VEGETATION OF EAST GIPPSLAND

by

S. J. Forbes, N. G. Walsh and P. K. Gullan*

ABSTRACT

East Gippsland, Victoria, was surveyed between June 1979 and May 1980, employing a floristics-based, quadrat-sampling technique. Data from 590 quadrat sites were analysed via a computer-based, numerical sorting and classification procedure to determine the major floristic vegetation types within the area. These types were then arranged into 21 floristic '*communities*', each of which is comprised of one or more floristically distinct '*sub-communities*'. The sub-communities and their distribution are outlined in this paper, and include alpine and coastal heathlands, montane and lowland closed-forest, open-forests and saltmarsh vegetation.

INTRODUCTION

This paper presents the results of a vegetation survey of East Gippsland. It's purpose is to define and describe the major floristic vegetation types of the study area, and to outline the distribution and environmental range of each.

THE STUDY AREA

East Gippsland is defined as all land in Victoria east of 148°00′00″E (fig. 1a) (Leeper, 1969). This definition was adopted for the present survey, but with the exclusion of land north of 36°35′00″S. Major topographical features include the Cobberas (north-west), the Nunniong Plateau (west), the Errinundra Plateau (central) and Mt. Tingaringy (north-central). The highest peak is Mt. Cobberas No. 1 (1820m.) and is situated on the Great Dividing Range. The upper Murray River catchment is enclosed north of the Divide, whilst major rivers south of the Divide are (from west to east): the Snowy, Bemm, Cann, Thurra, Mueller, Wingan and Genoa Rivers (figure 1b). Of these only the Genoa and Snowy Rivers have any of their catchment outside the study area. The Snowy River is dammed at Lake Jindabyne in N.S.W. to supply water to a major hydro-electric scheme.

The study area is approximately 1,360,000 hectares (about 5.5% of Victoria), of which about 85% is public land. The main controlling authorities for this land are the Forests Commission, the National Parks Service and the Department of Crown Lands and Survey (L.C.C., 1977). The remaining 15% is private land, about two-thirds of which has been cleared for agriculture (mostly grazing). Orbost is the largest town and is surrounded by the most extensive farmlands of the study area. Other agricultural regions include the Buchan district, the area north of Buchan through Gelantipy to the Wulgulmerang Plateau, the Deddick River valley, Bonang, Bendock and the Cann River valley north of Cann River.

THE SURVEY

Method

Field Work

The procedure followed was the same as outlined in Gullan *et al.* (1981). Four sites, each approximately 1000m², were sampled within a rectangle of 5 minutes latitude and 5 minutes longitude. Each site sampled constituted a single uniform habitat, and was, where possible, environmentally distinct from each other site within the rectangle. Sampling intensity was occasionally increased in rectangles with a wide diversity of vegetation types.

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Muelleria 5(1): 53-113 (1982).

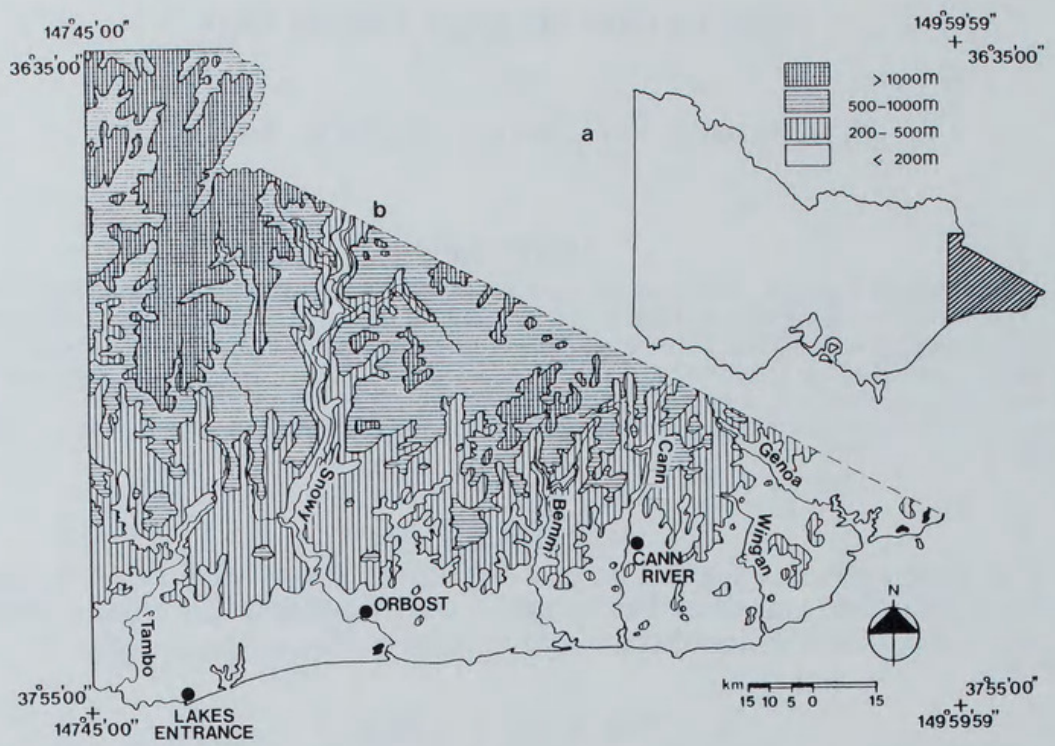

Fig. 1. a—Location of the study area. Hatching represents the area actually sampled. b—The study area. Different hatching represents different altitude ranges.

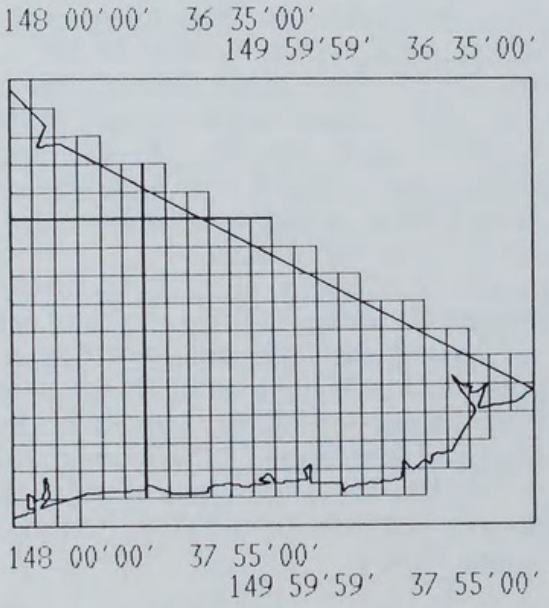

Fig. 2. The 5′ latitude x 5′ longitude grid system superimposed on a map of the study area.

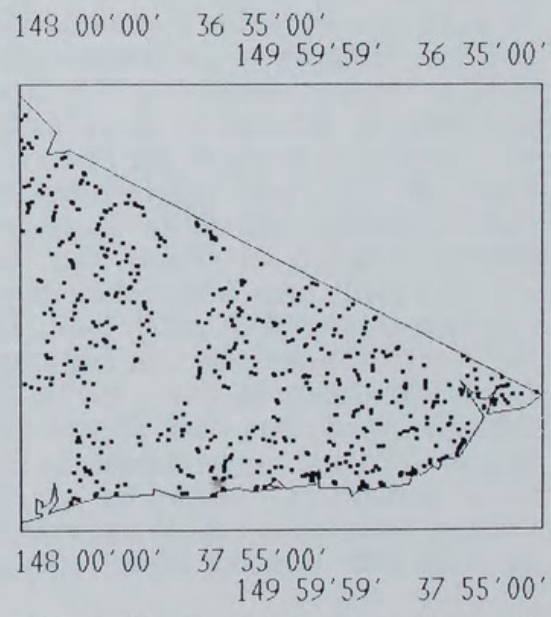

Fig. 3. Distribution of sample sites within the study area.

The study area included 194 rectangles (fig. 2), of which 158 were sampled with a total of 590 sites (fig. 3). The remaining 36 rectangles were not sampled due to inaccessibility and time constraints.

Data were collected during 9 field trips, each of 12 days duration. Each trip has been allotted an identifier from 12 (first trip) to 20 (last trip). Sample sites on each trip were numbered sequentially. Thus site 14049 indicates site 049 of trip 14. The base camps for each trip were as follows:

12. Croajingalong
13. Marlo
14. Orbost
15. Deddick
16. Errinundra
17. Mallacoota
18. Gelantipy
19. Cobberas
20. Coopracambra

PLANT IDENTIFICATION

Where possible, all species were identified and recorded on site. Material that required more thorough examination and comparison with reference material was collected and identified at the National Herbarium. Nomenclature follows that of Willis (1970, 1972) with amendments by Todd (1979). The determination of certain suites of species posed particular difficulties, and for these nomenclatural qualifications have been made. These groups are outlined here but for further discussion of the taxonomic difficulties see Gullan *et al.* (1981):

Eucalyptus rubida and *E. dalrympleana* – were recorded as *E. rubida*
Geranium potentilloides, G. solanderi and *G. retrorsum* (where non-fertile) – recorded as *G. potentilloides*
Gnaphalium spicatum and *Gamochaeta purpurea* – recorded as *G. spicatum*
Hydrocotyle hirta, H. laxiflora and *H. algida* (where non-fertile) – recorded as *H. hirta*
Juncus spp. (sect. Genuini) – recorded as *Juncus* spp.
Luzula spp. – recorded as *L. campestris* spp. agg.
Plantago varia group – recorded as *P. varia*
Poa australis group – recorded as *P. australis* spp. agg.
Ranunculus lappaceus and *R. pachycarpus* (where non-fertile) – recorded as *R. lappaceus*
Rubus fruticosus group – recorded as *R. fruticosus* spp. agg.

DATA STORAGE AND ANALYSIS

Information from each site (floristics, locality, altitude and sampling date) was stored permanently on magnetic disk. These data were assessed and manipulated via a numerical, classificatory computer program. Presentation of the analysis was by two-way tables which were successively refined using a hand-sorting procedure (Gullan, 1978).

In excess of 1000 species of vascular plant were recorded during the study. Only a portion of these are presented on two-way tables, as most species occur in less than 10% of sites, and add little to the overall vegetation description. (for full explanation of the two-way tables see Gullan *et al.* 1981).

Terminology

Terminology associated with the vegetation classification follows that of Gullan *et al.* (1981). Specific terms are discussed briefly here.

SUB-COMMUNITY – is a group of sample sites which have a similar floristic composition (= "nodum" Poore, 1955). It is the basic unit of vegetation used in this paper.

COMMUNITY – is one or more sub-communities which have floristic and environmental affinities. The community may represent a floristic continuum along which arbitrary divisions have been made to form sub-communities. It may also represent a collection of sub-communities which are considered to be temporal phases of one vegetation after different disturbances (e.g. fire, grazing).

CHARACTER SPECIES – are determined as follows:

where F = frequency of species in a sub-community and
Q = number of sample sites in the sub-community,
if $Q \leq 10$, then those species where $F > 55\%$ are characteristic
if $Q \geq 50$, then those species where $F > 35\%$ are characteristic
if $Q > 10$ or < 50, then those species where $F \geq (55-(Q-10)/2)\%$ are characteristic.

This definition is explained further in Gullan *et al.* (1981). Standard use of the term is detailed in Mueller-Dombois & Ellenberg (1974).

COMMUNITY NAMES – have been designed to convey, in commonly used terminology, an impression of the vegetation. Where appropriate the same community names as in Gullan *et al.* (1981) have been applied (e.g. Wet Sclerophyll Forest, Montane Sclerophyll Woodland).

OPPORTUNISTIC SPECIES—are those species whose cover value increases dramatically as a result of disturbance. Shrubs, especially members of the Papilionaceae (e.g. *Pultenaea* spp., *Daviesia* spp.) and Asteraceae (*Cassinia* spp., *Olearia* spp.) and many herbs (*Tetrarrhena juncea, Senecio* spp.) commonly exhibit this characteristic. The cover value of such species is usually low in undisturbed forest, but may be as great as 100% after disturbance. Fire, forestry operations and clearing for agriculture are the main agents of this disturbance.

Limitations and Qualifications

FLORISTICS

As each quadrat was sampled only once, ephemeral species were often not in evidence (see previous remarks on Plant Identification).

DISTRIBUTION OF VEGETATION TYPES

The distribution maps provided in the RESULTS section show sites where a sub-community is present. They should not be interpreted as vegetation maps.

WEED PROBLEM

Substantially native vegetation was always chosen for quadrat sites. Thus the index of introduced species generally understates the weed problem of a district.

RESULTS

Information is displayed in an accessible form, viz.:

Two-way Tables

Tables 1 to 6 present the salient information from the survey and show:

a. the quadrats comprising each community and sub-community.
b. the species characterising communities and sub-communities.
c. the relationships and differences between communities and sub-communities.
d. the variation within communities and sub-communities.
e. the distribution of common, although generally not characteristic, species within communities.
f. the cover-abundance of each species in each quadrat.

Community Descriptions

Twenty-one communities, representing the major, extant vegetation types, are defined for East Gippsland. It is probable that other communities existed prior to the rather intensive utilisation of land in certain areas. Some communities (and almost certainly some sub-communities) of very restricted or isolated occurrence may not have been encountered during the study (e.g. the *Eucalyptus fraxinoides* dominated tall open-forests of the eastern Howe Range). Other vegetation may have been sampled with insufficient frequency to enable satisfactory delineation. The absence of 53 sites (out of 590 sites sampled) from the two-way tables is partly attributable to this factor. Sites of heavily disturbed vegetation also contribute to this deficit. Gross disturbance, usually as a result of forestry operations or recent fire, promotes a vegetation which is species-poor and consequently, impossible to accurately assign to a community.

The following is a brief description of each of the major communities:

EG COMMUNITY 1: Alpine Wet Heathlands (2 sub-communities; 19 sites).
Closed-heath to low woodlands of plains and damp depressions in the high country from the Cobberas to Mt. Bowen.

EG COMMUNITY 2: Montane Riparian Forest (1 sub-community; 5 sites)..
Closed-scrub to open-forest along gullies and stream margins in the high country.

EG COMMUNITY 3: Montane Forest (1 sub-community; 6 sites).
Tall open-forest of sheltered sites in high country from the upper reaches of the Snowy River to the Cobberas.

EG COMMUNITY 4: Snow Gum Woodlands (1 sub-community; 18 sites).
Low woodland of subalpine ridges throughout the study area.

EG COMMUNITY 5: Montane Sclerophyll Woodland (3 sub-communities; 29 sites).
A woodland community typical of montane skeletal soils with low effective rainfall.

EG COMMUNITY 6: (2 sites).
Insufficient sites have been sampled to adequately describe this vegetation type. Field experience suggests this is a subalpine variant of sub-community EG 11.1. This subalpine rocky outcrop scrubland is characterised by the mallee-like *Eucalyptus glaucescens* and a closed shrub layer.

EG COMMUNITY 7: Cool Temperate Rainforest (1 sub-community; 8 sites).
Closed-forest of wet montane gullies and sheltered slopes within the area bounded by Bonang, Mt. Ellery and Mt. Coopracambra.

EG COMMUNITY 8: Wet Sclerophyll Forest (4 sub-community; 52 sites).
Tall open-forest of well-watered slopes of the eastern ranges, from near Mt. Bowen through to Mt. Coopracambra.

EG COMMUNITY 9: Dry Sclerophyll Forest (4 sub-communities; 42 sites).
Open-forest or woodland of foothills throughout the area.

EG COMMUNITY 10: Box-Ironbark Woodland (1 sub-community; 10 sites).
This woodland is typical of dry slopes and ridges with skeletal soils in lowland Victoria, but is of sporadic occurrence within the study area.

EG COMMUNITY 11: Rocky Outcrop Open-scrubland (1 sub-community; 11 sites).
This community has a diversity of sub-communities in the field. However, further sampling would be necessary to represent these adequately. Mallee forms of a number of eucalypts above a variable shrub layer are characteristic. Concentrated in the upper Snowy River area.

EG COMMUNITY 12: Warm Temperate Rainforest (1 sub-community; 23 sites).
Closed-forest of gully-heads and streamsides in lowland to foothill country. Rare to the west of the Snowy River but scattered throughout the remaining lowlands.

EG COMMUNITY 13: Riparian Forest (3 sub-communities; 73 sites).
Floristically rich, open-forest of wet slopes and riversides of all major waterways in the area. A tall shrub layer of mesophytic species is common within this community.

EG COMMUNITY 14: Rain-shadow Woodland (3 sub-communities; 23 sites).
A woodland of dry, gravelly sites of the north-east, especially in the vicinity of the Snowy River at the New South Wales border. *Eucalyptus albens* and *Callitris columellaris* are the common trees, but shrub and ground layer plants are sparsely distributed.

EG COMMUNITY 15: Banksia Woodland (1 sub-community; 30 sites).
Woodland scattered on coastal lowlands from the Snowy River to the Victoria-New South Wales border. Although inland from full oceanic influence, it rarely extends far from the coast.

EG COMMUNITY 16: Lowland Sclerophyll Forest (5 sub-communities; 106 sites).
Open-forest of coastal lowlands throughout the study area. It is the best represented community in East Gippsland.

EG COMMUNITY 17: Coastal Heathland (4 sub-communities; 32 sites).
Open- and closed-heathlands distributed throughout the damp, lowland plains to 20 km inland. *Xanthorrhoea hastilis* and *Casuarina*

paludosa dominate two distinct sub-communities which may form extensive, treeless stands.

EG COMMUNITY 18: Coastal Sclerophyll Forest (1 sub-community; 29 sites).
A mixed-eucalypt open-forest distributed throughout the lowland regions but at lower elevations than Community 15. Particularly well-developed around Mallacoota and Orbost districts.

EG COMMUNITY 19: Coastal Banksia Woodland (1 sub-community; 6 sites).
A woodland of wet, sheltered sites, fringing near coastal waters such as Ewing Marsh, Tamboon Inlet and other estuaries. Dense thickets of *Gahnia clarkei* and *Melaleuca ericifolia* are characteristic of this community.

EG COMMUNITY 20: Primary Dune Scrub (1 sub-community; 6 sites).
Primary dune or seacliff community containing sand-accreting grasses, herbs and low shrubs. Taller shrubs occur on the leeward slopes and swales.

EG COMMUNITY 21: Saltmarsh (1 sub-community; 3 sites).
A community generally dominated by the tussock-rush *Juncus kraussii*, fringing estuarine waters of Sydenham, Tamboon, Wingan and Mallacoota Inlets. Salt-tolerant samphire plants frequent in other saltmarsh communities (low shrubland) are less common but may contribute significantly to the species composition.

Sub-community Summary Sheets

DISTRIBUTION MAPS

A diagrammatic representation of the distribution of all sites sampled has been produced for each sub-community. The distribution of all its constituent sites has been superimposed on a map of the study area together with major rivers and features.

CHARACTER SPECIES TABLES

In these tables, only those species which are characteristic of a sub-community are listed. The ranking of the species in these tables is in order of their frequencies in the sub-communities. These values are listed along with the average cover-abundance values of the species. This order allows ready assessment of individual sub-communities. The two-way table presentation however, enables the interrelationships between sub-communities and communities to be more easily interpreted.

SUB-COMMUNITY DESCRIPTIONS AND ANNOTATIONS

A simple description outlining distribution, environment and any special features has been made for each sub-community. Included with these descriptions are details of altitude, vegetation structure, floristic richness and weed composition.

ACKNOWLEDGEMENTS

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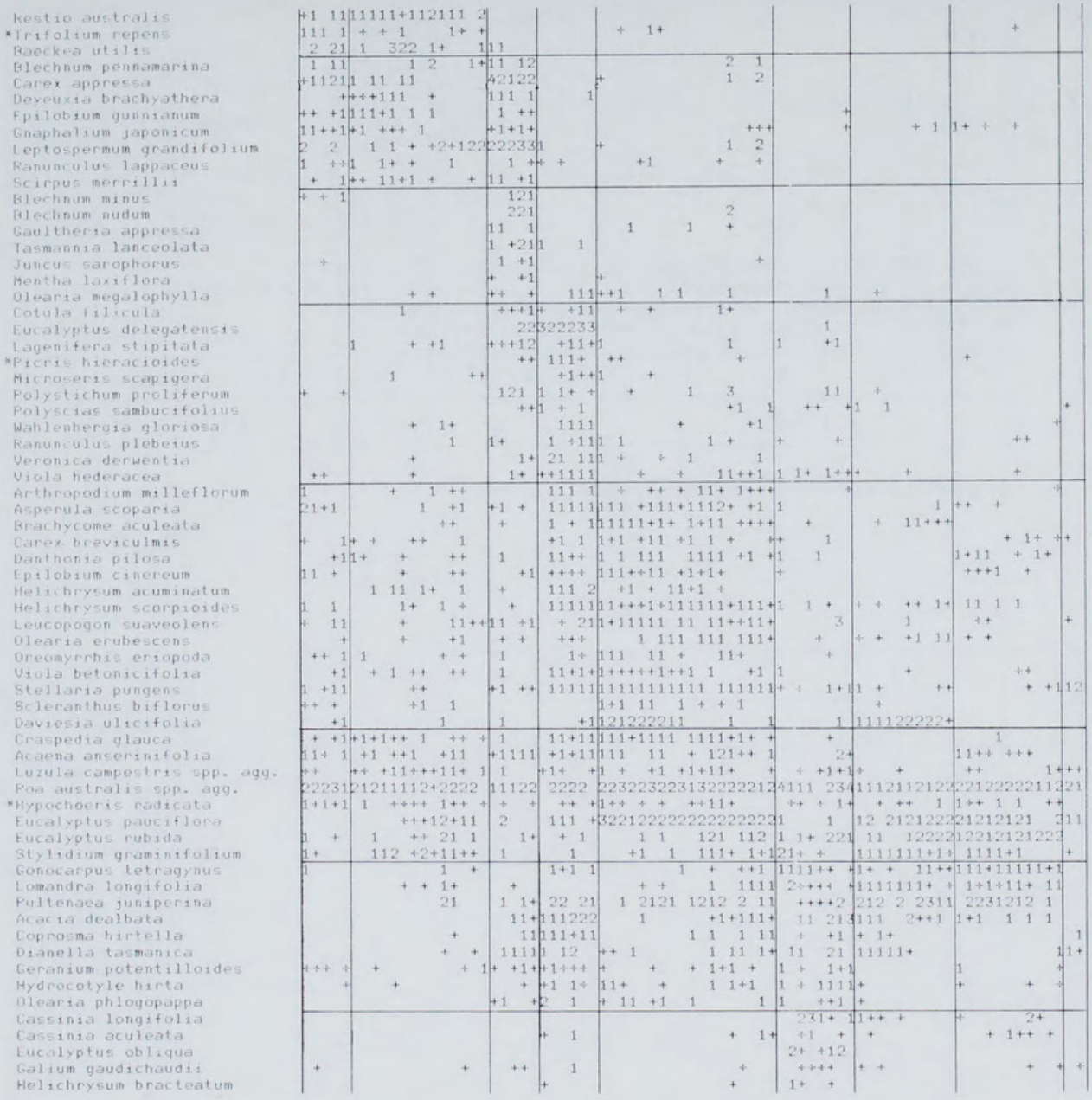
Table 1. Two-way table of Communities 1, 2, 3, 4, 5 and 6.
Cover-abundance symbols:
+ < 5% cover, uncommon
1 Up to 5% cover, common
2 5-20% cover
3 20-50% cover
4 50-75% cover
5 75-100% cover

