus</i>	1(1-1)	32	1(1-1)	2
<i>Aphanopetalum resinosum</i>	2(1-3)	42	2(1-3)	4
<i>Arthropteris tenella</i>	3(2-3)	32	1(1-2)	2
<i>Asplenium australasicum forma australasicum</i>	1(1-2)	21	1(1-2)	2
<i>Asplenium flabellifolium</i>	1(1-1)	53	1(1-1)	11
<i>Celastrus australis</i>	1(1-2)	74	1(1-1)	2
<i>Ceratopetalum apetalum</i>	4(3-5)	26	3(1-3)	3
<i>Coprosma quadrifida</i>	1(1-1)	68	1(1-1)	9
<i>Dicksonia antarctica</i>	1(1-2)	47	1(1-3)	4
<i>Doryphora sassafras</i>	4(3-5)	89	3(1-3)	3
<i>Eucalyptus fastigata</i>	4(3-4)	32	2(1-3)	6
<i>Eustrephus latifolius</i>	2(1-2)	100	1(1-1)	19
<i>Geitonoplesium cymosum</i>	1(1-2)	74	1(1-1)	16

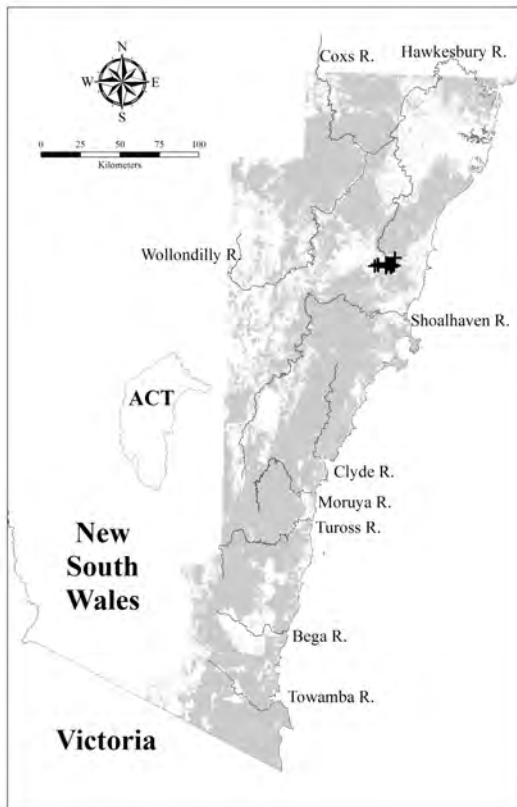
<i>Gymnostachys anceps</i>	1(1-2)	47	1(1-2)	3
<i>Hedycarya angustifolia</i>	1(1-2)	26	1(1-3)	4
<i>Hibbertia scandens</i>	1(1-1)	32	1(1-1)	5
<i>Hydrocotyle peduncularis</i>	1(1-2)	58	1(1-1)	9
<i>Hymenanthera dentata</i>	1(1-3)	89	1(1-1)	6
<i>Lastreopsis microsora</i> subsp. <i>microsora</i>	3(1-4)	42	2(1-3)	4
<i>Marsdenia rostrata</i>	2(2-3)	89	1(1-2)	12
<i>Microsorium scandens</i>	1(1-2)	32	2(1-3)	4
<i>Notelaea venosa</i>	1(1-1)	42	1(1-1)	12
<i>Pandorea pandorana</i>	2(1-2)	79	1(1-1)	18
<i>Parsonsia brownii</i>	2(1-3)	68	1(1-1)	1
<i>Parsonsia straminea</i>	2(1-3)	42	1(1-1)	7
<i>Pellaea falcata</i>	1(1-2)	47	1(1-1)	10
<i>Pennantia cunninghamii</i>	1(1-3)	32	1(1-3)	1
<i>Pittosporum multiflorum</i>	2(1-3)	68	1(1-2)	4
<i>Pittosporum undulatum</i>	1(1-3)	58	1(1-1)	14
<i>Polyosma cunninghamii</i>	2(1-4)	26	1(1-2)	1
<i>Pyrrosia rupestris</i>	2(1-3)	84	1(1-2)	6
<i>Rapanea howittiana</i>	1(1-1)	68	1(1-1)	5
<i>Rubus nebulosus</i>	1(1-3)	26	1(1-1)	1
<i>Sambucus australasica</i>	1(1-1)	37	1(1-1)	1
<i>Sarcopetalum harveyanum</i>	1(1-1)	42	1(1-1)	4
<i>Smilax australis</i>	2(1-2)	84	1(1-1)	16
<i>Solanum pungetium</i>	1(1-2)	32	1(1-1)	6
<i>Tylophora barbata</i>	1(1-2)	47	1(1-1)	17
<i>Urtica incisa</i>	1(1-1)	53	1(1-1)	5
<i>Viola hederacea</i>	1(1-1)	53	1(1-1)	22