COMMUNITY	1		2	3	4	5			6
SUB-COMMUNITY	1	2	1	1	1	1	2	3	1
QUADRAT / SPECIES	11111 111111111111111		11211	111111	1111111111111111111	1211111	1111121111	1111111111	11
	99999999989999888966		99099	599898	9999999989999599998	0555585888809999		8999998896	855
	00000000000000000000		00000	000000	0000000000000000000	0000000000		0000000000	000
	24231 13313405030231		12101	110340	0003221203342432341	3445401333131150		4521005314	544
	52476 53442981412926		32228	614611	7695109736088223104	0741664450173703		3260512327	401
Carex longebrachiata	11 1								
*Holcus lanatus	11111 + 1 1		+				+	+	
Rumex brownii	++ ++ +								
Rubus parvifolius	11++1		1	1		+	1		
Prunella vulgaris	++111 +		1	+					
*Juncus acutiflorus	+++1 +		+		+				
Dichondra repens	1+ +1				+	1 + 1		+	
Geranium antrorsum	1++ 1 +				1 +				
Gratiola peruviana	1+1+ +								
*Cerastium glomeratum	+ ++ + +		+			+			
*Cirsium vulgare	1+++		+	+		+ +		1+ + +	
Myriophyllum propinquum	+ 11 1								
Ranunculus rivularis	1 1 1								
Eucalyptus camphora	2 1 1 11								
Juncus spp.	1 1+++ + +		+ 2						
Deyeuxia quadriseta	++ + + 1 1++			+ 1	1 11 1 1 ++1	+ 1 1 1		+ 1	
Veronica gracilis	1+ 1 +++ + 1+								
Festuca hookeriana	1 121 1 11				1				
Comesperma retusum	+ 1+11+ +11								
Senecio gunnii	++ + 1 +		1	+ +	11 + +1 +				
Baumea gunnii	1 + 1+++1 23								
Epacris paludosa	2 + 3 1 33		1						
Agropyron scabrum	11111 1+ + ++			1++	+ 1 1+ + +			111 1 1	
Asperula gunnii	+ +1 1++11++1+++ +1		1		+			+ +	
Baeckea gunniana	+ 13121 221 4								
Brachycome scapigera	1 ++1++11 1 1+1				+				
Callistemon sieberi	2 11+21 13212 2								
Empodisma minus	2 11222122322+ 24								
Carex gaudichaudiana	+11212112 1 1 2								
Cotula alpina	+ + 11++11+1111+								
Epacris breviflora	12 21 11212311321+		+						
Epacris microphylla	+1 11 22122 131+1221		1		+			+	+
Eucalyptus stellulata	1+121+111 ++ 11		+						
Hakea microcarpa	21 111 2 111 1+								
Gonocarpus micranthus	+ +1 111121+1 121								
Hydrocotyle sibthorpioides	+++1+1+ 1+ 1+ + +		++						
Hypericum japonicum	+11+1 11+1+ 11+111+		1 +						
Leptospermum myrtifolium	11 +1 1+ 21 1 + 21				+ 1				
Oreomyrrhis ciliata	+1 +1 211++11+++1		++		+				
Ranunculus pimpinellifolius	+1 11 11+1+1+		11						

Carex longebrachiata
*Holcus lanatus
Rumex brownii
Rubus parvifolius
Prunella vulgaris
*Juncus acutiflorus
Dichondra repens
Geranium antrorsum
Gratiola peruviana
*Cerastium glomeratum
*Cirsium vulgare
Myriophyllum propinquum
Ranunculus rivularis
Eucalyptus camphora
Juncus spp.
Deyeuxia quadriseta
Veronica gracilis
Festuca hookeriana
Comesperma retusum
Senecio gunnii
Baumea gunnii
Epacris paludosa
Agropyron scabrum
Asperula gunnii
Baeckea gunniana
Brachycome scapigera
Callistemon sieberi
Empodisma minus
Carex gaudichaudiana
Cotula alpina
Epacris breviflora
Epacris microphylla
Eucalyptus stellulata
Hakea microcarpa
Gonocarpus micranthus
Hydrocotyle sibthorpioides
Hypericum japonicum
Leptospermum myrtifolium
Oreomyrrhis ciliata
Ranunculus pimpinellifolius


Restio australis
*Trifolium repens
Baeckea utilis
Blechnum pennamarina
Carex appressa
Deyeuxia brachyathera
Epilobium gunnianum
Gnaphalium japonicum
Leptospermum grandifolium
Ranunculus lappaceus
Scirpus merrillii
Blechnum minus
Blechnum nudum
Gaultheria appressa
Tasmannia lanceolata
Juncus sarophorus
Mentha laxiflora
Olearia megalophylla
Cotula filicula
Eucalyptus delegatensis
Lagenifera stipitata
*Picris hieracioides
Microseris scapigera
Polystichum proliferum
Polyscias sambucifolius
Wahlenbergia gloriosa
Ranunculus plebeius
Veronica derwentia
Viola hederacea
Arthropodium milleflorum
Asperula scoparia
Brachycome aculeata
Carex breviculmis
Danthonia pilosa
Epilobium cinereum
Helichrysum acuminatum
Helichrysum scorpioides
Leucopogon suaveolens
Olearia erubescens
Oreomyrrhis eriopoda
Viola betonicifolia
Stellaria pungens
Scleranthus biflorus
Daviesia ulicifolia
Craspedia glauca
Acaena anserinifolia
Luzula campestris spp. agg.
Poa australis spp. agg.
*Hypochoeris radicata
Eucalyptus pauciflora
Eucalyptus rubida
Stylidium graminifolium
Gonocarpus tetragynus
Lomandra longifolia
Pultenaea juniperina
Acacia dealbata
Coprosma hirtella
Dianella tasmanica
Geranium potentilloides
Hydrocotyle hirta
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Cassinia longifolia
Cassinia aculeata
Eucalyptus obliqua
Galium gaudichaudii
Helichrysum bracteatum

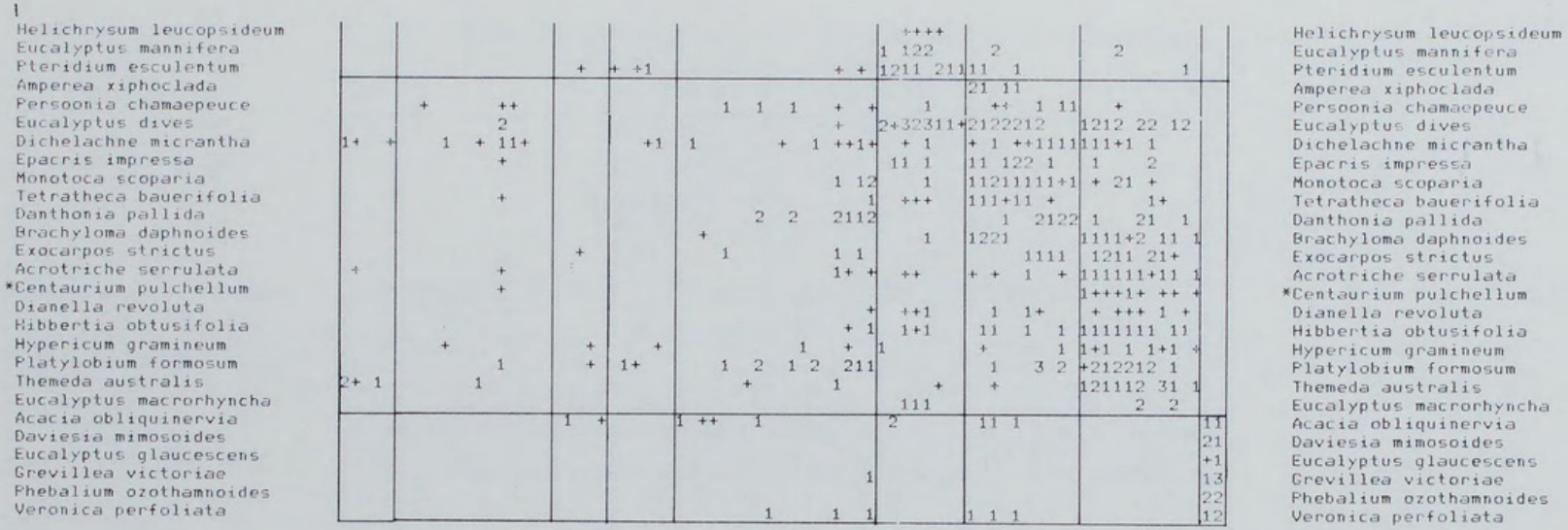


Table 2. Two-way table of Communities 7 and 8.

COMMUNITY	7	8			
SUB-COMMUNITY	1	1	2	3	4
QUADRAT / SPECIES	i1111212 66666060 00000000 14132121 71964117	12111111112222122 60666666660000500 00000000000000000 20342042321151434 59702983908510918	11122221111222212111111211 66600008555000080666668056 00000000000000000000000000 14214646233646144040127433 83840543632462965751361795	11111 66666 00000 13131 54154	11111 56556 00000 33513 48273
Blechnum fluviatile	+1+++1+1	+			
Polyphlebium venosum	+11 11+1		1 +		
Asplenium bulbiferum	21 22121	+ 2	1 1 +		
Fieldia australis	+11 21 12		+++ 11 + 1 1		
Uncinia tenella	1 +++111	++ + 1+	+ +		
Grammitis billardieri	111++11+	111+ + ++	+ +		
Atherosperma moschatum	44331+32	3311++ 3			+
Acacia frigescens	211 4 2	31+ 32	2+ 22 +		
Prostanthera lasianthos	+ +++ 1	+ 31 1 11+ +	1 1' + +1 +2		
Australina muelleri	1 111+	1 ++ 1 11	++ + ++ + +		
Tasmannia lanceolata	1+ 2++2	+2231+32122 12	++ 1	1 3	43 2
Eucalyptus nitens	1+12++2	2111212 222 2	211	1	

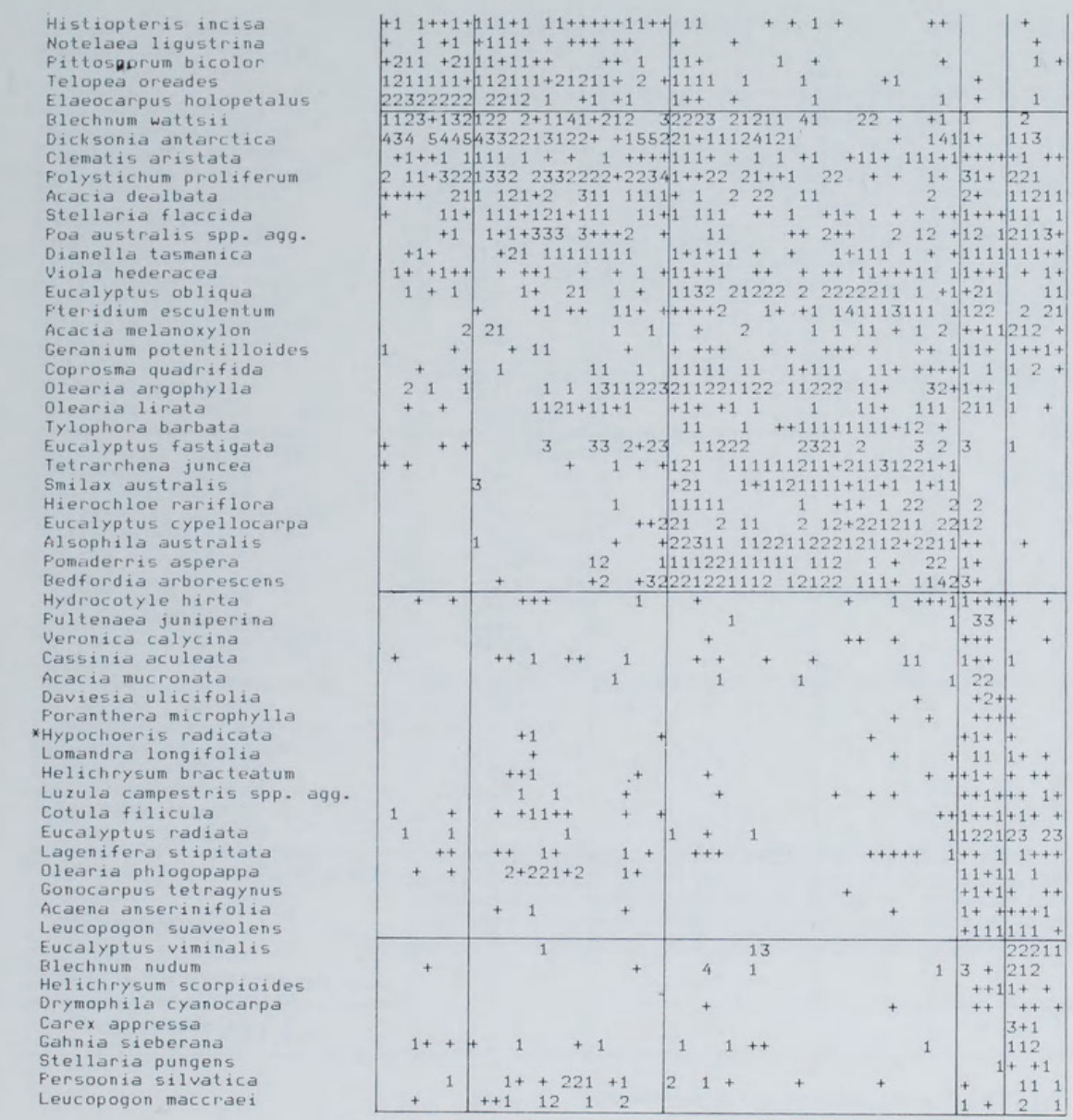

Histiopteris incisa
Notelaea ligustrina
Pittosporum bicolor
Telopea oreades
Elaeocarpus holopetalus
Blechnum wattsii
Dicksonia antarctica
Clematis aristata
Polystichum proliferum
Acacia dealbata
Stellaria flaccida
Poa australis spp. agg.
Dianella tasmanica
Viola hederacea
Eucalyptus obliqua
Pteridium esculentum
Acacia melanoxylon
Geranium potentilloides
Coprosma quadrifida
Olearia argophylla
Olearia lirata
Tylophora barbata
Eucalyptus fastigata
Tetrarrhena juncea
Smilax australis
Hierochloe rariflora
Eucalyptus cypellocarpa
Alsophila australis
Pomaderris aspera
Bedfordia arborescens
Hydrocotyle hirta
Pultenaea juniperina
Veronica calycina
Cassinia aculeata
Acacia mucronata
Daviesia ulicifolia
Poranthera microphylla
*Hypochoeris radicata
Lomandra longifolia
Helichrysum bracteatum
Luzula campestris spp. agg.
Cotula filicula
Eucalyptus radiata
Lagenifera stipitata
Olearia phlogopappa
Gonocarpus tetragynus
Acaena anserinifolia
Leucopogon suaveolens
Eucalyptus viminalis
Blechnum nudum
Helichrysum scorpioides
Drymophila cyanocarpa
Carex appressa
Gahnia sieberana
Stellaria pungens
Persoonia silvatica
Leucopogon maccraei

Table 3. Two-way table of Communities 9, 10 and 11.

COMMUNITY	9				10	11
SUB-COMMUNITY	1	2	3	4	1	1
QUADRAT	111111	11111111	21212222122211211	211212111	1111111111	11111111111
	888888	88888888	08060000600075066	064040448	4848833338	88885589885
	000000	00000000	00000000000000000	000000000	0000000000	00000000000
	642644	32111573	74303528053533500	751634222	3437000008	65852255570
SPECIES	642851	91897648	38458915346340024	406143108	3959895321	47082038569
Coprosma quadrifida	1+ +1		1 + 1+ +	++	+ 1	
Veronica calycina	++++++	+ +	+	1+ +	+ +1	
Acacia dealbata	1 1222	221+1 1	2 2 +	2		
Glycine clandestina	+ +1	11++	+ + +	++ 1	+ + +	
Tetratheca bauerifolia	+ + 1	1 11+ +1	1 11 1 1	+		1 +
Dianella tasmanica	++1 11	1++++ +	+111 + + +	+ +	++	+ 1
Pultenaea juniperina	243 ++	42111 +4	1 2 1 22	1	1 1 +	1+2 +
Stellaria pungens	+	++++		+	+	+ +
Senecio quadridentatus	++	+1+ +	+ + +	+ + +		+
Acrotriche prostrata	1	++ 1 +				
Eucalyptus dives	+	113 2		+		1
Indigofera australis	+	+1 11+	++1 + + 1	+ +	1 1+ +	
Acrotriche serrulata		1111111	1 1 ++1+11+1++	+ 1	+ 1	+ +
Astroloma humifusum		1111+1	1 111 11121 1++	+	+	+
Gonocarpus tetragynus	1	11111+11	1+1 11 +211 11	+ +	1 1	11+ ++
Hardenbergia violacea		1+ ++1	++ + +1+	+	+ 1+ +	+ 1 ++
Danthonia pallida		+2 +11	12 1+121 2 21 1++	1 +2	+ 1++	11+ 1+1
Hibbertia obtusifolia	+	1 11+111	111111 111 + 1	+ + 1 +	+ 11+ + +	1 1 1
Dichelachne micrantha	1	++ ++1++	++1+ 1 + +1++ +	1	+ 1+	++ +
Helichrysum scorpioides	+ 1	+ 11+ 1	+ 1 ++++++++ 1+1	+ ++	+	+
Epacris impressa	+ +	1++11 2	1+++1111 1 1 1	1+ +1 +	1	+ +
Acacia melanoxylon		+2 +	1+ +2 ++++		1	
Gahnia radula		+	2 2 2 21 32	1 1 1	+	
Eucalyptus bridgesiana			2 11 1 22	1+	2	
Eucalyptus radiata	2	1	1 2 1 11	1		2
Leucopogon lanceolatus			111111111+++1++	1+ 1	++ +	1 + 1
Persoonia linearis			1 + 111+ + 1+	111 1++	+ + ++	
Daviesia ulicifolia			1 111++++	11 1	1 +	1 1
Acacia mucronata			11 121+ 11 211	2 1	+ 1 1	
Exocarpos strictus			11+++11 + +	1 1		1 1
Gonocarpus teucrioides	+1 +2		21 1 1	211 1+++	+ 1+++	
Tetrarrhena juncea	1 1		1 +3 1	1312 2	1	
Clematis aristata	+ +	+	+ ++ ++	++ +++	++ +	
Dianella caerulea	++11+		++111111+ 1+1 +1+	+ +1+11++	+ 1+ +	
Eucalyptus cypellocarpa	2 22	2212	1 1211112 2	211111	111 11	
Viola hederacea	1 11+1	11 + 1	+++ 1 1 ++	++1 +++++	+ +	+
*Hypochoeris radicata	+ 1	1 ++ +	+ 1 + 1+ ++	+ +++	+ +	
Hypericum gramineum	+++1	1 11 +1	+++++1 +1+++ 1+++	11 +	+ + +++	+

Coprosma quadrifida
Veronica calycina
Acacia dealbata
Glycine clandestina
Tetratheca bauerifolia
Dianella tasmanica
Pultenaea juniperina
Stellaria pungens
Senecio quadridentatus
Acrotriche prostrata
Eucalyptus dives
Indigofera australis
Acrotriche serrulata
Astroloma humifusum
Gonocarpus tetragynus
Hardenbergia violacea
Danthonia pallida
Hibbertia obtusifolia
Dichelachne micrantha
Helichrysum scorpioides
Epacris impressa
Acacia melanoxylon
Gahnia radula
Eucalyptus bridgesiana
Eucalyptus radiata
Leucopogon lanceolatus
Persoonia linearis
Daviesia ulicifolia
Acacia mucronata
Exocarpos strictus
Gonocarpus teucrioides
Tetrarrhena juncea
Clematis aristata
Dianella caerulea
Eucalyptus cypellocarpa
Viola hederacea
*Hypochoeris radicata
Hypericum gramineum

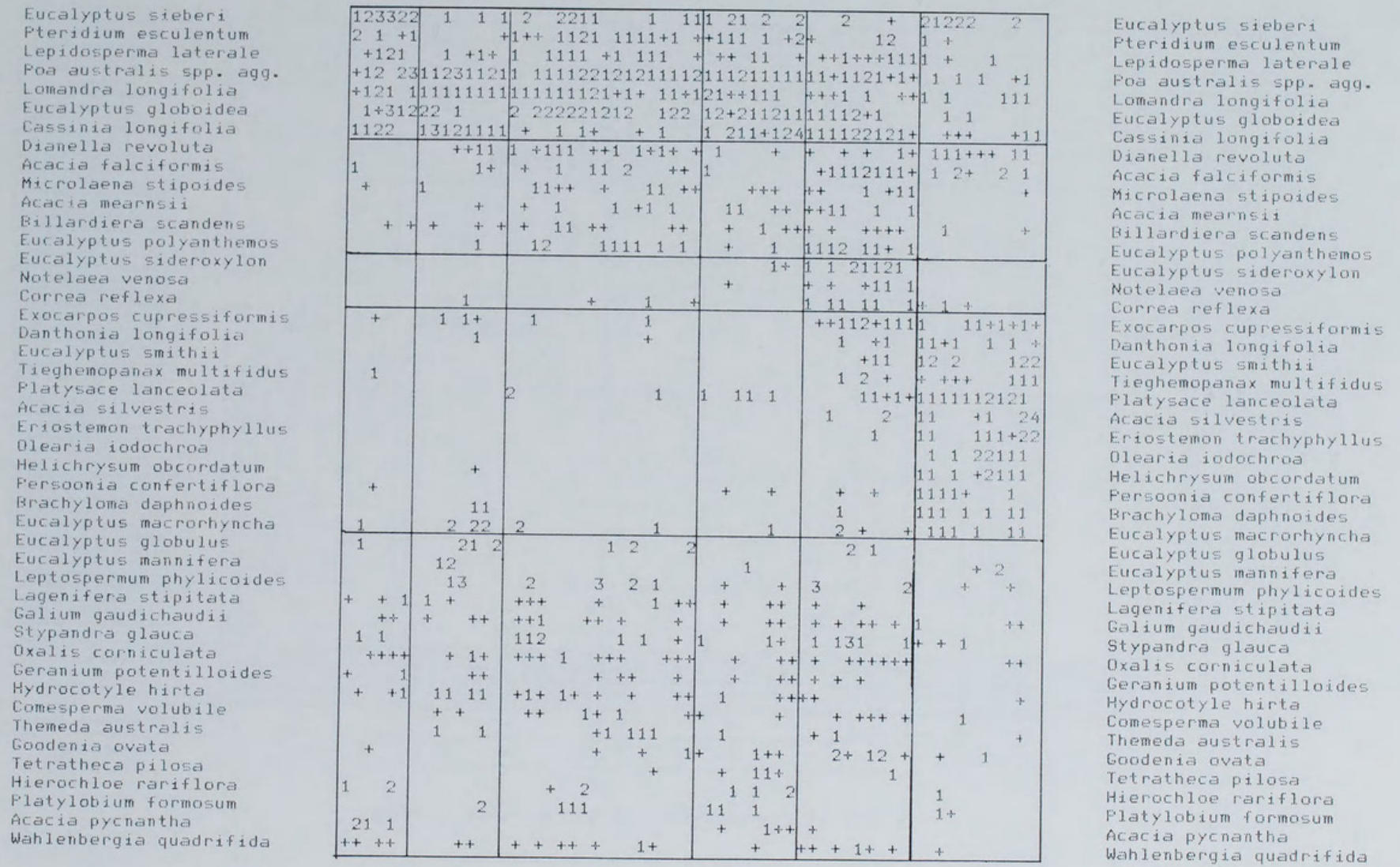
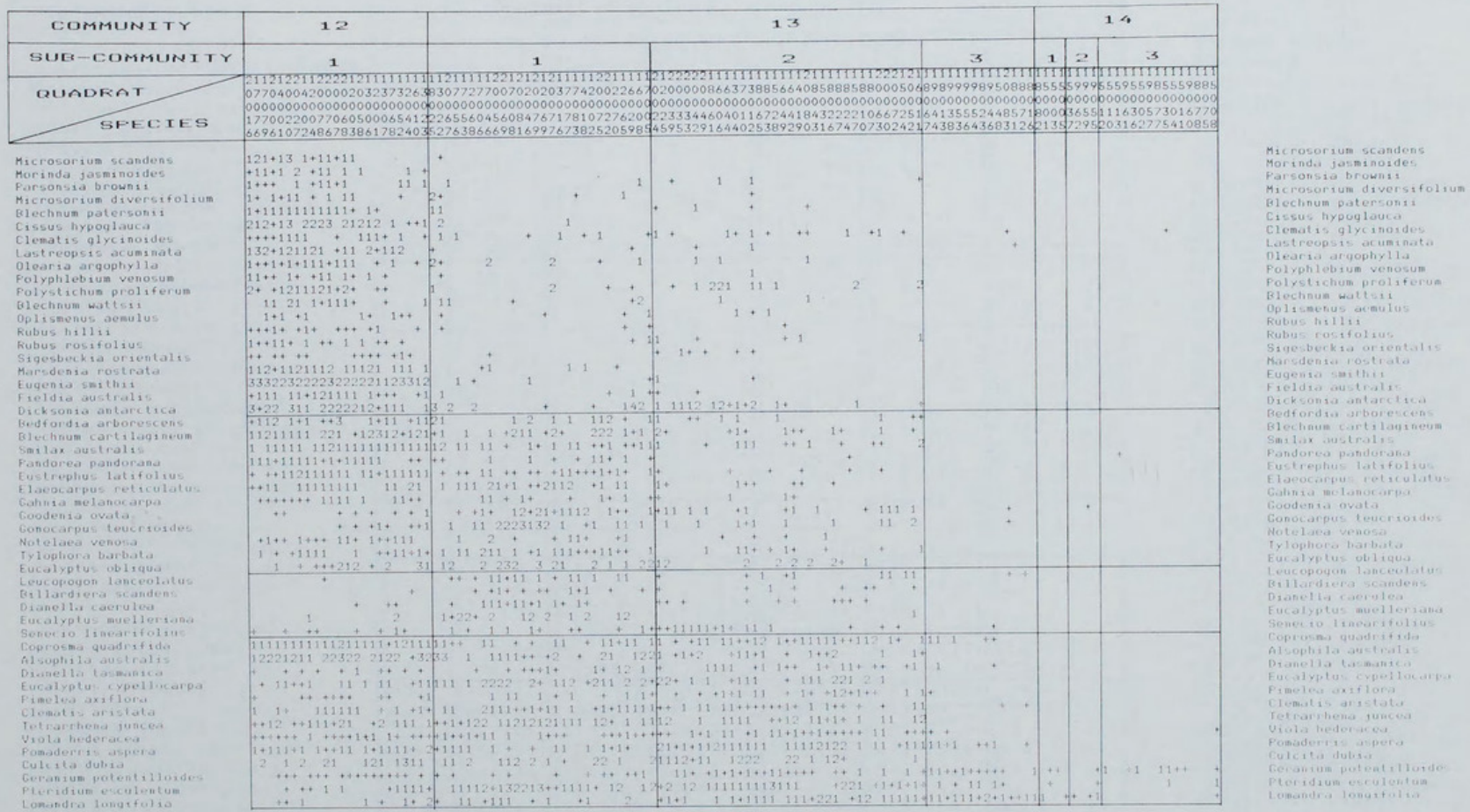

Eucalyptus sieberi
Pteridium esculentum
Lepidosperma laterale
Poa australis spp. agg.
Lomandra longifolia
Eucalyptus globoidea
Cassinia longifolia
Dianella revoluta
Acacia falciformis
Microlaena stipoides
Acacia mearnsii
Billardiera scandens
Eucalyptus polyanthemos
Eucalyptus sideroxylon
Notelaea venosa
Correa reflexa
Exocarpos cupressiformis
Danthonia longifolia
Eucalyptus smithii
Tieghemopanax multifidus
Platysace lanceolata
Acacia silvestris
Eriostemon trachyphyllus
Olearia iodochroa
Helichrysum obcordatum
Persoonia confertiflora
Brachyloma daphnoides
Eucalyptus macrorhyncha
Eucalyptus globulus
Eucalyptus mannifera
Leptospermum phylicoides
Lagenifera stipitata
Galium gaudichaudii
Stypandra glauca
Oxalis corniculata
Geranium potentilloides
Hydrocotyle hirta
Comesperma volubile
Themeda australis
Goodenia ovata
Tetratheca pilosa
Hierochloe rariflora
Platylobium formosum
Acacia pycnantha
Wahlenbergia quadrifida

Table 4. Two-way table of Communities 12, 13, and 14.



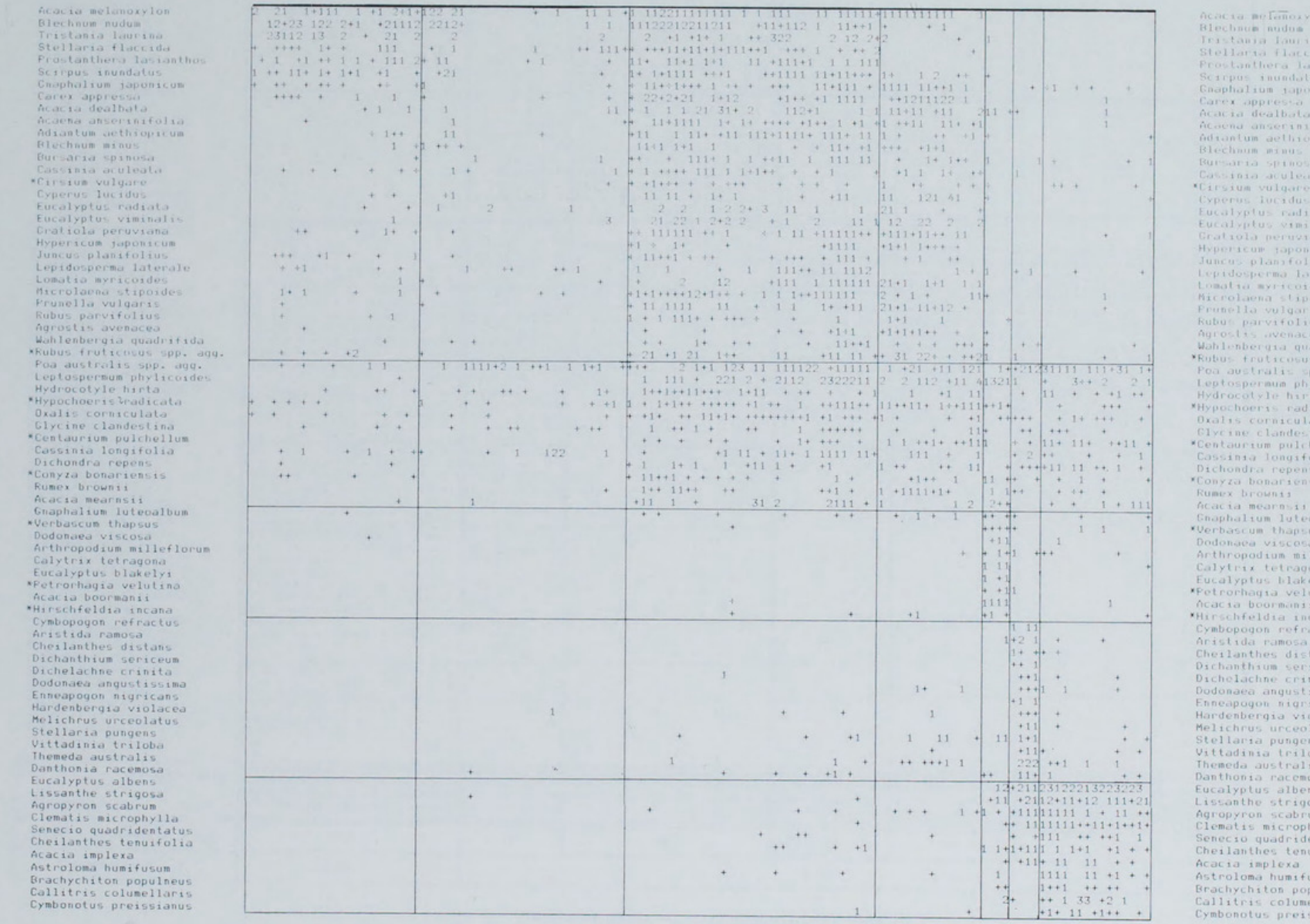
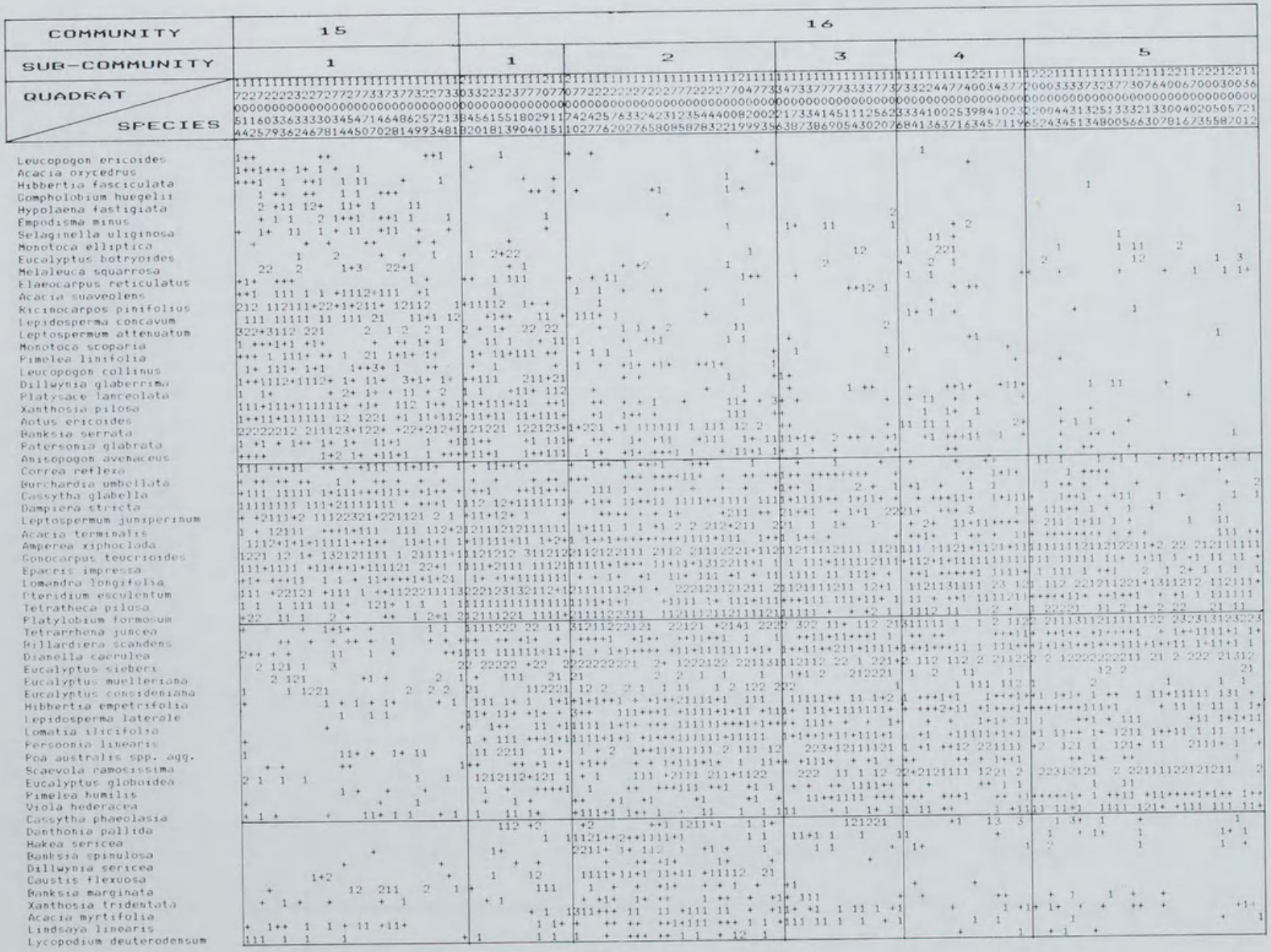
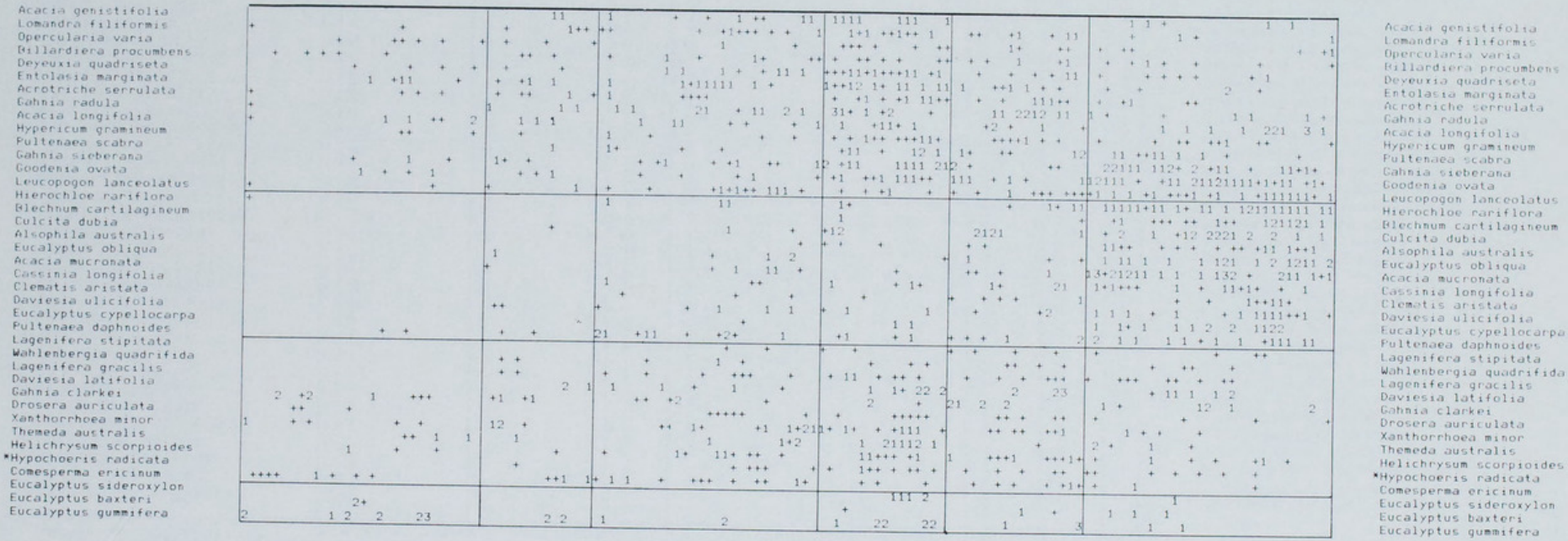

Acacia melanoxylon
Blechnum nudum
Tristania laurina
Stellaria flaccida
Prostanthera lasianthos
Scirpus inundatus
Gnaphalium japonicum
Carex appressa
Acacia dealbata
Acaena anserinifolia
Adiantum aethiopicum
Blechnum minus
Bursaria spinosa
Cassinia aculeata
*Cirsium vulgare
Cyperus lucidus
Eucalyptus radiata
Eucalyptus viminalis
Gratiola peruviana
Hypericum japonicum
Juncus planifolius
Lepidosperma laterale
Lomatia myricoides
Microlaena stipoides
Prunella vulgaris
Rubus parvifolius
Agrostis avenacea
Wahlenbergia quadrifida
*Rubus fruticosus spp. agg.
Poa australis spp. agg.
Leptospermum phylicoides
Hydrocotyle hirta
*Hypochoeris radicata
Oxalis corniculata
Glycine clandestina
*Centaurium pulchellum
Cassinia longifolia
Dichondra repens
*Conyza bonariensis
Rumex brownii
Acacia mearnsii
Gnaphalium luteoalbum
*Verbascum thapsus
Dodonaea viscosa
Arthropodium milleflorum
Calytrix tetragona
Eucalyptus blakelyi
*Petrorhagia velutina
Acacia boormanii
*Hirschfeldia incana
Cymbopogon refractus
Aristida ramosa
Cheilanthes distans
Dichanthium sericeum
Dichelachne crinita
Dodonaea angustissima
Enneapogon nigricans
Hardenbergia violacea
Melichrus urceolatus
Stellaria pungens
Vittadinia triloba
Themeda australis
Danthonia racemosa
Eucalyptus albens
Lissanthe strigosa
Agropyron scabrum
Clematis microphylla
Senecio quadridentatus
Cheilanthes tenuifolia
Acacia implexa
Astroloma humifusum
Brachychiton populneus
Callitris columellaris
Cymbonotus preissianus

Table 5. Two-way table of Communities 15 and 16.



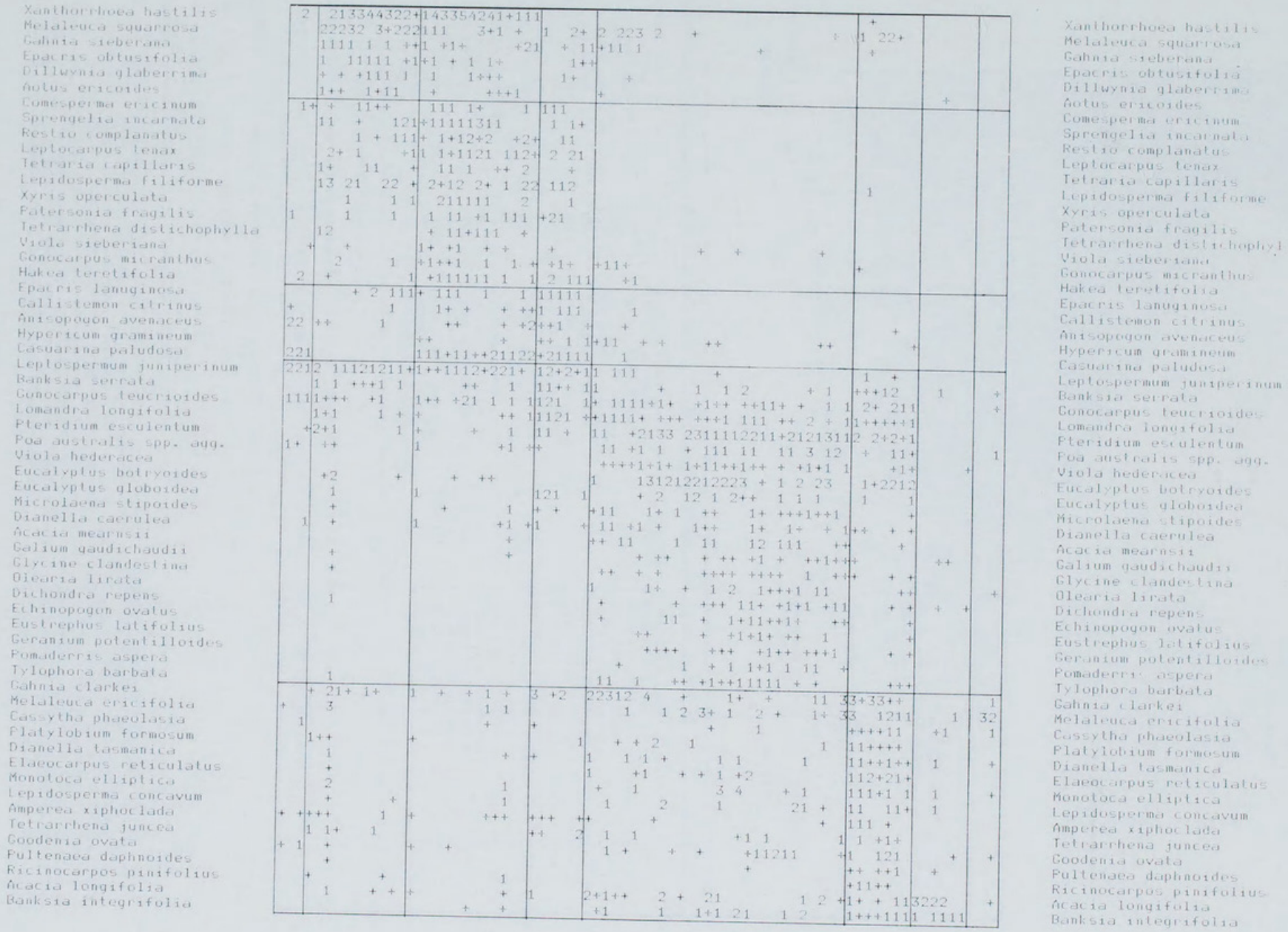


Acacia genistifolia
Lomandra filiformis
Opercularia varia
Billardiera procumbens
Deyeuxia quadriseta
Entolasia marginata
Acrotriche serrulata
Gahnia radula
Acacia longifolia
Hypericum gramineum
Pultenaea scabra
Gahnia sieberana
Goodenia ovata
Leucopogon lanceolatus
Hierochloe rariflora
Blechnum cartilagineum
Culcita dubia
Alsophila australis
Eucalyptus obliqua
Acacia mucronata
Cassinia longifolia
Clematis aristata
Daviesia ulicifolia
Eucalyptus cypellocarpa
Pultenaea daphnoides
Lagenifera stipitata
Wahlenbergia quadrifida
Lagenifera gracilis
Daviesia latifolia
Gahnia clarkei
Drosera auriculata
Xanthorrhoea minor
Themeda australis
Helichrysum scorpioides
*Hypochoeris radicata
Comesperma ericinum
Eucalyptus sideroxylon
Eucalyptus baxteri
Eucalyptus gummifera

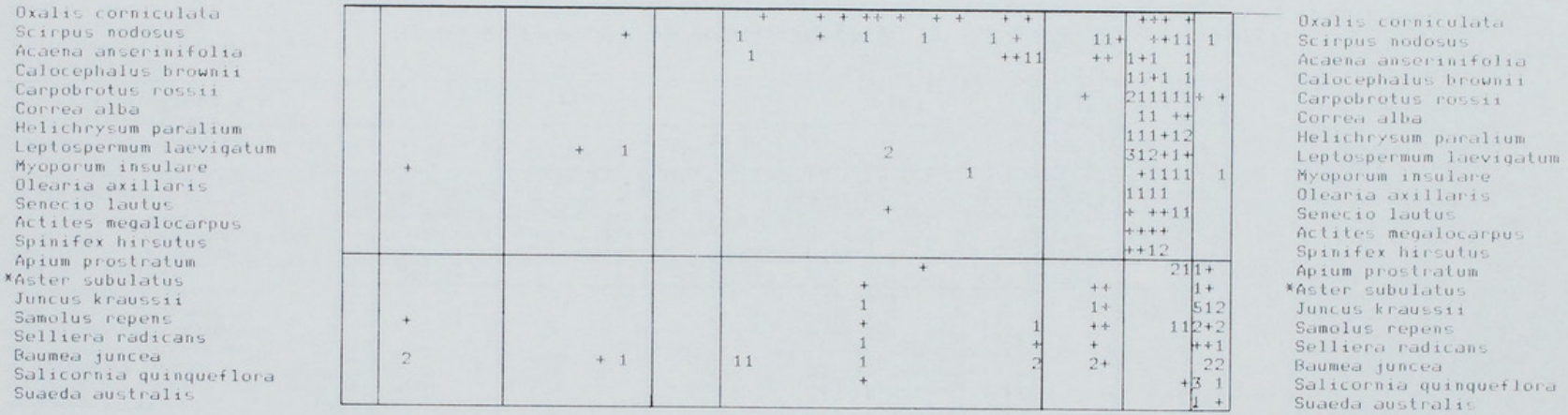
Table 6. Two-way table of Communities 17, 18, 19, 20, and 21.