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Clematis aristata</i>	1(1-1)	47	1(1-1)	20
<i>Morinda jasminoides</i>	1(1-2)	32	1(1-2)	9

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus agglomerata</i>	1(1-1)	5	2(1-3)	7
<i>Eucalyptus piperita</i>	3(3-3)	5	2(1-3)	9
<i>Eucalyptus smithii</i>	3(3-3)	11	1(1-2)	2
<i>Eucalyptus viminalis</i>	3(3-3)	5	2(1-3)	5



Locations of survey sites allocated to RF p516. Grey shading indicates extant native vegetation cover within the study area.

### GW p520: Tableland Swamp Flats Forest



Plate p520. Tableland Swamp Flats Forest (Map Unit p520) on the alluvial terrace of Little Bombay Creek, Mulloon, west of Braidwood. A stately stand of *Eucalyptus viminalis* towers above a grassy understorey dominated by *Microlaena stipoides*, *Poa labillardierei* and *Echinopogon ovatus*. The grasses conceal a variety of forbs such as *Dichondra repens*, *Acaena novae-zelandiae* and *Stellaria pungens* and scattered individuals of *Acacia dealbata* lurk in the background.

Sample Sites: 36  
 Area Extant (ha): 11000  
 Estimated % remaining: 20-35%  
 Area in conservation reserves (ha): 2500  
 Estimated % of pre-clearing area in conservation reserves: <10%  
 No. taxa (total / unique): 261 / 1  
 No. taxa per plot ( $\pm$ sd): 29 (9.2)  
 Class: Temperate Swamp Forests  
 Related TEC: n/a

Tableland Swamp Flats Forest (GW p520) is equivalent to GW 520 identified by Tindall *et al.* (2004), with a distribution confirmed to extend south of that study. GW p520 is an open eucalypt forest with sparse shrubs and dense grassy groundcover. It occurs on coarse sandy alluvial soils along drainage channels and flats on the tablelands at elevations between 500 and 900m ASL where average annual rainfall ranges from 650 to 1000mm.. Tableland Swamp Flats Forest was sampled at localities from Jenolan to Bombala, and probably extends further in areas of similar habitat. Two related communities (Southern Tableland Flats Forest (GW p220) and Tableland Granite Grassy Woodland (GW p420)) partially overlap with the distribution of GW 520, but they occur on drier, flat to gently undulating terrain. Tableland Swamp Flats Forest has been extensively cleared and few examples are represented in conservation reserves. The remnants are exposed to small-scale clearing, weed invasion and grazing.

#### Floristic Summary:

**Trees:** *Eucalyptus viminalis*, *E. pauciflora*. **Shrubs:** *Rubus parviflorus*. **Groundcover:** *Microlaena stipoides*, *Dichondra* spp., *Acaena novae-zelandiae*, *Hydrocotyle laxiflora*, *Stellaria pungens*, *Poa labillardierei*, *Echinopogon ovatus*, *Geranium solanderi*, *Desmodium varians*.