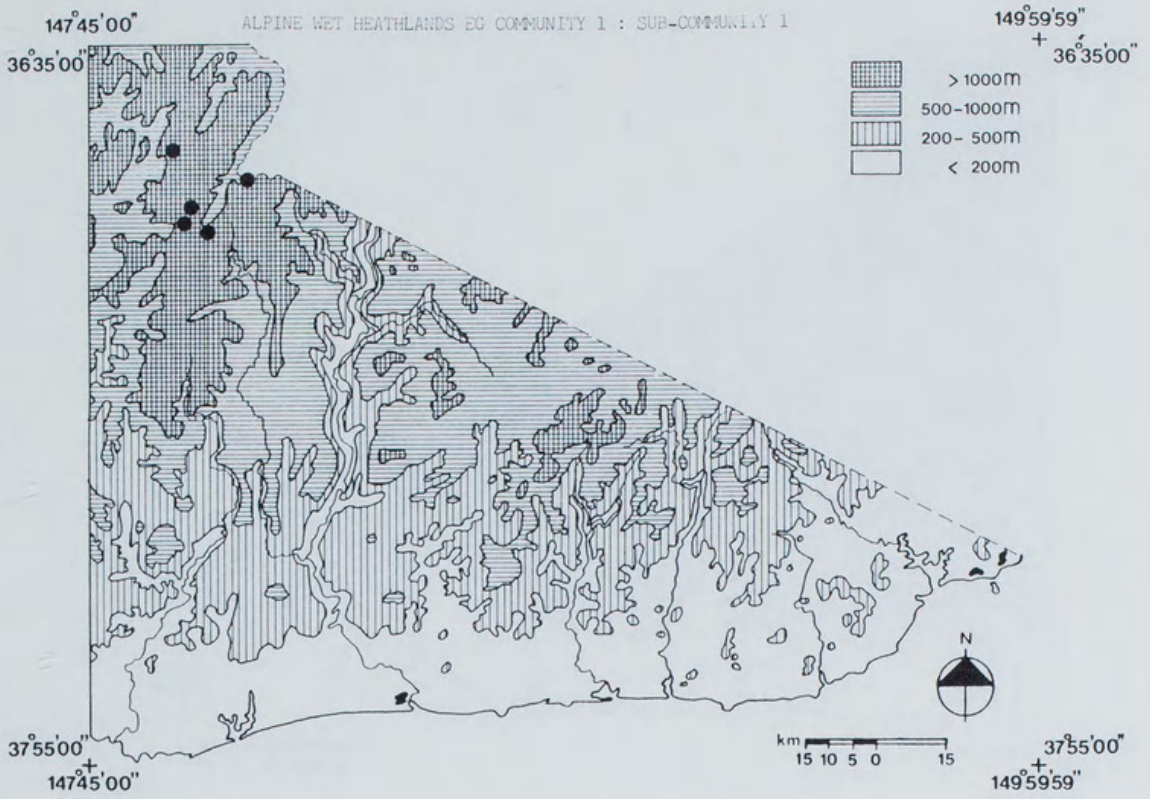
COMMUNITY	17				18	19	20	21
SUB-COMMUNITY	1	2	3	4	1	1	1	1
QUADRAT	111	11121211211	1112211112111	121211	1111111111111111111111111111	1111111	111111	111
	777	33702022022	2370073330372	707027	4772223444442424774347434447	2222224	422277	722
	000	00000000000	0000000000000	000000	0000000000000000000000000000	0000000	000000	000
	556	42203265830	4429244438314	181926	3762215000011053272515251223	2221551	266656	717
SPECIES	993	78831970789	9632829192020	967041	1279376857445910957305845522	2109521	424376	361
Chamaescilla corymbosa	+1		++					
Lomandra filiformis	++	+	+ 1		1 +			
Astroloma humifusum	1+				+ +1			
Opercularia varia	++		+ +	++	+ +	+		
Cyathochaeta diandra	11			+ 1				
Drosera auriculata	++	+	+	+ +				
Euphrasia collina	11		+	+				
Pimelea linifolia	1+		++	+	+	+ +		
Stipa nervosa	+1		+		+ + 1	+		
Stipa semibarbata	1+							
Platysace heterophylla	11	+	+		+			
Platysace lanceolata	+1	+ + +	+		11 ++ +	1		
Schoenus tenuissimus	+ 1	1 1	2 + 11+ 1					
Gahnia radula	+ 2	1	+ 2	12	1 1 + + 1 + 1 1 1 +	11		
Acrotriche serrulata	1 +			+ +	+ +			
Xanthosia dissecta	+ +	+++ 1	1 ++ 1+ 1 +	+1				
Hibbertia empetrifolia	1 1	11	+ +	+ 1	++ 1 1 +1 1 2	1 +		
Dillwynia sericea	111	+ +		+ +			+	
Gompholobium huegelii	1+2	+ +	+ +	1				
Helichrysum scorpioides	+++		+	1 +	+ + +			
Laxmannia sessiliflora	+1+							
Thysanotus juncifolius	+++			+				
Xanthosia pusilla	+++		1 +		+			
Patersonia glabrata	+11	+ +1	1	+ +				
Danthonia pilosa	111				+ + +			
Scaevola ramosissima	++1		1	+				
Acacia myrtifolia	+++	+	+	+ +				
Schoenus apogon	+1+	+		1 +	+ + +			
Themeda australis	111		1	1+	+ + 1 1+ 2			
Entolasia marginata	+1+	+	+ + 11 +	+ 1 1	1 11 1 1 ++	1		
Bossiaea prostrata	++1	+	+ +1 +	++ 1		+		
Banksia marginata	1++	1	1+ ++ + 1	1 1	1 + +			
Schoenus brevifolius	221	2	1 2 22 22 2			1		
Sphaerolobium vimineum	111	+	+1++ 1 +	+1+ 1				
Lepidosperma neesii	111	+	1+111 1	+1+ +				
Epacris impressa	111	11 +111+1+	+ ++2+1+1	1	+ 1 ++ + + + 1	1+1 11		
Cassytha glabella	111	+1+1+111+ +	1 +1+++11+	+++++1	+	++ 1		
Dampiera stricta	+1+	+++ 1111++	+1 ++1+1+++1	111+ 1				
Lindsaya linearis	1+1	111 1 11	11 1111+11 1	111 1	+			
Empodisma minus	+ 1	1212+ 1+1 +	+212121+1 + 1	1+2211	+ 21	1		
Selaginella uliginosa	1 1	11+11111121	11+111111 +1	1+21+1	11+			
Burchardia umbellata	+11	++ ++++++	11+1++++++	+++ +	+ +			

Chamaescilla corymbosa
Lomandra filiformis
Astroloma humifusum
Opercularia varia
Cyathochaeta diandra
Drosera auriculata
Euphrasia collina
Pimelea linifolia
Stipa nervosa
Stipa semibarbata
Platysace heterophylla
Platysace lanceolata
Schoenus tenuissimus
Gahnia radula
Acrotriche serrulata
Xanthosia dissecta
Hibbertia empetrifolia
Dillwynia sericea
Gompholobium huegelii
Helichrysum scorpioides
Laxmannia sessiliflora
Thysanotus juncifolius
Xanthosia pusilla
Patersonia glabrata
Danthonia pilosa
Scaevola ramosissima
Acacia myrtifolia
Schoenus apogon
Themeda australis
Entolasia marginata
Bossiaea prostrata
Banksia marginata
Schoenus brevifolius
Sphaerolobium vimineum
Lepidosperma neesii
Epacris impressa
Cassytha glabella
Dampiera stricta
Lindsaya linearis
Empodisma minus
Selaginella uliginosa
Burchardia umbellata



Xanthorrhoea hastilis
Melaleuca squarrosa
Gahnia sieberana
Epacris obtusifolia
Dillwynia glaberrima
Aotus ericoides
Comesperma ericinum
Sprengelia incarnata
Restio complanatus
Leptocarpus tenax
Tetraria capillaris
Lepidosperma filiforme
Xyris operculata
Patersonia fragilis
Tetrarrhena distichophyl
Viola sieberiana
Gonocarpus micranthus
Hakea teretifolia
Epacris lanuginosa
Callistemon citrinus
Anisopogon avenaceus
Hypericum gramineum
Casuarina paludosa
Leptospermum juniperinum
Banksia serrata
Gonocarpus teucrioides
Lomandra longifolia
Pteridium esculentum
Poa australis spp. agg.
Viola hederacea
Eucalyptus botryoides
Eucalyptus globoidea
Microlaena stipoides
Dianella caerulea
Acacia mearnsii
Galium gaudichaudii
Glycine clandestina
Olearia lirata
Dichondra repens
Echinopogon ovatus
Eustrephus latifolius
Geranium potentilloides
Pomaderris aspera
Tylophora barbata
Gahnia clarkei
Melaleuca ericifolia
Cassytha phaeolasia
Platylobium formosum
Dianella tasmanica
Elaeocarpus reticulatus
Monotoca elliptica
Lepidosperma concavum
Amperea xiphoclada
Tetrarrhena juncea
Goodenia ovata
Pultenaea daphnoides
Ricinocarpos pinifolius
Acacia longifolia
Banksia integrifolia


Oxalis corniculata
Scirpus nodosus
Acaena anserinifolia
Calocephalus brownii
Carpobrotus rossii
Correa alba
Helichrysum paralium
Leptospermum laevigatum
Myoporum insulare
Olearia axillaris
Senecio lautus
Actites megalocarpus
Spinifex hirsutus
Apium prostratum
*Aster subulatus
Juncus kraussii
Samolus repens
Selliera radicans
Baumea juncea
Salicornia quinqueflora
Suaeda australis



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Agropyron scabrum	100	1	Epacris breviflora	80	1	Ranunculus lappaceus	60	+
Carex appressa	100	1	Epacris microphylla	80	1	Baeckea utilis	60	1
Carex gaudichaudiana	100	1	Epilobium gunnianum	80	+	Blechnum pennamarina	60	1
Eucalyptus stellulata	100	1	Gratiola peruviana	80	1	Brachycome scapigera	60	+
Gnaphalium japonicum	100	1	Hydrocotyle sibthorpioides	80	+	Callistemon sieberi	60	1
*Holcus lanatus	100	1	*Juncus acutiflorus	80	+	Empodisma minus	60	1
Hypericum japonicum	100	1	Leptospermum myrtifolium	80	1	Carex longebrachiata	60	1
*Hypochoeris radicata	100	1	Oreomyrrhis ciliata	80	1	Craspedia glauca	60	+
Poa australis spp. agg.	100	2	Ranunculus pimpinellifolius	80	1	Deyeuxia quadriseta	60	+
Prunella vulgaris	100	1	Restio australis	80	1	Dichelachne micrantha	60	+
Rubus parvifolius	100	1	Rumex brownii	80	+	Epilobium cinereum	60	1
Acaena anserinifolia	80	1	Blechnum minus	60	+	Geranium antrorsum	60	+
Geranium potentilloides	80	+	Eucalyptus camphora	60	1	Gonocarpus micranthus	60	+
Stellaria pungens	80	1	Ranunculus rivularis	60	1	Oreomyrrhis eriopoda	60	+
*Trifolium repens	80	1	Asperula gunnii	60	+	Scleranthus biflorus	60	+
Asperula scoparia	80	1	*Cerastium glomeratum	60	+	Themeda australis	60	1
*Cirsium vulgare	80	+	Leucopogon suaveolens	60	1	Juncus spp.	60	1
Dichondra repens	80	1	Myriophyllum propinquum	60	1			

NO. OF SITES: 5 (0.8% of total)

DISTRIBUTION: Upper Murray and upper Buchan River catchments.

ENVIRONMENT: Surrounds of meandering streams on subalpine plains, commonly with strong peat development and associated poor drainage

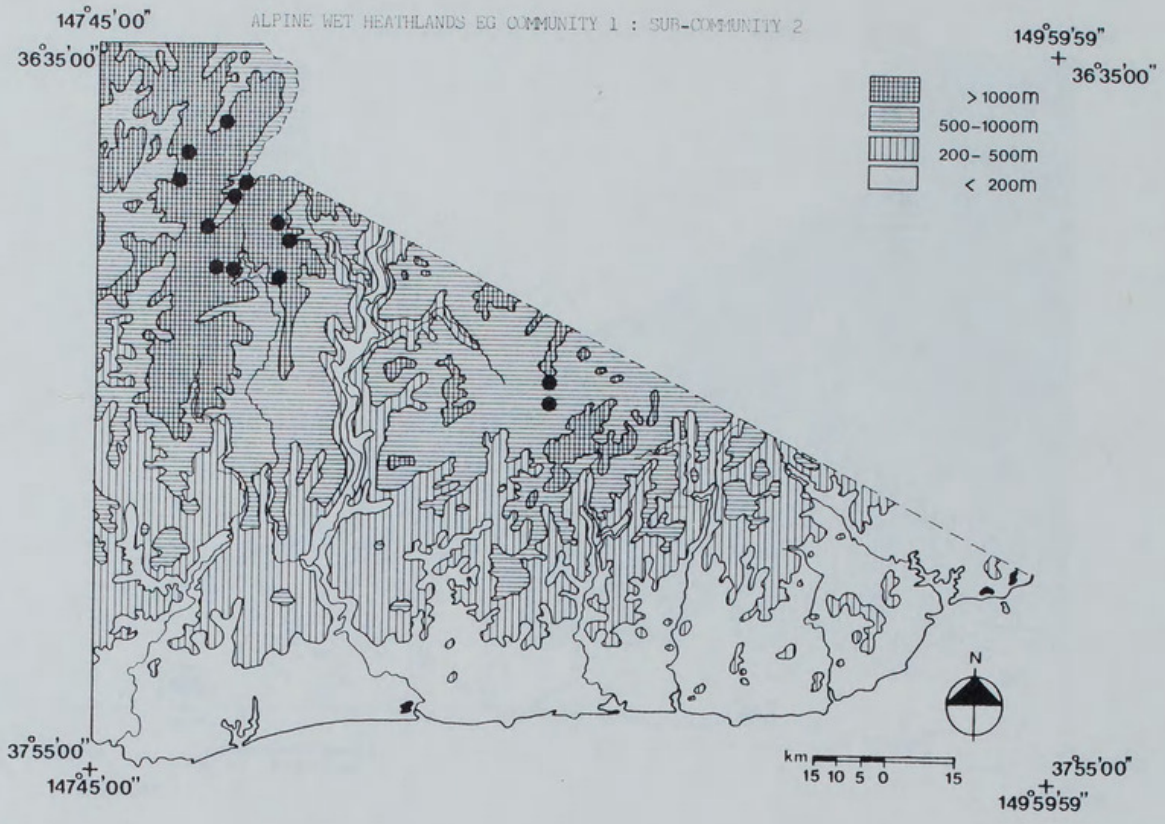
ALTITUDE: Mean = 1092 m, Highest = 1200 m, Lowest = 1000 m.

STRUCTURE: Low open-woodland to Closed-heath

MEAN FLORISTIC RICHNESS: 68 species per site

MEAN WEED COMPOSITION: 13% of species, 11% of cover

NOTES: Occasional eucalypts above a varied understory of grasses, sedges and forbs give this sub-community an open park-like appearance. Scattered clumps or swathes of small-leafed sclerophyllous shrubs are also present. *Eucalyptus stellulata* and *E. camphora* are typical of poorly drained, sheltered subalpine plains; the latter being most common where perennial standing water is found. Hydrophytes including *Myriophyllum propinquum* and *Ranunculus rivularis* grow in this free water. Disturbance of the sites of this sub-community through cattle grazing is reflected by the consistent occurrence of ruderal species (e.g. *Holcus lanatus, Trifolium repens* and *Cirsium vulgare*). The majority of herbs occurring in 80% or more quadrats are cosmopolitan, riparian species.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Asperula gunnii	93	+	Gonocarpus micranthus	79	1	Acaena anserinifolia	57	1
Epacris microphylla	93	1	Oreomyrrhis ciliata	79	1	Hydrocotyle sibthorpioides	57	+
Poa australis spp. agg.	93	1	Stylidium graminifolium	71	1	Scirpus merrillii	57	+
Restio australis	93	1	Craspedia glauca	71	+	Baeckea gunniana	57	2
Empodisma minus	86	1	Leptospermum grandifolium	64	1	Comesperma retusum	57	1
Hypericum japonicum	86	1	Hakea microcarpa	64	1	Eucalyptus pauciflora	57	1
Luzula campestris spp. agg.	86	+	Brachycome scapigera	64	1	Eucalyptus stellulata	57	1
Cotula alpina	86	1	Callistemon sieberi	64	1	Leptospermum myrtifolium	57	1
Epacris breviflora	86	1	*Hypochoeris radicata	64	+			

NO. OF SITES: 14 (2.4% of total)

DISTRIBUTION: Upper Murray, upper Buchan and Delegate River catchments about the Cobberas, Mt. Nunniong and northern Errinundra Plateau.

ENVIRONMENT: Open alpine and subalpine plains, commonly with strong peat development and associated poor drainage

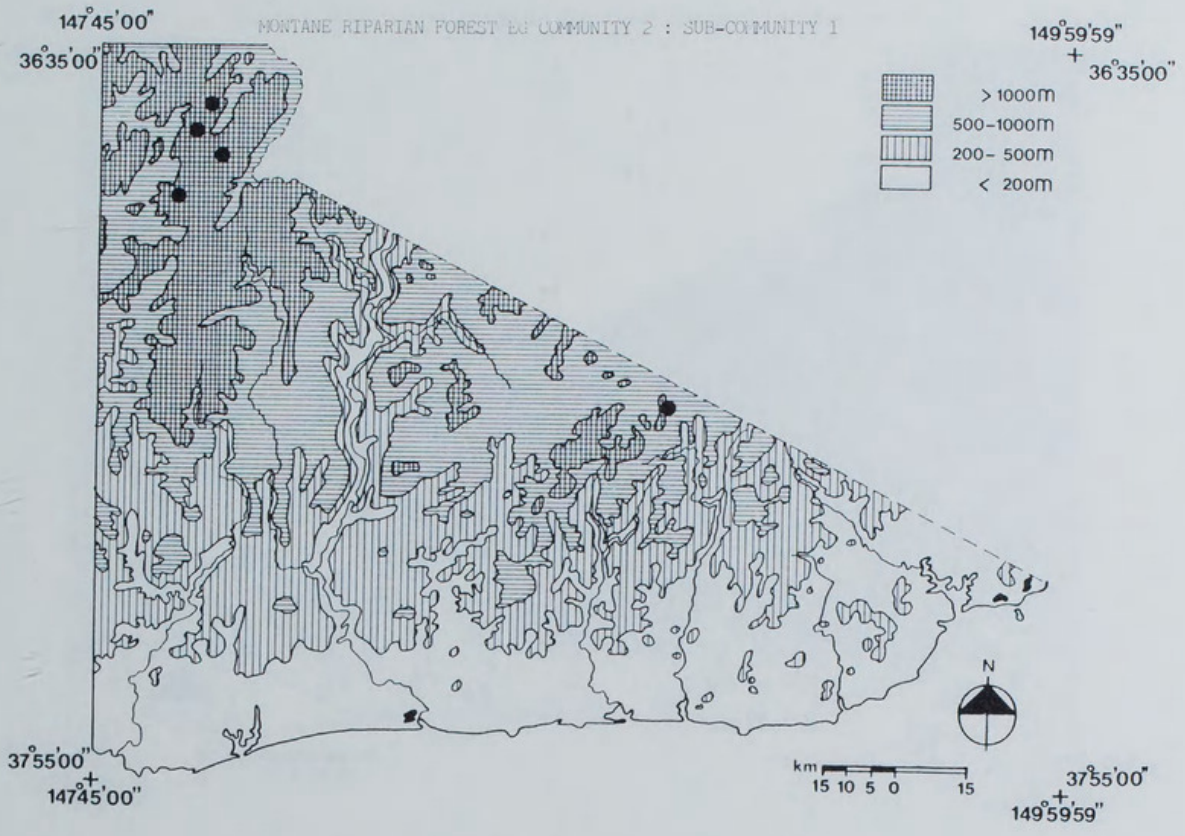
ALTITUDE: Mean = 1259 m, Highest = 1520 m, Lowest = 870 m.

STRUCTURE: Low open-woodland to Closed-heath

MEAN FLORISTIC RICHNESS: 49 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: Although classed as a closed wet heath occasional eucalypts may be present above the small-leafed sclerophyllous shrub layer. *Sphagnum* spp. generally form a carpeting ground layer. In contrast to sub-community 1.1, this sub-community has little evidence of disturbance.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acaena anserinifolia	100	1	Leucopogon suaveolens	80	1	Gaultheria appressa	60	1
Carex appressa	100	2	Scirpus merrillii	80	1	Juncus sarophorus	60	1
Gnaphalium japonicum	100	+	Stellaria pungens	80	+	Olearia megalophylla	60	+
Lagenifera stipitata	100	1	Cotula filicula	80	+	Olearia phlogopappa	60	+
Leptospermum grandifolium	100	2	Deyeuxia brachyathera	80	1	Pultenaea juniperina	60	1
Poa australis spp. agg.	100	1	Dianella tasmanica	80	1	Acacia dealbata	60	1
Blechnum pennamarina	80	1	Mentha laxiflora	60	+	Blechnum minus	60	1
Tasmannia lanceolata	80	1	Asperula scoparia	60	+	Blechnum nudum	60	1
Geranium potentilloides	80	+	Epilobium gunnianum	60	+	Polystichum proliferum	60	1

NO. OF SITES: 5 (0.8% of total)

DISTRIBUTION: Mt. Misery area (upper Murray River) and Errinundra Plateau.

ENVIRONMENT: Streamsides of subalpine and montane valleys

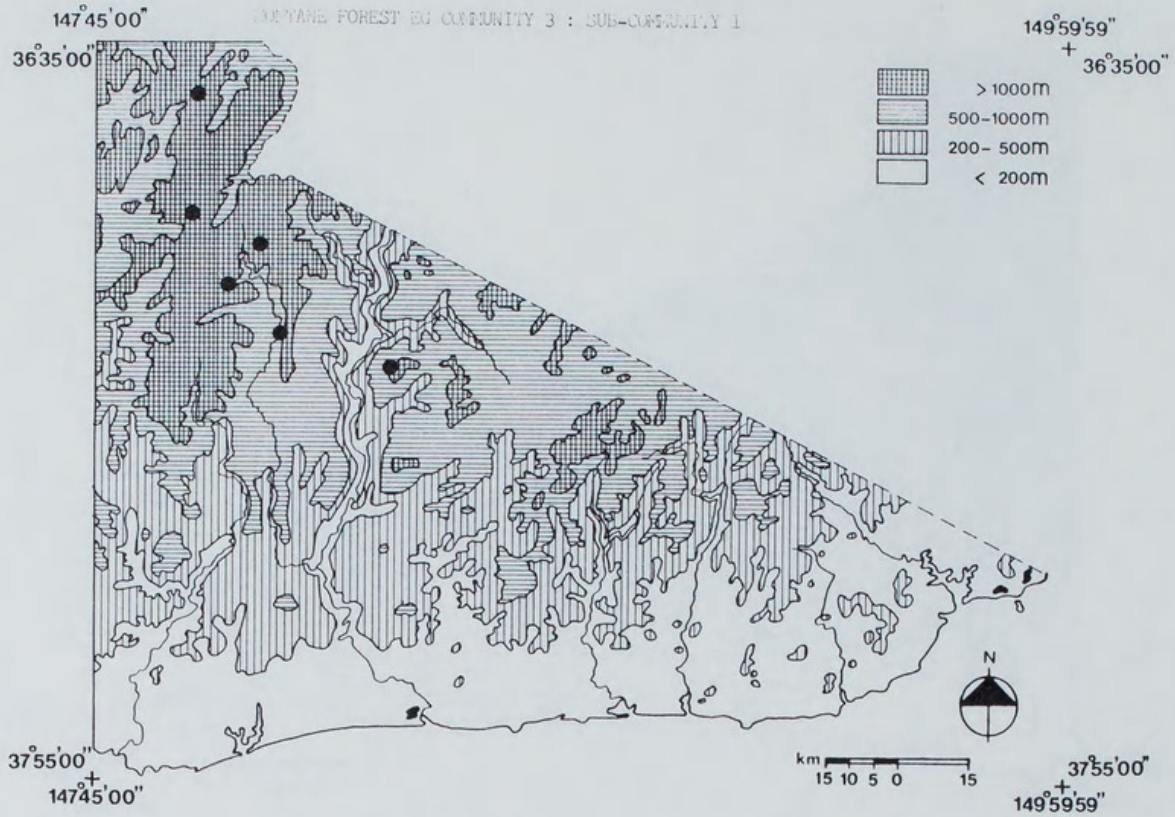
ALTITUDE: Mean = 1270 m, Highest = 1520 m, Lowest = 870 m.

STRUCTURE: Woodland to Tall open-forest

MEAN FLORISTIC RICHNESS: 43 species per site

MEAN WEED COMPOSITION: 4% of species, 3% of cover

NOTES: Although no eucalypts are character species of sub-community 2.1, *Eucalyptus delegatensis*, *E. rubida* or *E. pauciflora* are sometimes present. *Leptospermum grandifolium* often forms a closed-scrub on stream margins, but doesn't extend to drier sites. The understory consists of a mixture of small-leafed sclerophyllous species (e.g. *Leucopogon suaveolens*, *Pultenaea juniperina*) and broad-leafed species (e.g. *Gaultheria appressa*, *Tasmannia lanceolata*). The herb layer includes a range of ferns (*Blechnum* spp., *Polystichum proliferum*) and sedges (*Carex appressa*, *Scirpus merrillii*).



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia dealbata	100	1	Stellaria pungens	83	1	Epilobium cinereum	67	+
Coprosma hirtella	100	1	Viola betonicifolia	83	1	Hydrocotyle hirta	67	1
Eucalyptus delegatensis	100	2	Polystichum proliferum	67	1	Lagenifera stipitata	67	1
Viola hereracea	100	1	Arthropodium milleflorum	67	1	Microseris scapigera	67	+
Acaena anserinifolia	83	1	Eucalyptus pauciflora	67	1	*Picris hieracioides	67	1
Asperula scoparia	83	1	Gonocarpus tetragynus	67	1	Poa australis spp. agg.	67	2
Clematis aristata	83	+	Helichrysum acuminatum	67	1	Pultenaea juniperina	67	2
Craspedia glauca	83	1	Luzula campestris spp. agg.	67	+	Ranunculus plebeius	67	1
Geranium potentilloides	83	+	Cotula filicula	67	1	Veronica derwentia	67	1
Helichrysum scorpioides	83	1	Danthonia pilosa	67	1	Wahlenbergia gloriosa	67	1

NO. OF SITES: 6 (1.0% of total)

DISTRIBUTION: Mt. Misery, Mt. Nunniong and Mt. Gelantipy districts.

ENVIRONMENT: Montane and subalpine moist sheltered valleys and south facing slopes

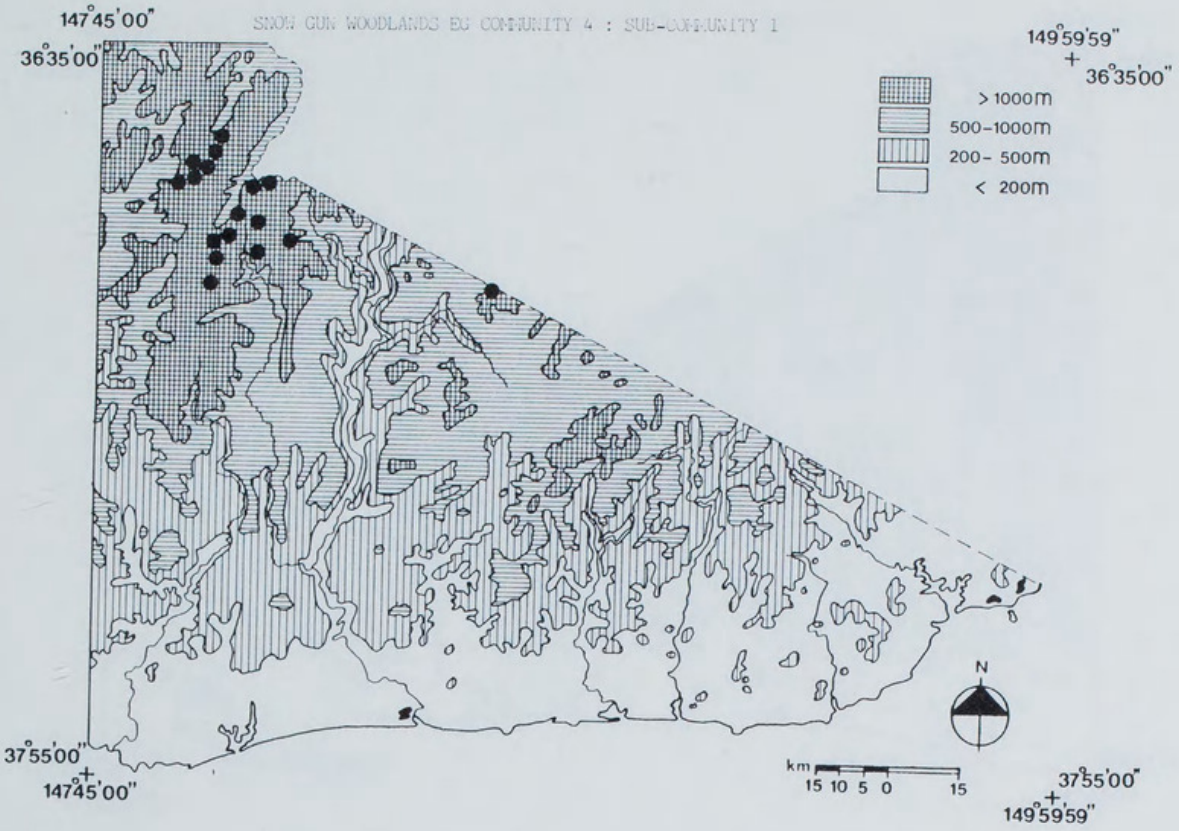
ALTITUDE: Mean = 1328 m, Highest = 1460 m, Lowest = 1200 m.

STRUCTURE: Tall open-forest

MEAN FLORISTIC RICHNESS: 41 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: Montane forest generally has a sparse shrub layer, however fire or windfalls may encourage dense growth in limited areas. The herb layer usually approaches complete cover. The introduced species, *Picris hieracioides* is frequent in alpine and subalpine communities, and is often considered naturalized within them. *Eucalyptus delegatensis* is an important timber species, and in this sub-community virgin stands are presently being exploited. The open park-like understory and tall trees within this sub-community make it an attractive and imposing vegetation.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Eucalyptus pauciflora	100	2	Asperula scoparia	83	1	Carex breviculmis	61	1
Helichrysum scorpioides	100	1	Viola betonicifolia	72	+	Luzula campestris spp. agg.	61	+
Poa australis spp. agg.	100	2	Epilobium cinereum	67	1	Olearia erubescens	61	1
Stellaria pungens	94	1	Acaena anserinifolia	67	1	Arthropodium milleflorum	61	+
Craspedia glauca	89	1	Danthonia pilosa	67	1	*Hypochoeris radiata	56	+
Leucopogon suaveolens	89	1	Pultenaea juniperina	67	1	Senecio lautus	56	+
Brachycome aculeata	89	1	Daviesia ulicifolia	61	1	Stylidium graminifolium	56	1

NO. OF SITES: 18 (3.0% of total)

DISTRIBUTION: Mt. Misery, Mt. Nunniong and Cobberas districts with an isolated occurrence near Mt. Tingaringy.

ENVIRONMENT: Subalpine ridges and adjacent slopes often with granite outcrops, well-drained soils

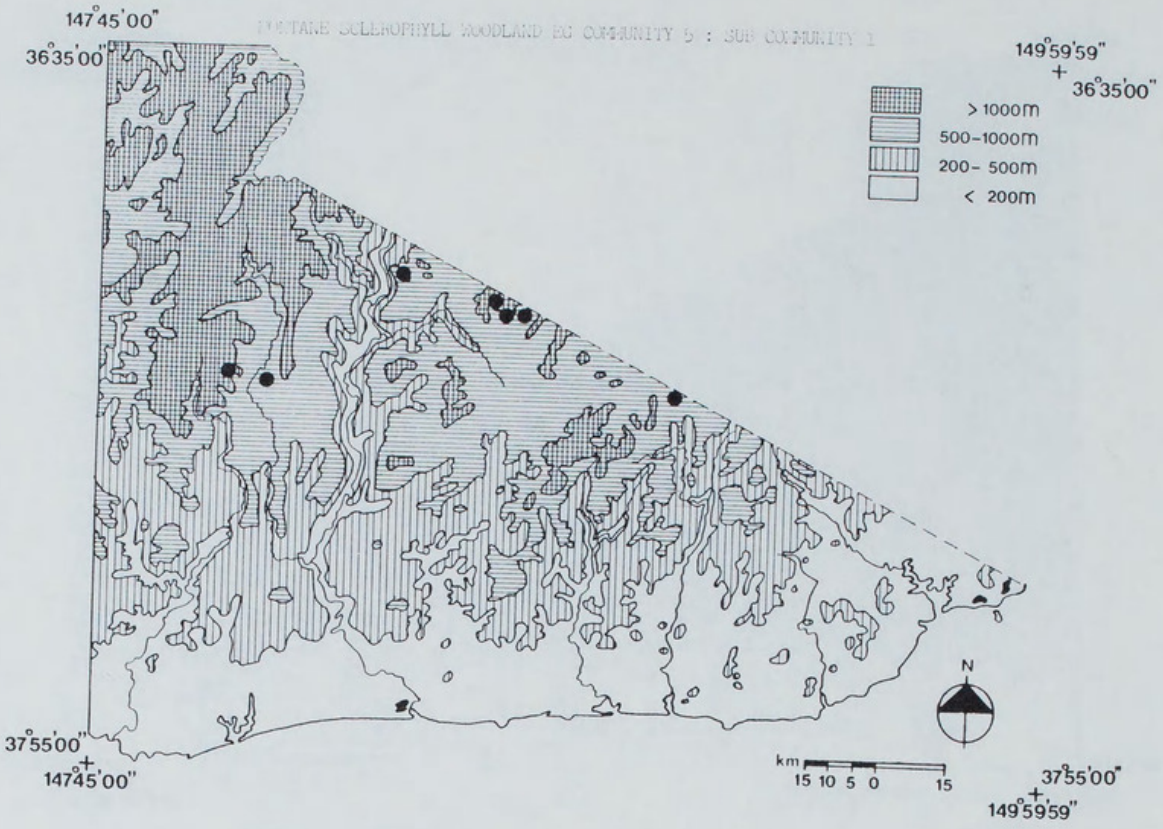
ALTITUDE: Mean = 1467 m, Highest = 1620 m, Lowest = 1320 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 37 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: This snow gum (or white sallee) woodland is the predominant vegetation of the subalpine region. The sparse, low shrub layer is often dominated by a member of the Papilionaceae (e.g. *Daviesia ulicifolia*, *Pultenaea juniperina*) but *Leucopogon suaveolens* is more consistently present. The dominant ground cover species is *Poa australis* spp. agg. (tussock grass), which has been able to survive and capitalize on repeated burning and grazing. In many districts seasonal burning has been undertaken by cattlemen to increase "green pick" for cattle.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Eucalyptus dives	100	1	Hydrocotyle hirta	75	1	Pultenaea juniperina	63	1
Gonocarpus tetragynus	88	1	Viola hederacea	75	1	Geranium potentilloides	63	1
Poa australis spp. agg.	88	2	Cassinia longifolia	63	1	Stellaria pungens	63	+
Pteridium esculentum	88	1	Acacia dealbata	63	1	Eucalyptus obliqua	63	1
Lomandra longifolia	75	1	Luzula campestris spp. agg.	63	+	*Hypochoeris radicata	63	+
Eucalyptus rubida	75	1						

NO. OF SITES: 8 (1.4% of total)

DISTRIBUTION: Mt. Nunniong, Mt. Tingaringy and Mt. Canterbury districts.

ENVIRONMENT: Skeletal soils on slopes, particularly of northern aspect

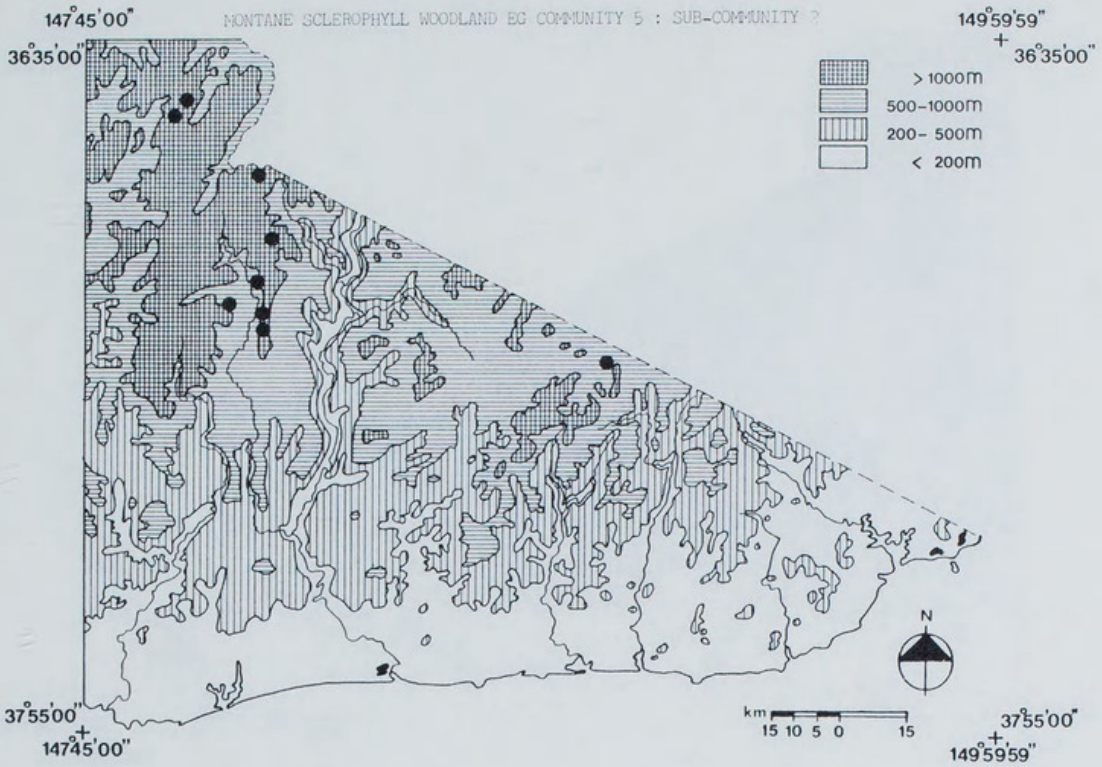
ALTITUDE: Mean = 996 m, Highest = 1150 m, Lowest = 840 m.

STRUCTURE: Woodland to Open-forest

MEAN FLORISTIC RICHNESS: 34 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: The understory consists of opportunistic shrubs and herbs common throughout the high country. Sub-community 5.1 is the highest altitude sub-community in which *Pteridium exulentum* is a character species.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Daviesia ulicifolia	100	1	Pultenaea juniperina	80	2	Tetratheca bauerifolia	70	1
Monotoca scoparia	100	1	Dichelachne micrantha	80	1	Brachycome aculeata	60	+
Poa australis spp. agg.	100	1	Eucalyptus dives	70	1	Dianella tasmanica	60	1
Stylidium graminifolium	100	1	Gonocarpus tetragynus	70	+	Epacris impressa	60	1
Eucalyptus pauciflora	90	1	Acacia dealbata	70	1	Helichrysum scorpioides	60	+
Lomandra longifolia	90	1	Eucalyptus rubida	70	1	Olearia erubescens	60	1

NO. OF SITES: 10 (1.7% of total)

DISTRIBUTION: Wombargo, Cobberas and Mt. Misery districts with an isolated occurence near Combienbar.

ENVIRONMENT: Impervious soils, on slopes especially of northern aspect

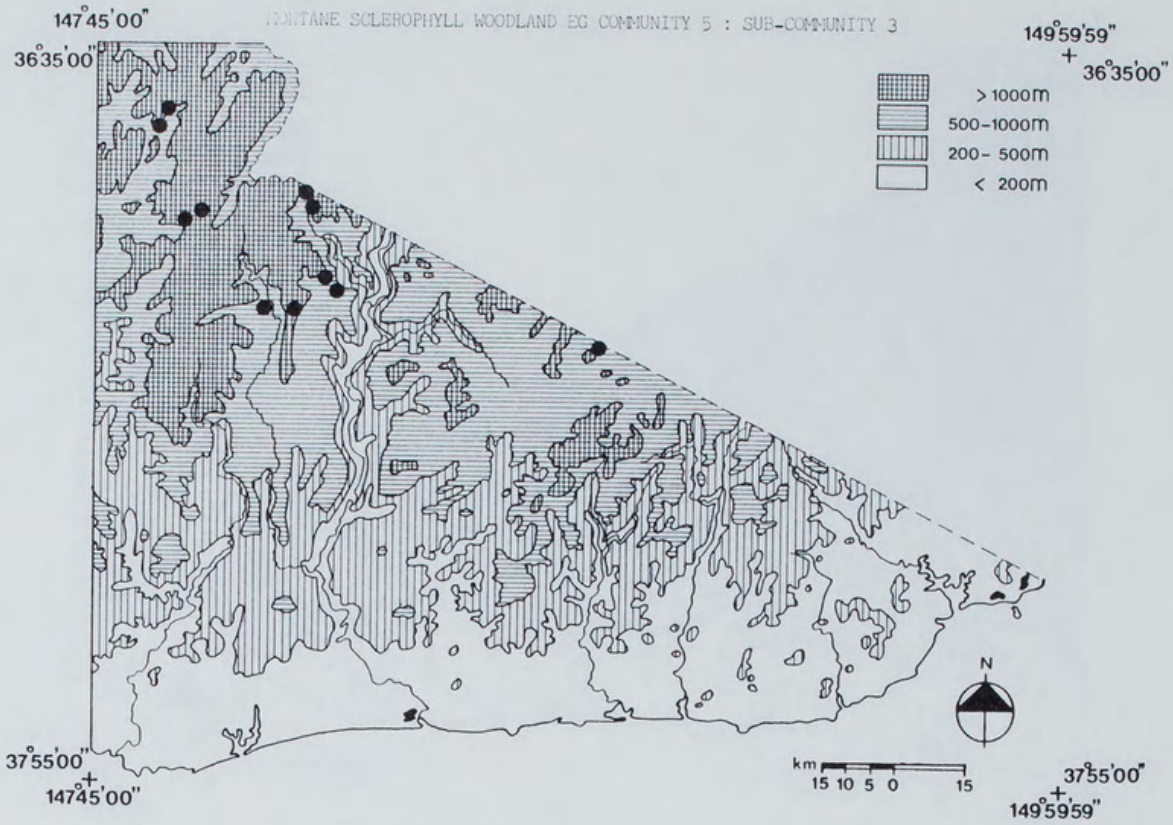
ALTITUDE: Mean = 1157 m, Highest = 1360 m, Lowest = 840 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 32 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: The majority of character species in this sub-community are widespread, although a few of the woody species are typically found in the highlands (e.g. *Eucalyptus pauciflora, Olearia erubescens, Tetratheca bauerifolia*). This sub-community has many similarities with community 9 from which it has been differentiated by altitude. The dominant species in the shrub layer are members of the Papilionaceae (e.g. *Daviesia ulicifolia* and *Pultenaea juniperina*). The high cover values for one or both of these opportunistic species may reflect a high frequency of fire. This sub-community has the lowest number of character species within community 5, which reinforces fire as a significant factor.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Eucalyptus rubida	100	1	Hibbertia obtusifolia	82	1	Danthonia pilosa	64	1
Gonocarpus tetragynus	100	1	Themeda australis	82	1	Exocarpos strictus	64	1
Poa australis spp. agg.	100	1	Hypericum gramineum	73	1	Danthonia racemosa	55	+
Acrotriche serrulata	91	1	Pultenaea juniperina	73	2	Dichelachne micrantha	55	1
Eucalyptus pauciflora	82	1	Eucalyptus dives	73	1	Acacia dealbata	55	1
Lomandra longifolia	82	1	Platylobium formosum	73	1	Dianella revoluta	55	+
Brachyloma daphniodes	82	1	*Hypochoeris radicata	64	+	Stylidium graminifolium	55	1
*Centaurium pulchellum	82	+	Acaena anserinifolia	64	+			

NO. OF SITES: 11 (1.9% of total)

DISTRIBUTION: Cobberas, Mt. Wombargo and Mt. Misery districts with an isolated occurrence near Mt. Delegate.