#### Vegetation structure:

Stratum	Frequency (n=34)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
Emergent	3	- (-)	40 (-)
Tree canopy	85	24.5 (9.2)	25.2 (13.8)
Small tree	56	10.6 (4.7)	19.8 (16.2)
Shrub	35	2 (0.5)	20.2 (21)
Ground cover	97	0.7 (0.4)	65.5 (24.9)

#### Diagnostic Species:

A 0.04ha plot located in this Map Unit is expected to contain at least 7 positive diagnostic species (95% confidence interval) provided that the total number of native species in the plot is 22 or greater. A 95% confidence interval means that five percent of plots sampled (1 in 20 plots) in this Map Unit may contain fewer than 7 positive diagnostic species.

#### Positive Diagnostic Species:

Species	C/A	Freq	C/A O	Freq O
<i>Acacia dealbata</i>	1(1-1)	25	1(1-2)	5
<i>Acacia mearnsii</i>	2(1-3)	22	1(1-2)	7
<i>Acaena novae-zelandiae</i>	1(1-2)	75	1(1-1)	7
<i>Austrodanthonia racemosa</i> var. <i>racemosa</i>	1(1-2)	31	1(1-2)	6
<i>Austrostipa rudis</i>	1(1-2)	31	1(1-2)	6
<i>Carex appressa</i>	1(1-2)	28	1(1-1)	4
<i>Dichondra</i> spp.	1(1-2)	83	1(1-2)	25
<i>Echinopogon ovatus</i>	1(1-2)	56	1(1-1)	14
<i>Elymus scaber</i> var. <i>scaber</i>	1(1-1)	36	1(1-1)	5
<i>Eucalyptus pauciflora</i>	2(1-3)	31	1(1-2)	3
<i>Eucalyptus viminalis</i>	3(2-4)	67	2(1-3)	4
<i>Euchiton gymnocephalus</i>	1(1-1)	28	1(1-1)	7
<i>Geranium solanderi</i> var. <i>solanderi</i>	1(1-2)	47	1(1-1)	8
<i>Glycine tabacina</i>	1(1-1)	28	1(1-1)	7
<i>Helichrysum scorpioides</i>	2(1-2)	25	1(1-1)	7
<i>Hydrocotyle laxiflora</i>	1(1-2)	72	1(1-1)	15

<i>Hypericum gramineum</i>	1(1-1)	39	1(1-1)	16
<i>Microlaena stipoides</i>	3(2-4)	94	1(1-2)	36
<i>Oreomyrrhis eriopoda</i>	2(1-2)	22	1(1-1)	1
<i>Oxalis perennans</i>	1(1-2)	39	1(1-1)	13
<i>Poa sieberiana</i> var. <i>sieberiana</i>	1(1-1)	31	1(1-2)	10
<i>Poa labillardierei</i> var. <i>labillardierei</i>	2(1-3)	50	1(1-2)	12
<i>Poranthera microphylla</i>	1(1-1)	39	1(1-1)	15
<i>Rubus parvifolius</i>	1(1-1)	31	1(1-1)	9
<i>Rumex brownii</i>	1(1-1)	42	1(1-1)	5
<i>Senecio prenanthoides</i>	1(1-1)	25	1(1-1)	8
<i>Stellaria pungens</i>	1(1-2)	61	1(1-1)	6
<i>Veronica plebeia</i>	1(1-1)	33	1(1-1)	10
<i>Viola betonicifolia</i>	1(1-1)	33	1(1-1)	5

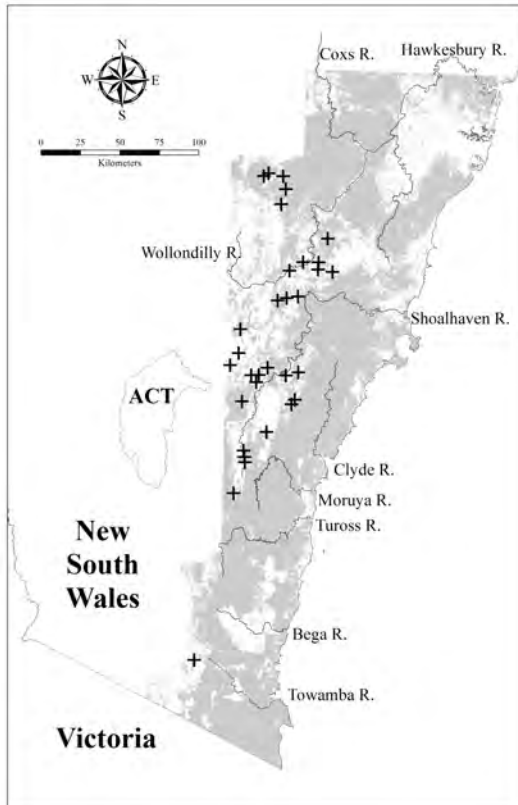
## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Desmodium varians</i>	1(1-2)	42	1(1-1)	21
<i>Glycine clandestina</i>	1(1-1)	33	1(1-1)	26
<i>Lomandra longifolia</i>	1(1-3)	61	1(1-1)	44
<i>Pteridium esculentum</i>	1(1-2)	47	1(1-2)	37

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Eucalyptus amplifolia</i> subsp. <i>amplifolia</i>	2(1-3)	8	2(1-3)	1
<i>Eucalyptus bridgesiana</i>	1(1-2)	17	1(1-3)	1
<i>Eucalyptus dalrympleana</i> subsp. <i>dalrympleana</i>	2(1-3)	14	1(1-2)	3
<i>Eucalyptus dives</i>	3(3-3)	3	2(1-3)	4
<i>Eucalyptus elata</i>	4(4-4)	3	2(1-3)	5
<i>Eucalyptus fastigata</i>	2(2-2)	6	2(1-3)	6
<i>Eucalyptus macarthurii</i>	3(2-4)	8	0(0-0)	0
<i>Eucalyptus macrorhyncha</i>	1(1-1)	3	2(1-3)	3
<i>Eucalyptus mannifera</i>	1(1-1)	6	2(1-3)	4
<i>Eucalyptus ovata</i>	2(1-2)	6	2(1-3)	1
<i>Eucalyptus radiata</i> subsp. <i>radiata</i>	1(1-1)	19	2(1-3)	6
<i>Eucalyptus rubida</i> subsp. <i>rubida</i>	1(1-4)	11	1(1-2)	2
<i>Eucalyptus stellulata</i>	2(1-3)	19	1(1-2)	<1





Locations of survey sites allocated to GW p520. Grey shading indicates extant native vegetation cover within the study area.

### HL p563: Eastern Suburbs Banksia Scrub



Plate p563. Eastern Suburbs Banksia Scrub (Map Unit p563) in the eastern suburbs of Sydney. Flowering specimens of *Xanthorrhoea resinosa* can be seen prominently in the foreground with a shrub canopy rising behind dominated by *Banksia ericifolia*, *B. aemula* and *Melaleuca nodosa*.

Sample Sites: n/a  
 Area Extant (ha): 250  
 Estimated % remaining: <10%  
 Area in conservation reserves (ha): 90  
 Estimated % of pre-clearing area in conservation reserves: <2%  
 No. Taxa (total / unique): n/a  
 No. Taxa per Plot ( $\pm$ sd): n/a



Class: Wallum Sand Heaths

Related TECs: Eastern Suburbs Banksia Scrub EEC (TSC and EPBC).

Eastern Suburbs Banksia Scrub (HL p563) is characterised by a dense to open tall shrub canopy and open groundcover of forbs and sedges, and may include small areas of woodland or low forest. This unit is found between North Head and Botany Bay and is restricted to podsolised sand dunes, sometimes perched on coastal sandstone plateaux at elevations up to 150m ASL.

Its original distribution has been reduced to small fragments, which continue to be exposed to intense recreational pressures and continuing attrition and degradation. The mapped extent of this unit is based on detailed aerial photograph interpretation and ground truthing work undertaken on behalf of the NSW DEC as part of the recovery planning process for this EEC (NSW DEC 2004b). This description is based on the Final Determination for this EEC (NSW Scientific Committee, undated).

**Floristic Summary:**

**Shrubs:** *Acacia longifolia*, *Brachyloma daphnoides*, *Lambertia formosa*, *Leptospermum laevigatum*, *Dillwynia retorta*, *Xanthorrhoea resinifera*, *Acacia suaveolens*, *Pimelea linifolia*, *Leucopogon ericoides*, *Banksia aemula*, *B. serrata*, *Leptospermum trinervium*. **Groundcover:** *Hypolaena fastigiata*, *Pteridium esculentum*, *Lomandra longifolia*, *L. glauca*, *Eragrostis brownii*, *Schoenus ericetorum*.