ENVIRONMENT: Impervious skeletal soils, usually north facing slopes

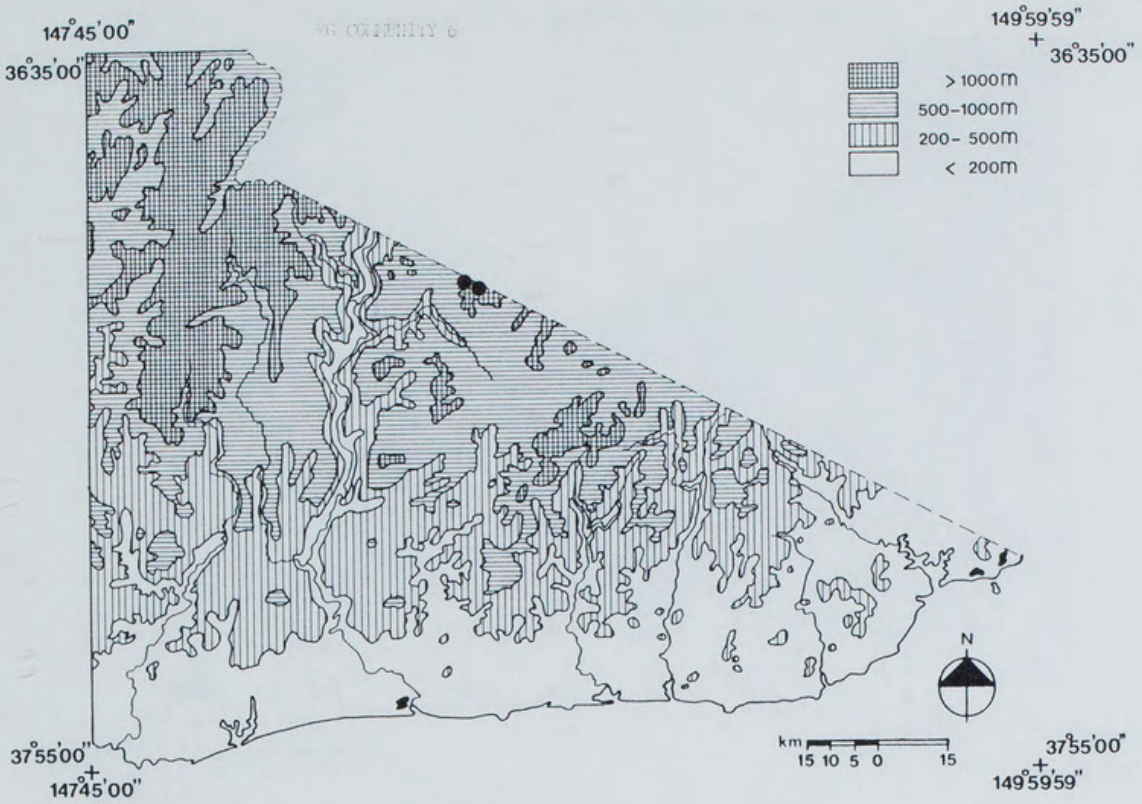
ALTITUDE: Mean = 989 m, Highest = 1160 m, Lowest = 900 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 38 species per site

MEAN WEED COMPOSITION: 7% of species, 4% of cover

NOTES: Although *Eucalyptus pauciflora* and *E. rubida* are typical highland species the understory is comprised of foothill and lowland species. This sub-community has the lowest mean altitude of this community and affinities with community 9 are apparent. Opportunistic members of the Papilionceae (*Pultenaea juniperina* and *Daviesia ulicifolia*) are prominent in the understory. The complement of these two species cover values is generally high, implying disturbance by fire. The presence of two introduced species, *Centaurium pulchellum* and *Hypochoeris radicata* is a further indication of disturbance. Community 5 is the only sub-community with *Themeda australis* as a character species.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia obliquinervia	100	1	Eucalyptus pauciflora	100	1	Poa australis spp. agg.	100	1
Daviesia mimosoides	100	1	Grevillea victoriae	100	2	Stellaria pungens	100	1
Dianella tasmanica	100	1	Luzula campestris spp. agg.	100	+	Veronica perfoliata	100	1
Eucalyptus glaucescens	100	1	Phebalium ozothamnoides	100	2			

NO. OF SITES: 2 (0.3% of total)

DISTRIBUTION: Mt. Tingaringy.

ENVIRONMENT: Rocky north-facing slopes with skeletal soils

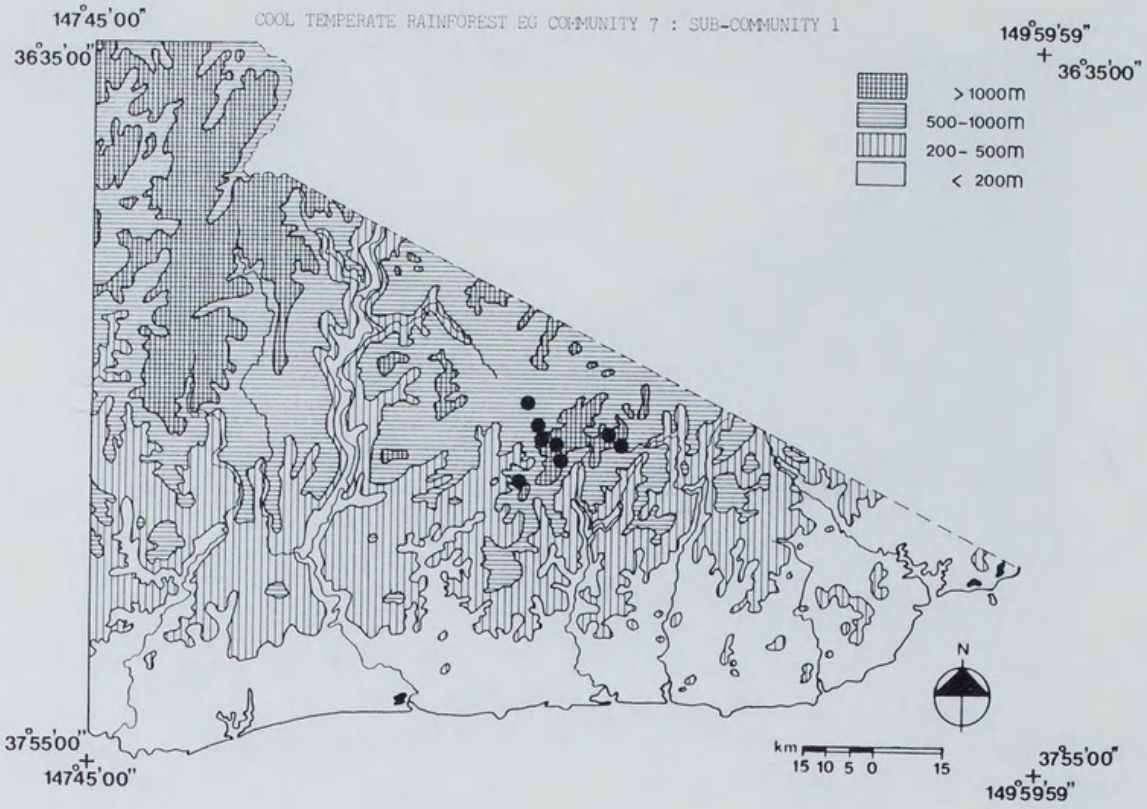
ALTITUDE: Mean = 1429 m, Highest = 1448 m, Lowest = 1410 m.

STRUCTURE: Tall shrubland to Closed-scrub

MEAN FLORISTIC RICHNESS: 25 species per site

MEAN WEED COMPOSITION: 3% of species, 1% of cover

NOTES: The eucalypts in this "community" generally have a mallee habit, forming a tall shrubland above a closed-scrub of *Grevillea victoriae* and *Phebalium ozothamnoides*. Many of the character species are only characteristic of this community within the study area (e.g. *Daviesia mimosoides, P. ozothamnoides, Eucalyptus glaucescens*), and a number of significant species are peculiar to this area. *E. glaucescens* (Tingaringy gum) has gained it's common name from the mountain on which this community is found.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Atherosperma moschatum	100	2	Uncinia tenella	88	1	Asplenium bulbiferum	75	1
Blechnum fluviatile	100	+	Dicksonia antarctica	88	4	Clematis aristata	75	1
Blechnum wattsii	100	1	Histiopteris incisa	88	+	Fieldia australis	75	1
Elaeocarpus holopetalus	100	2	Pittosporum bicolor	88	1	Viola hederacea	75	+
Grammitis billardieri	100	1	Polyphlebium venosum	88	1	Prostanthera lasianthos	63	+
Telopea oreades	100	1	Acacia dealbata	75	1	Acacia frigescens	63	2
Eucalyptus nitens	88	1	Tasmannia lanceolata	75	1	Australina muelleri	63	1
Polystichum proliferum	88	1						

NO. OF SITES: 8 (1.4% of total)

DISTRIBUTION: Vicinity of Mt. Ellery, the Goonmirk Range and the Coast Range.

ENVIRONMENT: Sheltered gullies and slopes within a high altitude, high rainfall (approx. 1300 mm per annum) region

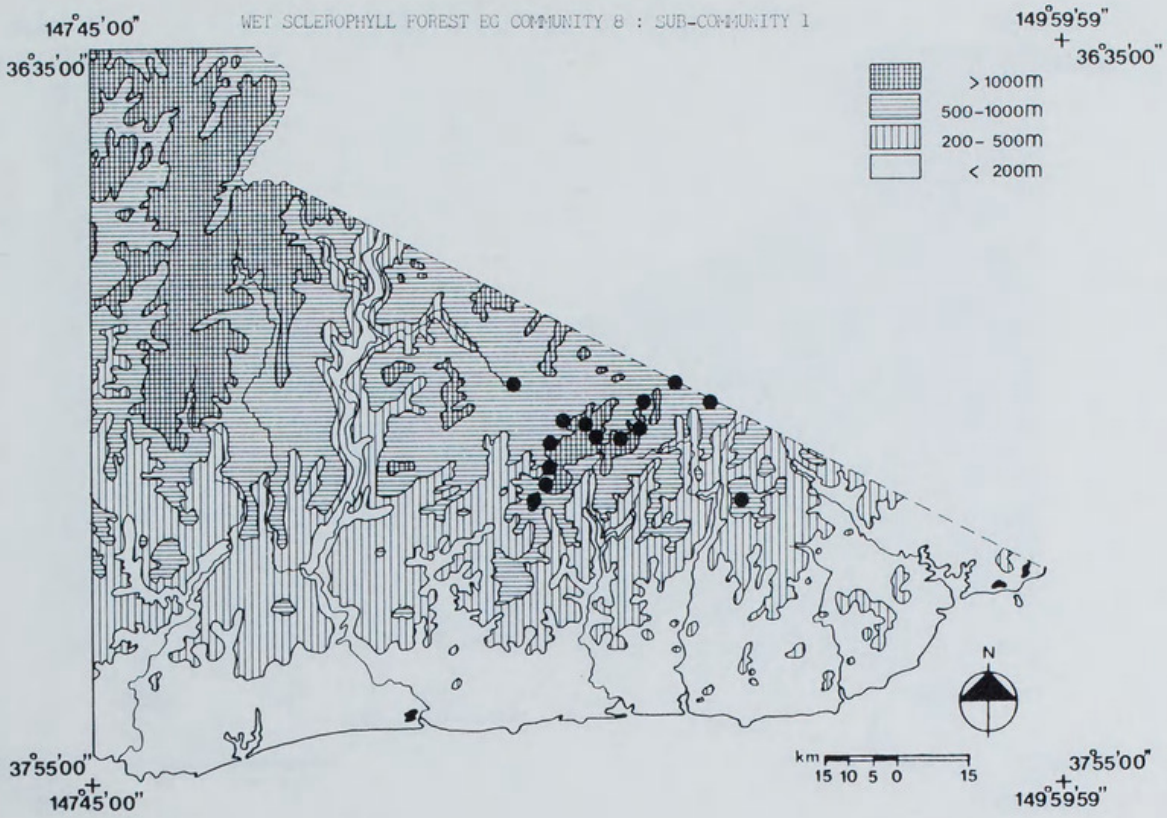
ALTITUDE: Mean = 998 m, Highest = 1200 m, Lowest = 760 m.

STRUCTURE: Closed-forest

MEAN FLORISTIC RICHNESS: 31 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: Cool-temperate closed-forests of the mainland occur only in this region, Strezelecki Ranges, the Central Highlands and the Otway Ranges. The latter three regions support forests dominated by *Nothofagus cunninghamii*, a species absent from East Gippsland. *Atherosperma moschatum*, a tree occurring frequently with *N. cunninghamii*, is the dominant species of sub-community 7.1 and very large trees of *Elaeocarpus holopetalus* form the subsidiary canopy element. Ferns particularly *Dicksonia antarctica* and *Blechnum* spp. dominate the lower strata and several species (*Polyphlebium venosum, Asplenium bulbiferum* and *Grammitis billardieri*) are common epiphytes. Extensive bushfires have not occurred within this region since European settlement and until recently access has been very limited. As a result this sub-community comprises some very old examples of this restricted kind of vegetation.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Dicksonia antarctica	94	2	Acacia dealbata	76	1	Pittosporum bicolor	59	1
Histiopteris incisa	94	1	Poa australis spp. agg.	76	1	Olearia phlogopappa	53	1
Polystichum proliferum	94	2	Eucalyptus nitens	65	1	Elaeocarpus holopetalus	53	1
Telopea oreades	88	1	Notelaea ligustrina	65	+	Olearia argophylla	53	1
Stellaria flaccida	82	1	Clematis aristata	65	+	Olearis lirata	53	1
Blechnum wattsii	82	1	Dianella tasmanica	65	1	Pteridium esculentum	53	+
Tasmannia lanceolata	76	1						

NO. OF SITES: 17 (2.9% of total)

DISTRIBUTION: Scattered between Bonang and near Buldah, but most abundant on the Errinundra Plateau and the Coast Range.

ENVIRONMENT: Sheltered sites, either south facing slopes or gullies within high-rainfall highlands

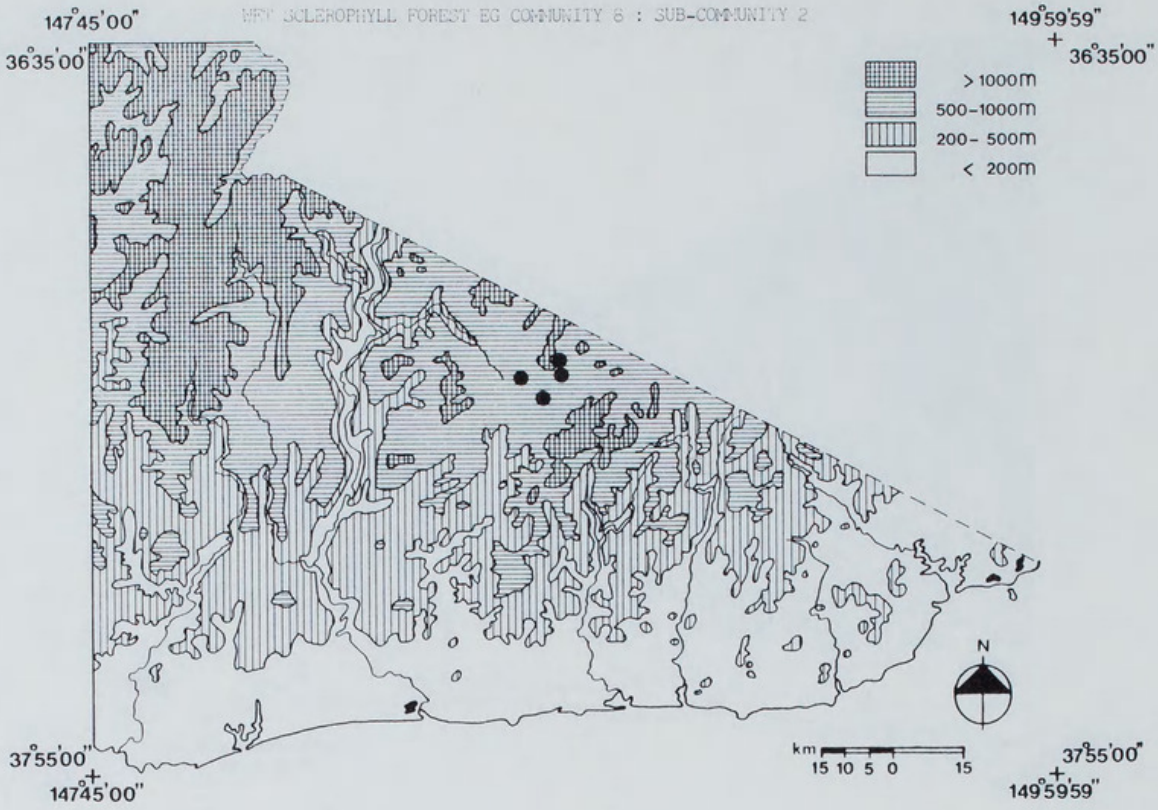
ALTITUDE: Mean = 1022 m, Highest = 1160 m, Lowest = 720 m.

STRUCTURE: Tall open-forest

MEAN FLORISTIC RICHNESS: 28 species per site

MEAN WEED COMPOSITION: 1% of species, 1% of cover

NOTES: This sub-community is transitional between the cool-temperate closed-forest of 7.1 and the tall open-forest of 8.2. *Leucopogon maccraei* and *Persoonia silvatica* are more abundant in this ecotonal forest than any other of the study area. The largest trees of *Eucalyptus nitens* and *E. fastigata* in Victoria occur in this sub-community and are currently being utilised for sawlog production.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Bedfordia arborescens	87	1	Clematis aristata	70	1	Eucalyptus cypellocarpa	57	1
Eucalyptus obliqua	83	1	Polystichum proliferum	67	1	Dicksonia antarctica	53	1
Alsophila australis	83	1	Dianella tasmanica	67	1	Blechum wattsii	53	2
Pteridium esculentum	77	1	Smilax australis	67	1	Tylophora barbata	53	1
Coprosma quadrifida	77	1	Tetrarrhena juncea	67	1	Geranium potentilloides	50	1
Pomaderris aspera	77	1	Stellaria flaccida	63	1	Poa australis spp. agg.	50	1
Olearia argophylla	77	1	Olearia lirata	60	1	Acacia dealbata	47	1
Viola hederacea	70	+						

NO. OF SITES: 26 (4.4% of total)

DISTRIBUTION: Widespread throughout montane areas between Mt. Coopracambra, Mt. Delegate and the Nunniong Plateau.

ENVIRONMENT: Cool, wet slopes, generally of southerly aspect. Also gullies bounded by drier forest types

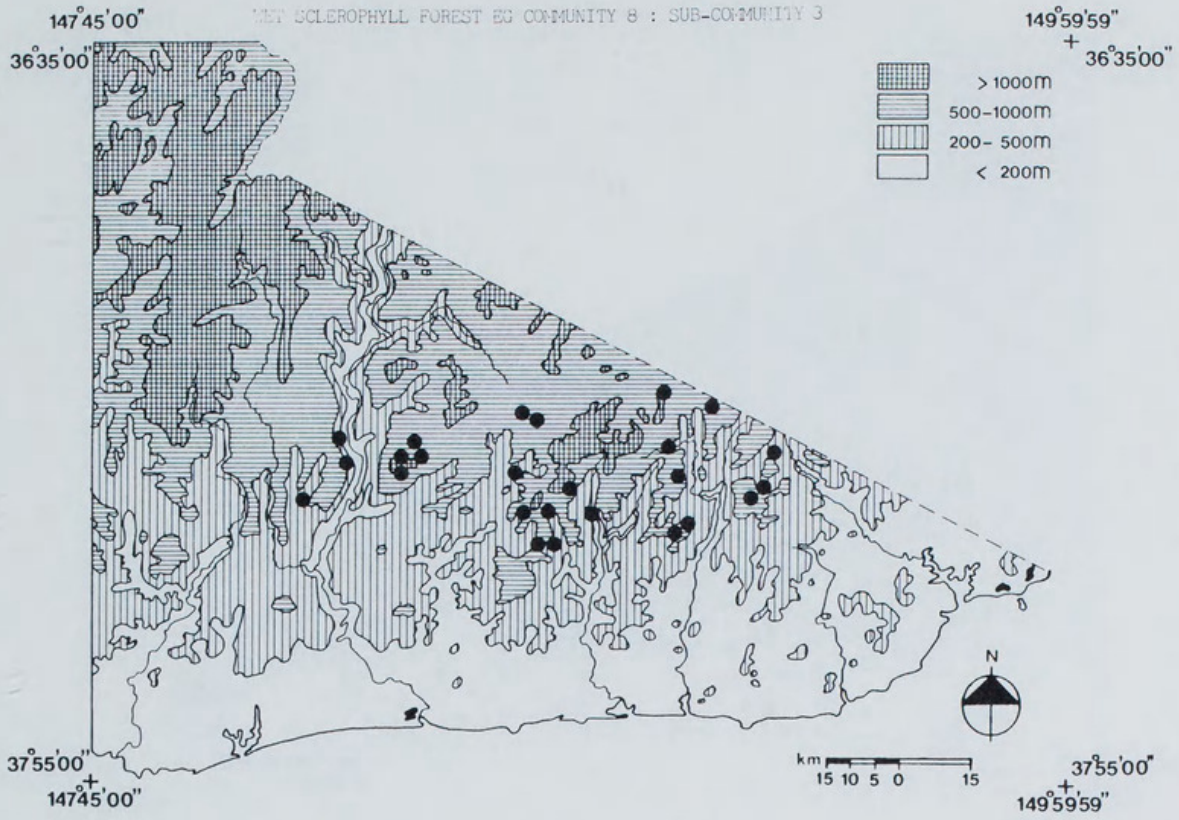
ALTITUDE: Mean = 717 m, Highest = 1020 m, Lowest = 540 m.

STRUCTURE: Tall open-forest

MEAN FLORISTIC RICHNESS: 36 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: This sub-community is floristically and structurally comparable to montane tall open-forests elsewhere in Victoria. However, East Gippsland endemics such as *Eucalyptus fastigata*, *Smilax australis* and *Tylophora barbata* are lacking from the latter. *Dicksonia antarctica* ubiquitous throughout the more sheltered sub-communities 7.1 and 8.1, is less common in 8.2 than is *Alsophila australis* (another tree fern). Other ferns, particularly *Blechnum* spp. are absent and epiphytic species are rare in this sub-community.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Clematis aristata	100	+	Helichrysum bracteatum	80	+	Acaena anserinifolia	60	+
Cotula filicula	100	+	Leucopogon suaveolens	80	1	Bedfordia arborescens	60	2
Dianella tasmanica	100	1	Luzula campestris spp. agg.	80	+	Cassinia aculeata	60	+
Eucalyptus radiata	100	1	Olearia argophylla	80	+	Coprosma quadrifida	60	1
Hydrocotyle hirta	100	+	Olearia phlogopappa	80	1	Alsophila australis	60	+
Stellaria flaccida	100	+	Pteridium esculentum	80	1	Dicksonia antarctica	60	1
Viola hederacea	100	1	Acacia mucronata	60	1	Eucalyptus cypellocarpa	60	1
Lagenifera stipitata	80	1	Daviesia ulicifolia	60	1	*Hypochoeris radicata	60	+
Poa australis spp. agg.	80	1	Helichrysum scorpioides	60	+	Olearia lirata	60	1
Acacia melanoxylon	80	1	Lomandra longifolia	60	1	Polystichum proliferum	60	1
Eucalyptus obliqua	80	1	Poranthera microphylla	60	+	Senecio linearifolius	60	1
Geranium potentilloides	80	1	Pultenaea juniperina	60	2	Veronica calycina	60	+
Gonocarpus tetragynus	80	1						

NO. OF SITES: 4 (0.7% of total)

DISTRIBUTION: Localised to the north of the Errinundra Plateau between Bonang and Bendock.