**Vegetation structure:**

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

**Species List:**

\* The species list provided in the NSW Scientific Committee's Final Determination is reproduced here.

Species

*Acacia longifolia*  
*Acacia suaveolens*  
*Acacia terminalis*  
*Acacia ulicifolia*  
*Actinotus helianthi*  
*Actinotus minor*  
*Allocasuarina distyla*  
*Astroloma pinifolium*  
*Baeckea imbricata*  
*Banksia aemula*  
*Banksia ericifolia*  
*Banksia integrifolia*  
*Banksia serrata*  
*Bauera rubioides*  
*Billardiera scandens*  
*Boronia parviflora*  
*Bossiaea heterophylla*  
*Bossiaea scolopendria*  
*Brachyloma daphnoides*  
*Caustis pentandra*  
*Conospermum taxifolium*  
*Cyathochaeta diandra*  
*Darwinia fascicularis*  
*Darwinia leptantha*  
*Dianella revoluta*  
*Dichelachne crinita*  
*Dillwynia retorta*  
*Epacris longiflora*  
*Epacris microphylla*  
*Epacris obtusifolia*  
*Eragrostis brownii*  
*Eriostemon australasius*  
*Eucalyptus gummifera*  
*Gonocarpus teucrioides*

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*Haemodorum planifolium*  
*Hakea teretifolia*  
*Hardenbergia violacea*  
*Hibbertia fasciculata*  
*Hypolaena fastigata*  
*Kunzea ambigua*  
*Lambertia formosa*  
*Lepidosperma laterale*  
*Leptocarpus tenax*  
*Leptospermum laevigatum*  
*Lepyrodia scariosa*  
*Leucopogon ericoides*  
*Lomandra longifolia*  
*Melaleuca nodosa*  
*Melaleuca squamea*  
*Monotoca elliptica*  
*Monotoca scoparia*  
*Persoonia lanceolata*  
*Philothea salsolifolia*  
*Pimelea linifolia*  
*Pomax umbellata*  
*Pteridium esculentum*  
*Restio fastigata*  
*Ricinocarpos pinifolius*  
*Styphelia viridis*  
*Woollsia pungens*  
*Xanthorrhoea resinifera*  
*Xanthosia pilosa*

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### WSF p599: Central Coast Wet Forest

Sample Sites: 9  
 Area Extant (ha): 90  
 Estimated % remaining: 20-35%  
 Area in conservation reserves (ha): 40  
 Estimated % of pre-clearing area in conservation reserves: 10-25%  
 No. taxa (total / unique): 140 / 1  
 No. taxa per plot ( $\pm$ sd): 38.7 (15.6)  
 Class: North Coast Wet Sclerophyll Forests  
 Related TEC: n/a

Central Coast Wet Forest (WSF p599) is equivalent to WSF 99 identified by Tindall *et al.* (2004), and is a tall eucalypt forest with a mesic small tree/shrub stratum and a moist open understorey. Within the study area, this tall forest is distributed from Patonga to Bouddi north of Broken Bay, and it continues further north to the Watagan Ranges in areas where mean annual rainfall is greater than 1200mm. Between Patonga and Bouddi, Central Coast Wet Forest occurs below 200m ASL on sheltered slopes and gullies, with loamy soils derived from interbedded shale and sandstone strata of the Narrabeen Group. Central Coast Wet Forest shares a number of species with Blue Gum High Forest (WSF p153) and Illawarra Gully Wet Forest (WSF p99), but also contains several taxa restricted to the central and north coasts. About four-fifths of the original range of Central Coast Wet Forest within the study area has been cleared for urban and rural development, although it is likely that this unit occupies similar environments to the north of the study area.