ENVIRONMENT: Broad open gullies usually containing minor watercourses

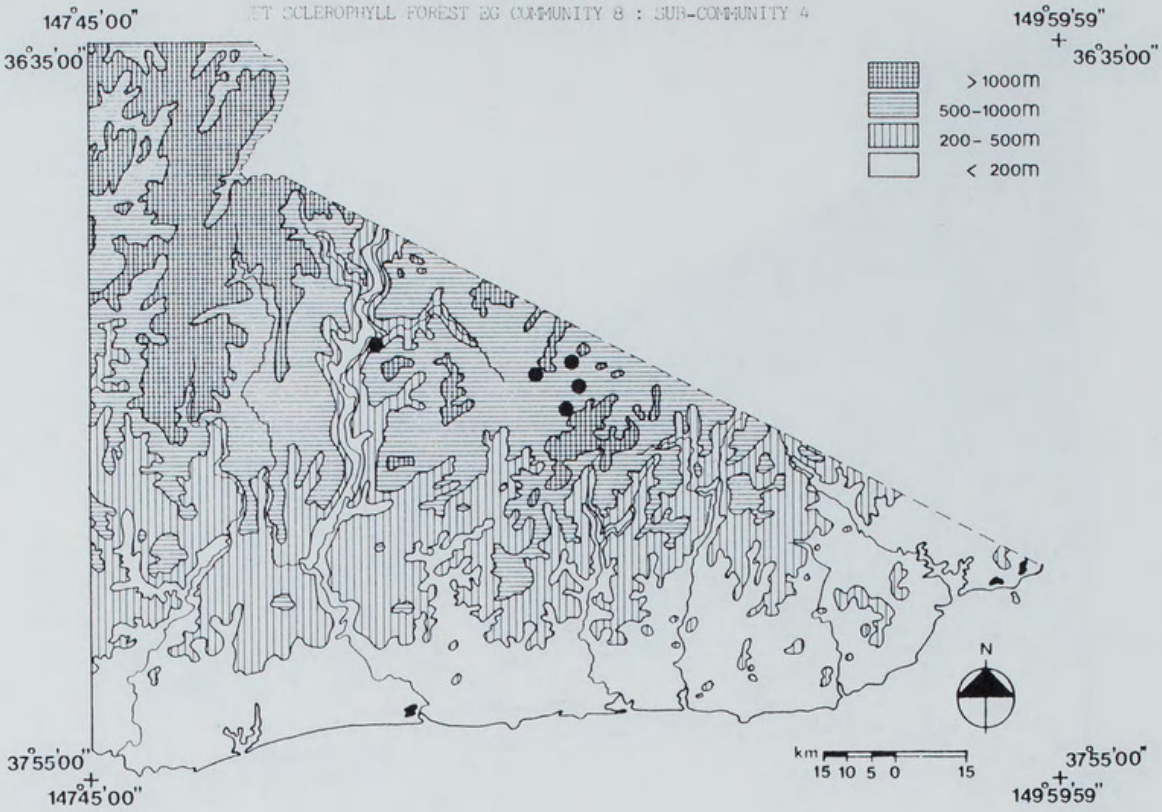
ALTITUDE: Mean = 955 m, Highest = 1000 m, Lowest = 930 m.

STRUCTURE: Tall open-forest

MEAN FLORISTIC RICHNESS: 50 species per site

MEAN WEED COMPOSITION: 3% of species, 2% of cover

NOTES: This sub-community shares floristic affinities with lower-altitude forests. The absence of many species characteristic of the wetter sub-communities 7.1, 8.1, 8.2 and the presence of such species as *Pultenaea juniperina*, *Acacia mucronata* and *Daviesia ulicifolia* indicate 8.3 is a drier forest. An abundance of the latter species is indicative of vegetation which has been previously burnt. Several other character species of this sub-community are indicative of disturbance.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia dealbata	100	1	Eucalyptus radiata	80	2	Dicksonia antarctica	60	1
Dianella tasmanica	100	1	Leucopogon suaveolens	80	1	Tasmannia lanceolata	60	3
Eucalyptus viminalis	100	1	Luzula campestris spp. agg.	80	+	Drymophila cyanocarpa	60	+
Geranium potentilloides	100	+	Stellaria flaccida	80	1	Gahnia sieberana	60	1
Poa australis spp. agg.	100	1	Coprosma quadrifida	60	1	Helichrysum scorpioides	60	+
Lagenifera stipitata	80	+	Gonocarpus tetragynus	60	+	Lomandra longifolia	60	+
Polyscias sambucifolius	80	1	Helichrysum bracteatum	60	+	Persoonia silvatica	60	1
Acacia melanoxylon	80	1	Stellaria pungens	60	+	Polystichum proliferum	60	1
Acaena anserinifolia	80	+	Blechnum nudum	60	1	Pteridium esculentum	60	1
Clematis aristata	80	+	Carex appressa	60	1	Viola hederacea	60	+
Cotula filicula	80	+						

NO. OF SITES: 5 (0.8% of total)

DISTRIBUTION: Confined to the Errinundra Plateau, Bonang area and slopes near the Snowy and Rodger Rivers.

ENVIRONMENT: Near permanent, high-altitude waterways which drain forests such as sub-communities 8.1, 8.2 and 8.3

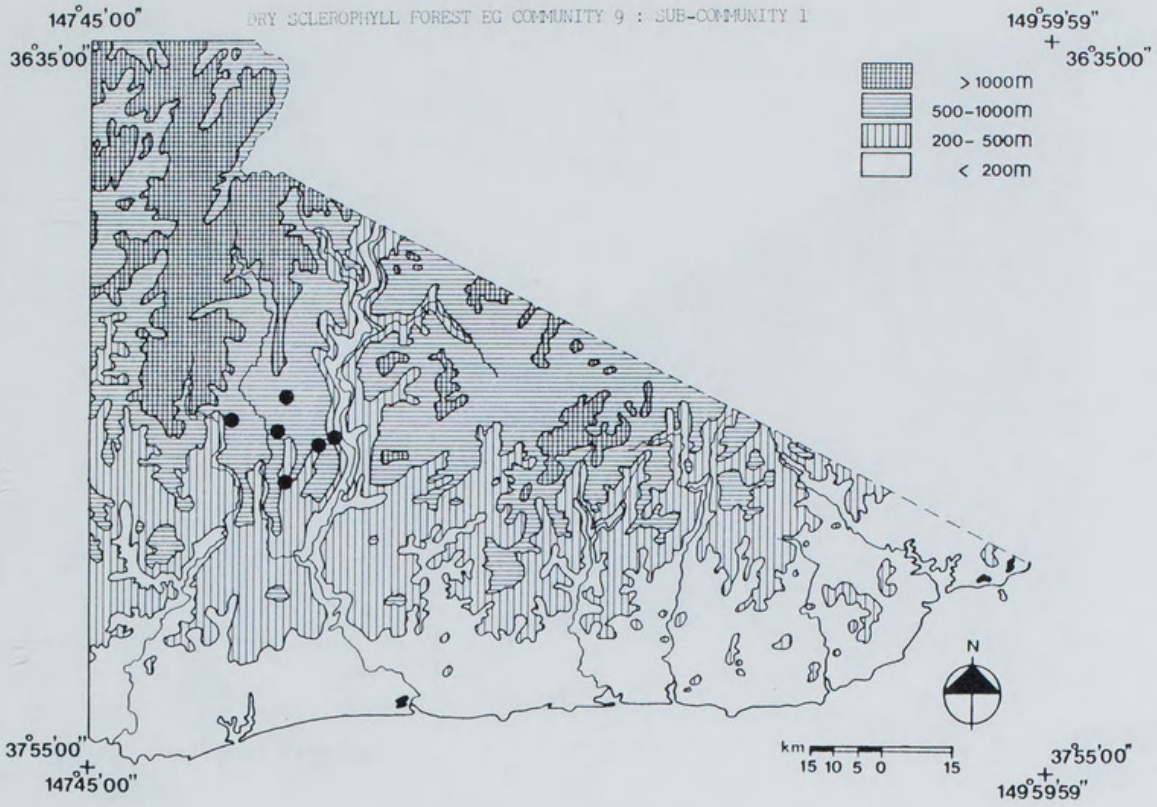
ALTITUDE: Mean = 924 m, Highest = 960 m, Lowest = 880 m.

STRUCTURE: Tall open-forest

MEAN FLORISTIC RICHNESS: 42 species per site

MEAN WEED COMPOSITION: 2% of species, 1% of cover

NOTES: *Eucalyptus viminalis*, usually a slender tree of riversides, in this sub-community dominates a more extensive forest. Particularly large specimens occur in this vegetation up to 60 m with unusual buttressed bases (to 2.5 m diameter). *Leucopogon suaveolens*, a common, low shrub of alpine woodlands and heathlands is common in this sub-community as a tall (up to 2 m) erect shrub.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Eucalyptus sieberi	100	2	Dianella caerulea	83	+	Pteridium esculentum	67	1
Veronica calycina	100	+	Lomandra longifolia	83	1	Cassinia longifolia	67	1
Dianella tasmanica	83	1	Viola hederacea	83	1	Hypericum gramineum	67	+
Eucalyptus globoidea	83	1	Clematis glycinoides	67	+	Lepidosperma laterale	67	1
Poa australis spp. agg.	83	1	Gonocarpus teucrioides	67	1	Oxalis corniculata	67	+
Pultenaea juniperina	83	2	Coprosma quadrifida	67	1	Wahlenbergia quadrifida	67	+
Acacia dealbata	83	1						

NO. OF SITES: 6 (1.4% of total)

DISTRIBUTION: Upper Snowy and Timbarra River catchments.

ENVIRONMENT. Ridges on foothills, often rocky, soils siliceous sands or clay

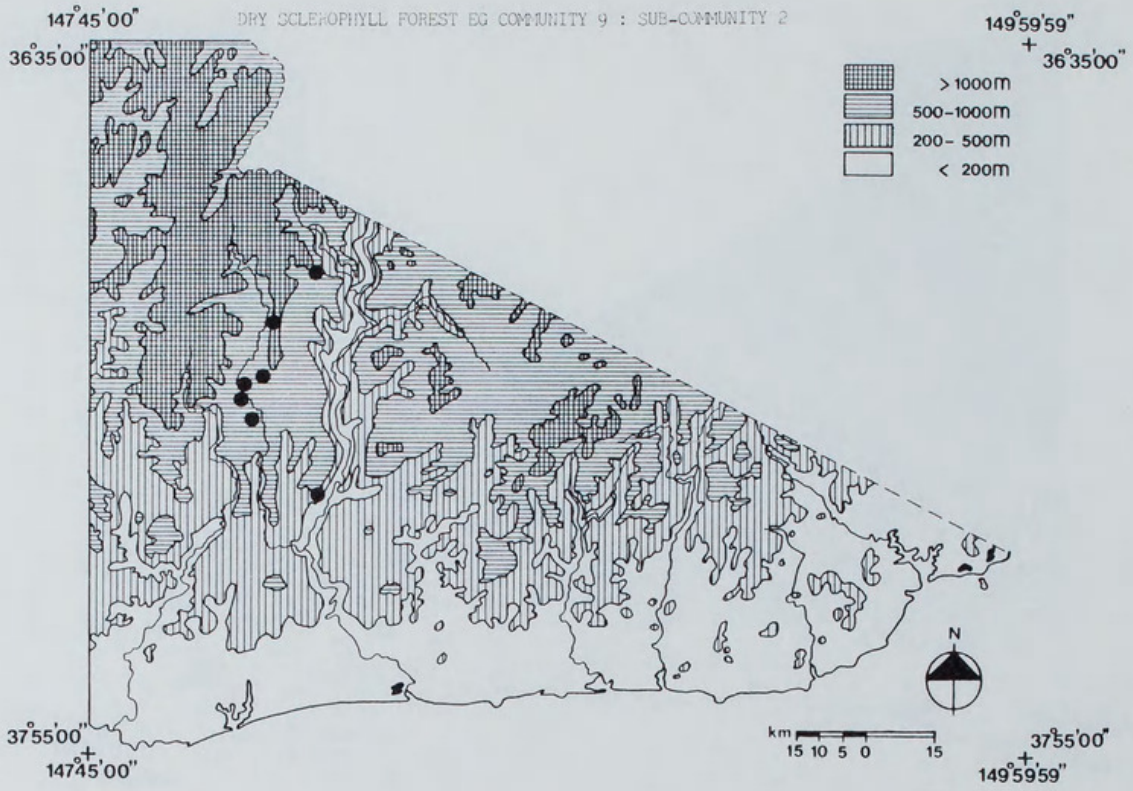
ALTITUDE: Mean = 633 m, Highest = 800 m, Lowest = 540 m.

STRUCTURE: Open-forest to Woodland

MEAN FLORISTIC RICHNESS: 33 species per site

MEAN WEED COMPOSITION: 2% of species, 1% of cover

NOTES: *Eucalyptus sieberi* and *E. globoidea* grow with a quite different suite of species in the foothills compared to the lowlands. The shrub layer is mostly made up of opportunistic species such as *Pultenaea juniperina*, *Cassinia longifolia* and *Acacia dealbata*, whilst the ground layer consists of a sparse cover of herbs. Although *Dianella tasmanica* is usually associated with wet environments, it grows in this dry environment as a rupestral plant, and in this situation effective rainfall may be relatively high.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Cassinia longifolia	100	1	Dichelachne micrantha	88	+	Astroloma humifusum	75	1
Gonocarpus tetragynus	100	1	Hibbertia obtusifolia	88	1	Helichrysum scorpioides	63	1
Lomandra longifolia	100	1	Dianella tasmanica	75	+	Danthonia pallida	63	1
Poa australis spp. agg.	100	1	Epacris impressa	75	1	Hardenbergia violacea	63	+
Acrotriche serrulata	88	1	Acacia dealbata	75	1	Hypericum gramineum	63	1
Pultenaea juniperina	88	2	Tetratheca bauerifolia	75	1	Indigofera australis	63	1

NO. OF SITES: 8 (1.4% of total)

DISTRIBUTION: Upper Snowy and Timbarra River catchments.

ENVIRONMENT: Ridges and slopes of northerly aspect, on well drained heavy soils

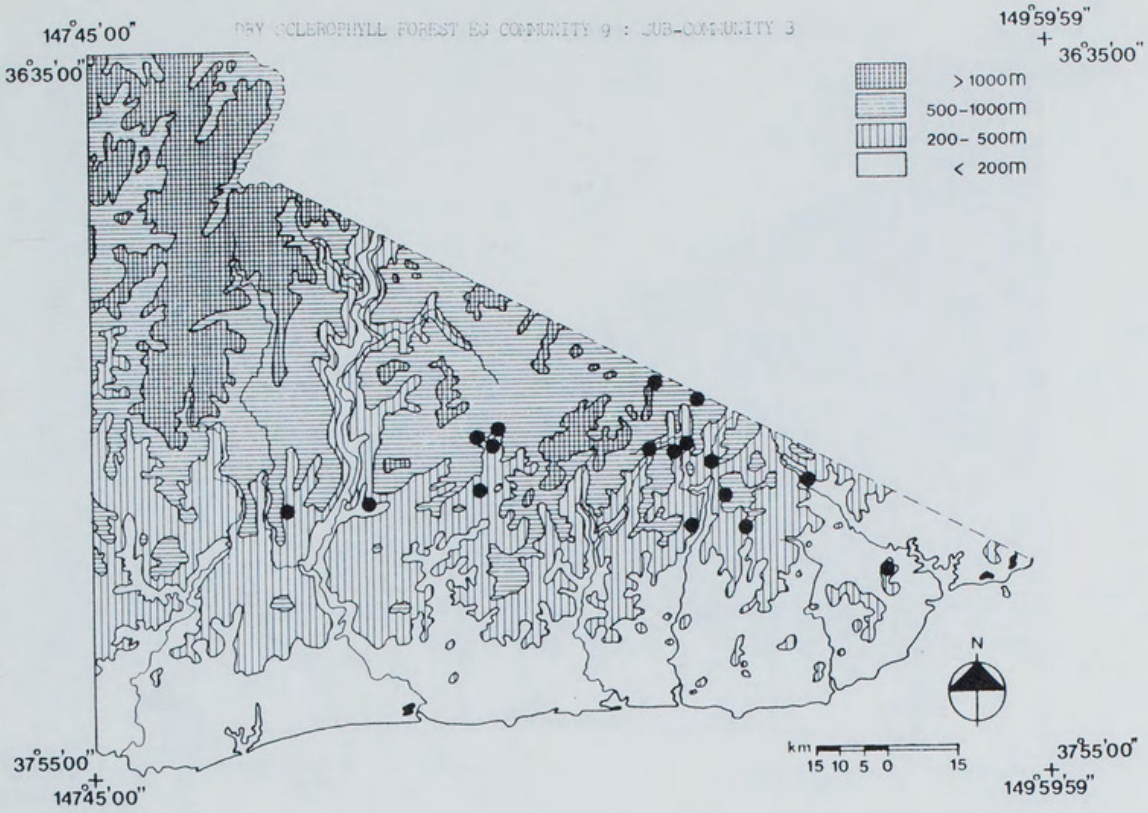
ALTITUDE: Mean = 727 m, Highest = 980 m, Lowest = 600 m.

STRUCTURE: Open-forest to Woodland

MEAN FLORISTIC RICHNESS: 38 species per site

MEAN WEED COMPOSITION: 2% of species, 2% of cover

NOTES: Although no eucalypt is characteristic, one or a number of species including *Eucalyptus cypellocarpa*, *E. dives*, *E. globulus*, *E. globoidea*, *E. sieberi* and *E. macrorhyncha* are present. *E. globulus*, a species often associated with mesic environments, occurs in quite xeric situations on ridges leading down to the Snowy River. *Cassinia longifolia* and leguminous species *(Indigofera australis*, *Pultenaea juniperina* and *Acacia dealbata)* provide a sparse shrub layer over a ground layer of herbs and semi-shrubs common on dry slopes. The three characteristic species of Epacridaceae provide a nectar resourse. *Epacris impressa*, flowering through winter and spring is bird pollinated, whilst *Astroloma humifusum* (autumn-winter) and *Acrotriche serrulata* (spring) are pollinated by insects.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Lomandra longifolia	94	1	Danthonia pallida	76	1	Dichelachne micrantha	65	+
Poa australis spp. agg.	94	1	Dianella revoluta	76	1	Epacris impressa	65	1
Dianella caerulea	88	1	Astroloma humifusum	71	1	Oxalis corniculata	59	+
Leucopogon lanceolatus	88	1	Acrotriche serrulata	71	1	Hydrocotyle hirta	53	+
Hypericum gramineum	88	+	Acacia mucronata	65	1	Microlaena stipoides	53	+
Pteridium esculentum	82	1	Gonocarpus tetragynus	65	1	Eucalyptus cypellocarpa	53	1
Eucalyptus globoidea	76	2	Hibbertia obtusifolia	65	1	Exocarpos strictus	53	+
Helichrysum scorpioides	76	+	Lepidosperma laterale	65	1	Persoonia linearis	53	1

NO. OF SITES: 17 (2.9% of total)

DISTRIBUTION: Scattered through foothills of entire study area.

ENVIRONMENT: Clays on slopes and ridges

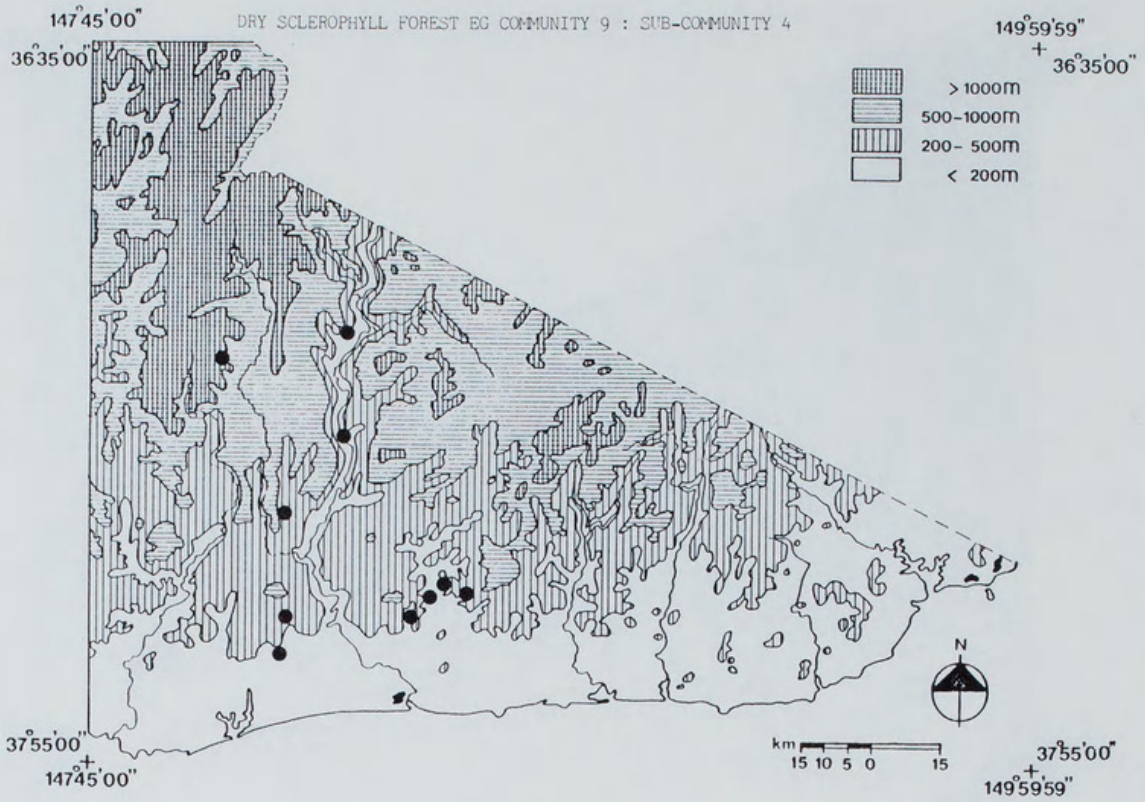
ALTITUDE: Mean = 373 m, Highest = 640 m, Lowest = 170 m.

STRUCTURE: Open-forest to Woodland

MEAN FLORISTIC RICHNESS: 46 species per site

MEAN WEED COMPOSITION: 1% of species, 1% of cover

NOTES: In contrast to other sub-communities of this community, a few shrubs other than the opportunistic species are significant. These include *Leucopogon lanceolatus*, *Persoonia linearis* and *Exocarpos strictus*. The ground layer consists of semi-shrubs and herbs common on dry slopes.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Eucalyptus globoidea	100	1	Gonocarpus teucrioides	78	1	Epacris impressa	56	+
Poa australis spp. agg.	100	1	Lomandra longifolia	78	1	Lepidosperma laterale	56	+
Viola hederacea	89	+	Pteridium esculentum	78	1	Clematis aristata	56	+
Cassinia longifolia	89	1	Eucalyptus cypellocarpa	67	1	Eucalyptus sieberi	56	1
Dianella caerulea	89	+	Persoonia linearis	67	1	Tetrarrhena juncea	56	2

NO. OF SITES: 9 (1.5% of total)

DISTRIBUTION: Buchan, Buldah and Nungatta districts.

ENVIRONMENT: Siliceous sands on ridges and slopes of foothills

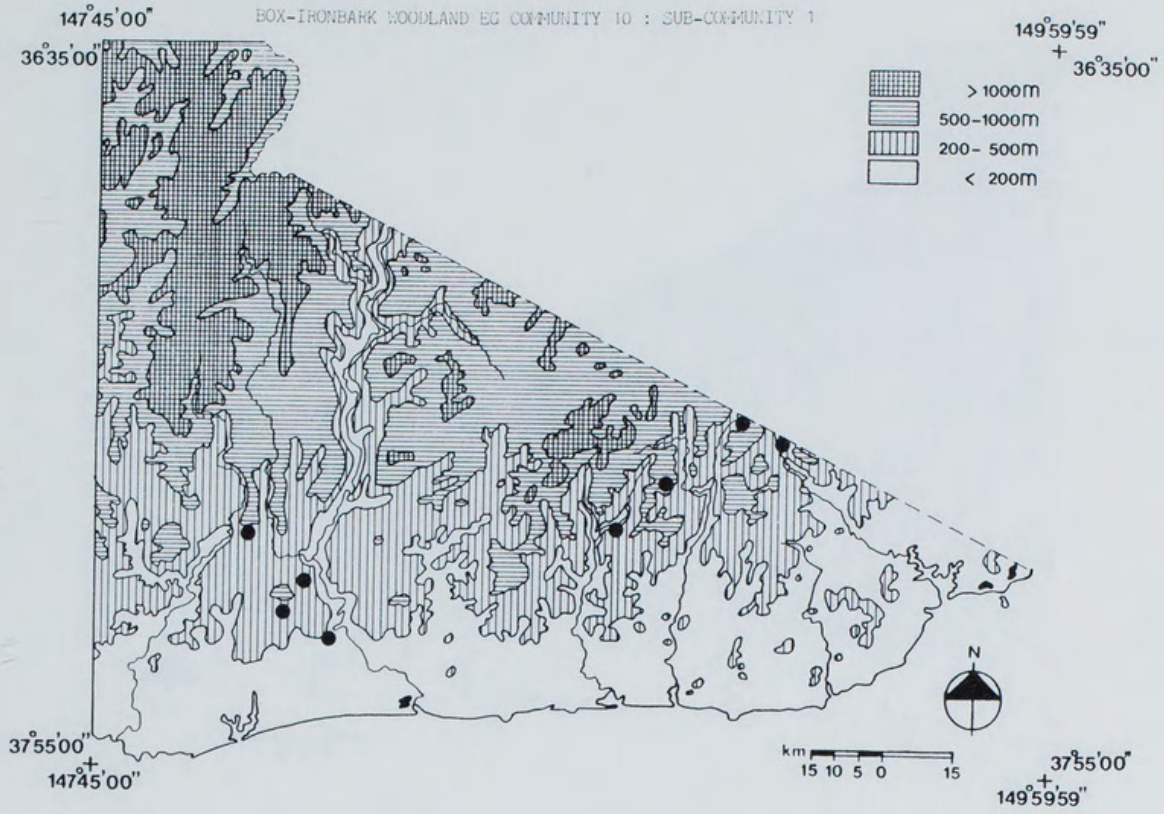
ALTITUDE: Mean = 351 m, Highest = 600 m, Lowest = 180 m.