#### Floristic Summary:

**Trees:** *Eucalyptus pilularis*, *E. acmenioides*, *Livistona australis*. **Shrubs:** *Breynia oblongifolia*, *Notelaea longifolia*, *Synoum glandulosum*. **Climbers:** *Eustrephus latifolius*, *Tylophora barbata*, *Hibbertia scandens*, *Smilax australis*, *Geitonoplesium cymosum*. **Groundcover:** *Lomandra longifolia*, *Pteridium esculentum*, *Imperata cylindrica*, *Pseuderanthemum variabile*, *Dianella caerulea*, *Xanthorrhoea macronema*, *Oplismenus imbecillis*.

#### Vegetation structure:

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Stratum	Frequency (n=8)	Height (m) ( $\pm$ StDev)	Cover (%) ( $\pm$ StDev)
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Emergent	-	- (-)	- (-)
Tree canopy	100	25.6 (5)	60.6 (16.6)
Small tree	50	15.5 (6.7)	30 (23.5)
Shrub	75	2.2 (0.4)	75 (50.9)
Ground cover	100	0.7 (0.3)	19 (18.6)

**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 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 15 positive diagnostic species.

**Positive Diagnostic Species:**

Species	C/A	Freq	C/A O	Freq O
<i>Acacia floribunda</i>	1(1-2)	33	1(1-2)	3
<i>Allocasuarina torulosa</i>	2(1-2)	44	1(1-3)	5
<i>Astrotricha floccosa</i>	2(1-4)	33	1(1-2)	1
<i>Blechnum cartilagineum</i>	1(1-2)	56	1(1-2)	11
<i>Breynia oblongifolia</i>	1(1-1)	67	1(1-1)	12
<i>Calochlaena dubia</i>	2(1-3)	44	1(1-3)	9
<i>Cissus antarctica</i>	1(1-1)	33	1(1-2)	3
<i>Correa reflexa</i>	1(1-1)	33	1(1-1)	5
<i>Dioscorea transversa</i>	1(1-1)	44	1(1-1)	<1
<i>Dodonaea triquetra</i>	2(1-5)	56	1(1-2)	6
<i>Doodia aspera</i>	1(1-1)	56	1(1-2)	12
<i>Eucalyptus acmenoides</i>	1(1-2)	56	2(1-3)	<1
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	1(1-1)	67	1(1-2)	3
<i>Eucalyptus pilularis</i>	2(1-3)	44	2(1-3)	5
<i>Eucalyptus punctata</i>	1(1-1)	56	2(1-3)	9
<i>Eucalyptus saligna</i> X <i>botryoides</i>	2(1-2)	22	2(1-3)	2
<i>Eustrephus latifolius</i>	1(1-1)	89	1(1-1)	19
<i>Geitonoplesium cymosum</i>	1(1-1)	56	1(1-1)	16
<i>Glochidion ferdinandi</i> var. <i>ferdinandi</i>	1(1-2)	44	1(1-1)	2
<i>Glycine clandestina</i>	1(1-1)	89	1(1-1)	26
<i>Gymnostachys anceps</i>	1(1-1)	33	1(1-2)	3
<i>Hibbertia dentata</i>	1(1-1)	44	1(1-1)	6
<i>Imperata cylindrica</i> var. <i>major</i>	1(1-2)	67	1(1-2)	10
<i>Livistona australis</i>	1(1-1)	56	1(1-1)	6
<i>Lomandra longifolia</i>	1(1-1)	89	1(1-1)	44
<i>Macrozamia communis</i>	1(1-2)	56	1(1-2)	4
<i>Maytenus silvestris</i>	1(1-1)	56	1(1-1)	1
<i>Notelaea longifolia</i> forma <i>longifolia</i>	1(1-2)	56	1(1-1)	8
<i>Pandorea pandorana</i>	1(1-1)	89	1(1-1)	18
<i>Pellaea paradoxa</i>	1(1-1)	22	1(1-1)	<1
<i>Poa affinis</i>	1(1-1)	33	1(1-2)	2
<i>Podolobium ilicifolium</i>	1(1-4)	56	1(1-1)	9
<i>Pomaderris ferruginea</i>	1(1-1)	22	1(1-1)	1
<i>Pseuderanthemum variabile</i>	1(1-1)	67	1(1-2)	9
<i>Rapanea variabilis</i>	1(1-1)	33	1(1-1)	4

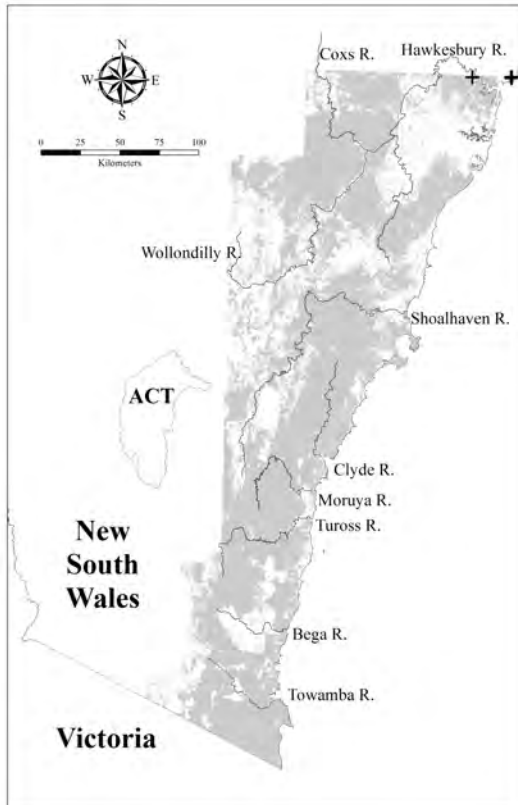
<i>Rhodamnia rubescens</i>	1(1-1)	44	1(1-1)	1
<i>Rubus moluccanus</i> var. <i>trilobus</i>	1(1-1)	22	1(1-1)	2
<i>Smilax australis</i>	1(1-1)	56	1(1-1)	16
<i>Stephania japonica</i> var. <i>discolor</i>	1(1-1)	56	1(1-1)	7
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	1(1-1)	67	2(1-3)	7
<i>Trochocarpa laurina</i>	1(1-1)	22	1(1-1)	1

## Constant:

Species	C/A	Freq	C/A O	Freq O
<i>Adiantum aethiopicum</i>	1(1-1)	33	1(1-1)	9
<i>Billardiera scandens</i>	1(1-1)	67	1(1-1)	28
<i>Cissus hypoglauca</i>	1(1-1)	33	1(1-2)	10
<i>Dianella caerulea</i>	1(1-1)	67	1(1-1)	28
<i>Entolasia marginata</i>	2(1-2)	33	1(1-1)	11
<i>Entolasia stricta</i>	1(1-1)	78	1(1-2)	34
<i>Microlaena stipoides</i>	1(1-1)	33	1(1-2)	36
<i>Morinda jasminoides</i>	1(1-1)	33	1(1-2)	9
<i>Oplismenus imbecillis</i>	1(1-2)	33	1(1-2)	14
<i>Persoonia linearis</i>	1(1-1)	67	1(1-1)	29
<i>Pratia purpurascens</i>	1(1-1)	33	1(1-1)	17
<i>Pteridium esculentum</i>	1(1-2)	56	1(1-2)	37
<i>Smilax glyciphylla</i>	1(1-4)	33	1(1-1)	8

## Other tree species occurring less frequently in this community:

Species	C/A	Freq	C/A O	Freq O
<i>Angophora costata</i>	2(1-2)	22	1(1-3)	7
<i>Angophora floribunda</i>	2(2-2)	22	1(1-2)	9
<i>Corymbia gummifera</i>	2(1-2)	22	2(1-2)	16



Locations of survey sites allocated to WSF p599. Grey shading indicates extant native vegetation cover within the study area.

### **NV: Modified or Disturbed Land**

NV includes a range of modified or disturbed environments including urbanised or bare areas largely without native vegetation; forests, shrublands, grasslands and herbfields comprised primarily of exotic plant species, including exotic plantations and pastures. Such areas may include a variable component of native species depending on seasonal conditions and regrowth rates. In the case of some unimproved pastures included within this Map Unit, derived by clearing grassy woodlands, the majority of plant cover and biomass may be native.