STRUCTURE: Open-forest to Woodland

MEAN FLORISTIC RICHNESS: 40 species per site

MEAN WEED COMPOSITION: 1% of species, 1% of cover

NOTES: The characteristic species of this sub-community are widespread through eastern Victoria. An absence of dry slope semi-shrubs makes this sub-community structurally unusual amongst the foothill vegetation types. Although *Clematis aristata*, a characteristic species of this dry environment is usually a climber of wet environments, it's wind-borne, plumose seeds disperse it widely. The seedlings usually don't persist for more than a few years on dry slopes.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Cassinia longifolia	100	1	Eucalyptus sideroxylon	70	1	Wahlenbergia quadrifida	60	+
Poa australis spp. agg.	100	1	Eucalyptus globoidea	70	1	Acacia mearnsii	60	1
Acacia falciformis	90	1	Oxalis corniculata	70	+	Correa reflexa	60	1
Exocarpos cupressiformis	90	1	Lomandra longifolia	70	+	Microlaena stipoides	60	1
Lepidosperma laterale	90	+	Billardiera scandens	60	+	Notelaea venosa	60	1
Eucalyptus polyanthemos	80	1	Hibbertia obtusifolia	60	+			

NO. OF SITES: 10 (1.7% of total)

DISTRIBUTION: Scattered in the Snowy and Timbarra River catchments.

ENVIRONMENT: Skeletal soils on dry, often north facing ridges and slopes.

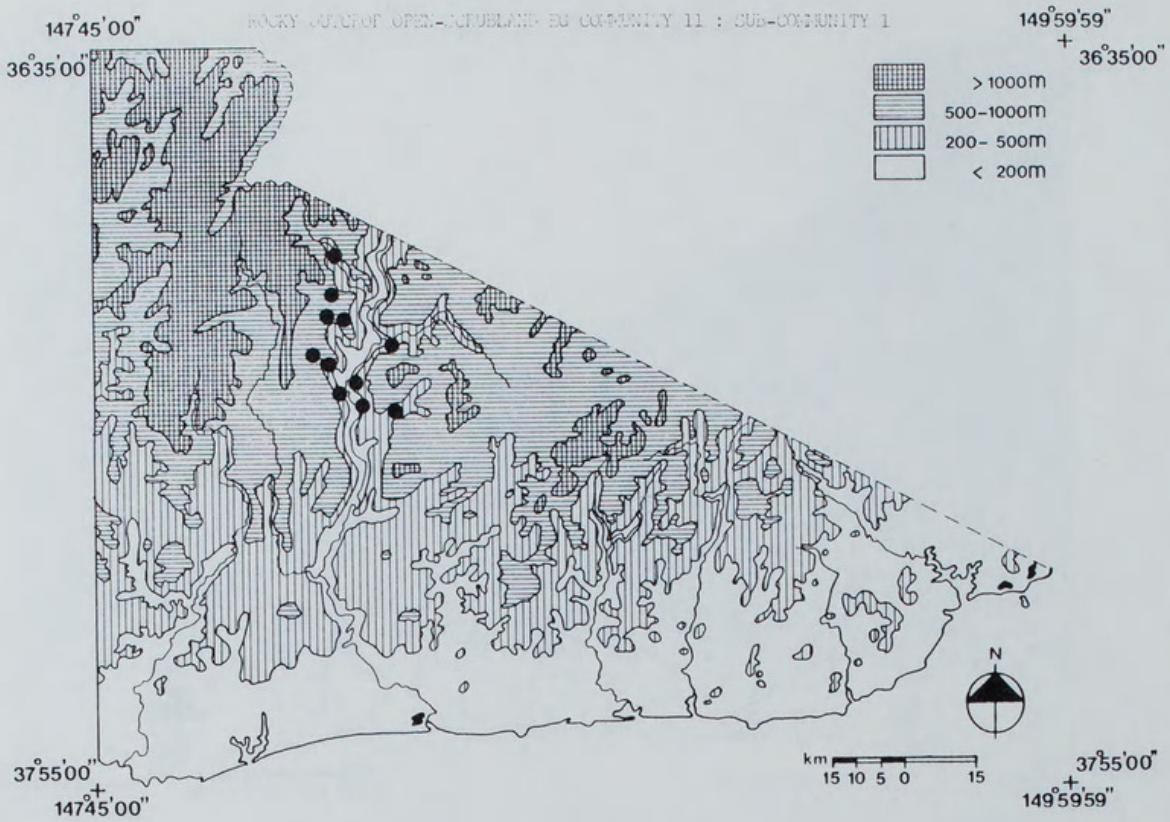
ALTITUDE: Mean = 239 m, Highest = 400 m, Lowest = 100 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 48 species per site

MEAN WEED COMPOSITION: 1% of species, 0% of cover

NOTES: Other than the small trees *Acacia falciformis* and *Notelaea venosa*, the character species of this sub-community are widespread through Victorian foothills. *Eucalyptus polyanthemos* and *E. sideroxylon* are common on dry slopes in Central Victoria but are only occasional in East Gippsland. The ground layer consists of shrubs and herbs common on dry slopes. A surprising character species is *Notelaea venosa*, which shows optimal development in Victoria in warm temperate rainforest.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Platysace lanceolata	91	1	Brachyloma daphnoides	64	1	Cassinia longifolia	55	+
Dianella revoluta	73	1	Olearia iodochroa	64	1	Eucalyptus macrorhyncha	55	1
Eriostemon trachyphyllus	73	1	Tieghemopanax multifidus	64	+	Eucalyptus sieberi	55	2
Exocarpus cupressiformis	73	1	Acacia silvestris	55	1	Persoonia confertiflora	55	1
Helichrysum obcordatum	73	1	Eucalyptus smithii	55	1	Danthonia pallida	55	1
Danthonia longifolia	64	1						

NO. OF SITES: 11 (1.9% of total)

DISTRIBUTION: Confined to upper Snowy River district.

ENVIRONMENT: Rocky escarpments and exposed slopes with skeletal soils

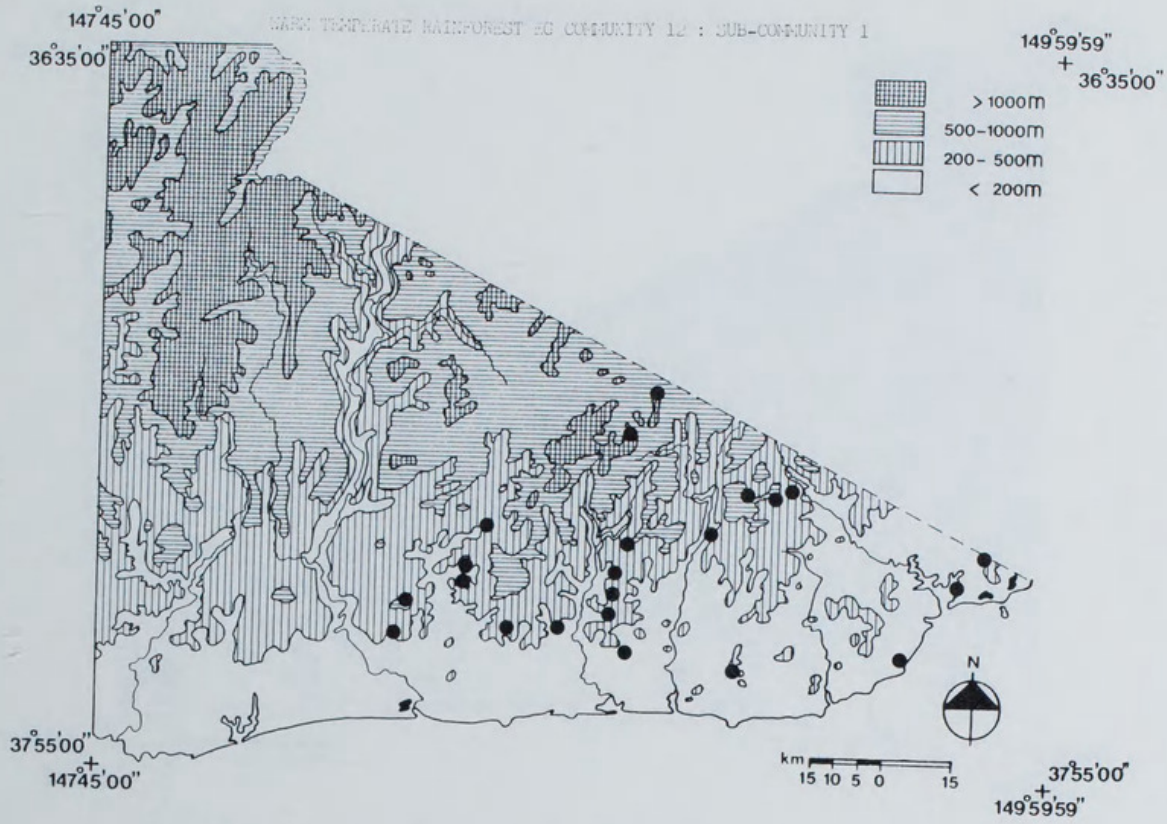
ALTITUDE: Mean = 740 m, Highest = 900 m, Lowest = 600 m.

STRUCTURE: Tall shrubland to Closed-scrub

MEAN FLORISTIC RICHNESS: 32 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: Thickets without eucalypts may be characterised by *Eriostemon trachyphyllus* (locally "blackthorn scrub") or *Acacia silvestris*. In areas where this cover is unbroken, the number of species at a site may be as low as 8. Where eucalypts are present mallee, or low-branching, spindly forms of *Eucalyptus saxitilis, E. smithii, E. viminalis* and *E. glaucescens* predominate. *E. smithii* in this sub-community is generally that referred to by Kirkpatrick (1977) as *E.* aff. *smithii*. Cover may vary from very low values for all strata to being complete in the shrub layer.
This sub-community is often found on rock crags with spectacular views. Significant species include *Haloragodendron bauerlenii, Phebalium lamprophyllum, Acrotriche divaricata, Boronia ledifolia, Dampiera purpurea, Gahnia microstachya* and *Goodenia heterophylla* and are almost restricted to this community. It's inhospitable environment and lack of commercial value has precluded exploitation.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Coprosma quadrifida	100	1	Tetrarrhena juncea	78	1	Eucalyptus cypellocarpa	61	1
Eugenia smithii	100	2	Notelaea venosa	74	+	Clematis aristata	61	1
Blechnum cartilagineum	91	1	Bedfordia arborescens	74	1	Rubus rosifolius	61	+
Eustrephus latifolius	91	1	Olearia argophylla	74	1	Scirpus inundatus	61	1
Smilax australis	91	1	Blechnum nudum	74	1	Sigesbeckia orientalis	57	+
Alsophila australis	87	2	Geranium potentilloides	70	+	Microsorium scandens	57	1
Marsdenia rostrata	87	1	Elaeocarpus reticulatus	70	1	Morinda jasminoides	57	1
Pomaderris aspera	87	1	Blechnum patersonii	70	1	Parsonsia brownii	57	1
Cissus hypoglauca	83	1	Gahnia melanocarpa	70	+	Polyphlebium venosum	57	1
Fieldia australis	83	1	Tylophora barbata	65	1	Prostanthera lasianthos	57	1
Viola hederacea	83	+	Acacia melanoxylon	65	1	Blechnum wattsii	52	1
Dicksonia antarctica	83	1	Clematis glycinoides	65	1	Culcita dubia	52	1
Pandorea pandorana	83	1	Polystichum proliferum	65	1	Eucalyptus obliqua	52	1
Lastreopsis acuminata	78	1	Rubus hillii	61	+	Tristania laurina	52	1

NO. OF SITES: 23 (3.9% of total)

DISTRIBUTION: Of restricted distribution west of the Snowy River but more common in the lowlands east to the Howe Range.

ENVIRONMENT: Sheltered gullies and alluvial flats associated with most river systems and their tributaries. Rich humic soils and rocky outcrops are common features

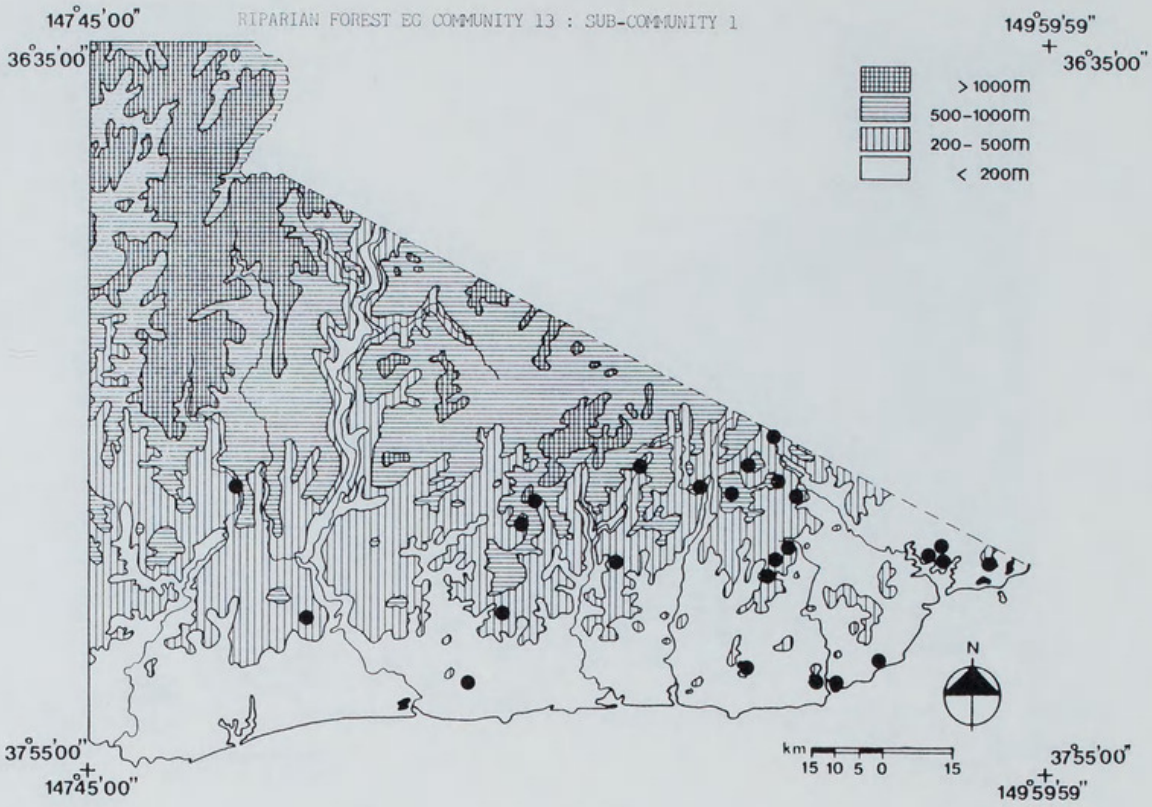
ALTITUDE: Mean = 234 m, Highest = 480 m, Lowest = 40 m.

STRUCTURE: Closed-forest

MEAN FLORISTIC RICHNESS: 58 species per site

MEAN WEED COMPOSITION: 2% of species, 1% of cover

NOTES: This sub-community forms one of few Victorian forest types not dominated by eucalypts. *Eugenia smithii* dominates the forest forming a conspicuous dark green closed canopy usually tangled with lianes (e.g. *Cissus hypoglauca, Marsdenia rostrata, Smilax australis*). Ferns are prominent beneath the canopy including arborescent forms (any of Victoria's 5 tree ferns), ground-ferns (*Blechnum wattsii, B. cartilagineum, Lastreopsis acuminatum*) and epiphytes (*Microsorium scandens, M. diversifolium, Polyphlebium venosum*). These forests are near the southern limit of a vegetation-type common and extensive within tropical regions. A feature of the tropical rainforests however is a high species diversity within the tallest stratum, often more than 100 species per acre (Specht, 1970) (c.f. rarely more than 2 or 3 species of tree per site in 12.1).



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Tetrarrhena juncea	86	1	Smilax australis	68	1	Poa australis spp. agg.	57	1
Pteridium esculentum	82	1	Elaeocarpus reticulatus	64	1	Pomaderris aspera	54	1
Clematis aristata	75	1	Goodenia ovata	64	1	Leucopogon lanceolatus	54	1
Eustrephus latifolius	71	+	Coprosma quadrifida	61	1	Eucalyptus obliqua	50	2
Tylophora barbata	71	1	Blechnum cartilagineum	61	1	Culcita dubia	46	1
Eucalyptus cypellocarpa	71	1	Alsophila australis	61	1	Dianella caerulea	46	1
Viola hederacea	71	+	Gonocarpus teucrioides	57	1	Eucalyptus muelleriana	46	1

NO. OF SITES: 26 (4.4% of total)

DISTRIBUTION: Rare west of the Snowy River but frequent in the lowlands and foothills east to the Howe Range.

ENVIRONMENT: Wet, south-facing slopes and gullies of lowland and foothills

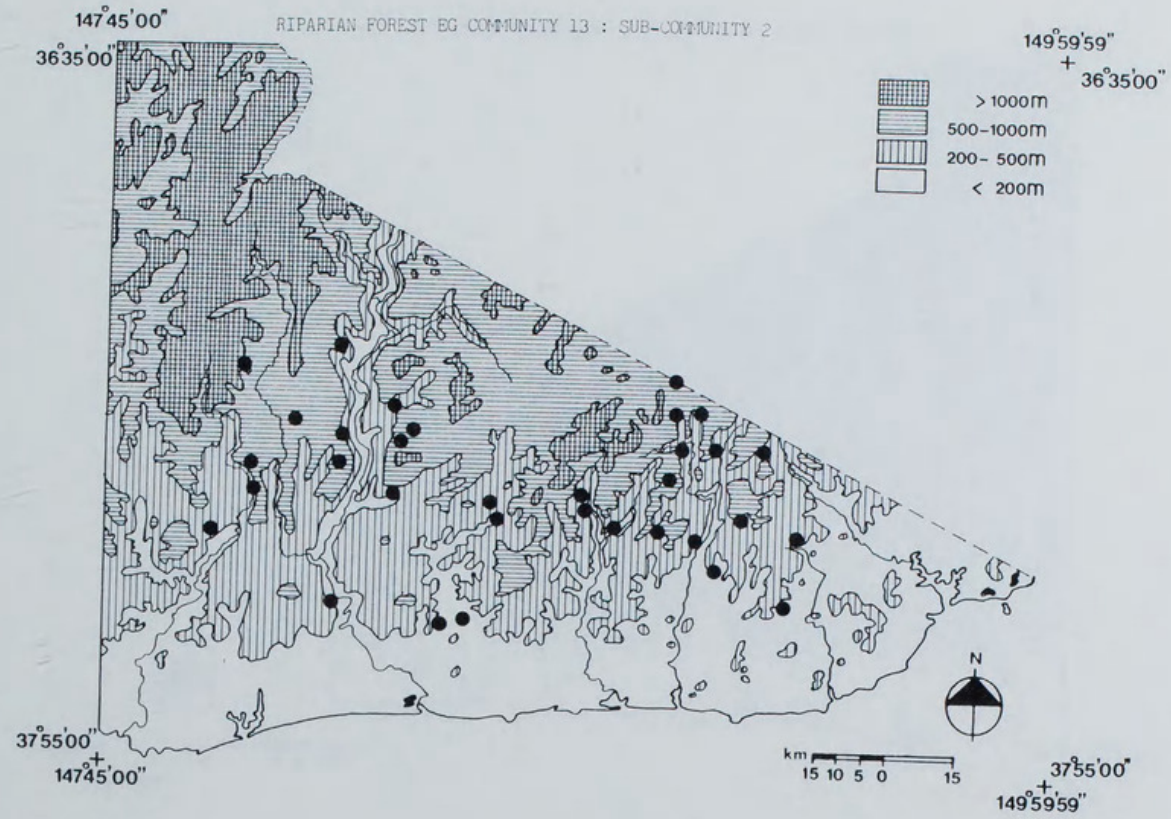
ALTITUDE: Mean = 298 m, Highest = 480 m, Lowest 40 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 48 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: This sub-community has strong floristic affinities with 12.1 and the lowland wet-sclerophyll forests (13.2). In certain this represents a true ecotone between two vegetation types, but in areas which are occasionally burnt (particularly the lowlands), a "temporal ecotone" may exist in which the vegetation is in a successional state from sclerophyll-forest to *Eugenia smithii* closed-forest.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Pomaderris aspera	85	1	Geranium potentilloides	68	+	Juncus plantifolius	53	+
Coprosma quadrifida	79	1	Clematis aristata	68	+	Acacia dealbata	50	1
Lomandra longifolia	79	1	Gratiola peruviana	68	1	Prunella vulgaris	50	1
Pteridium esculentum	79	1	Gnaphalium japonicum	68	+	Cassinia longifolia	50	1
Blechnum nudum	79	1	Carex appressa	65	1	Tristania laurina	50	1
Viola hederacea	76	+	Hydrocotyle hirta	62	+	Goodenia ovata	47	1
Oxalis corniculata	76	+	Tetrarrhena juncea	62	1	Senecio linearifolius	47	1
Stellaria flaccida	76	1	Leptospermum phylicoides	62	1	Dicksonia antarctica	44	1
Microlaena stipoides	76	1	Pimelea axiflora	59	1	*Cirsium vulgare	44	+
Scirpus inundatus	76	1	Dianella tasmanica	56	1	Blechnum minus	44	1
Acacia melanoxylon	76	1	Cassinia aculeata	56	+	Lepidosperma laterale	44	1
Adiantum aethiopicum	74	1	Bursaria spinosa	56	1	Eucalyptus viminalis	44	1
Poa australis spp. agg.	71	1	Eucalyptus cypellocarpa	53	1	Goodia lotifolia	44	+
Acaena anserinifolia	71	+	Culcita dubia	53	1	Lomatia myricoides	44	1
*Hypochoeris radicata	71	+	Alsophila australis	53	1	Olearia lirata	44	+
Prostanthera lasianthos	68	1	*Rubus fruticosus spp. agg.	53	1			

NO. OF SITES: 33 (5.6% of total)

DISTRIBUTION: Common throughout regions more than 20 km inland but not in the alps, subalps or the rainshadow area of the upper Snowy River.

ENVIRONMENT: Gently falling, mid-altitude waterways. Alluvial soils and granitic sands interspersed with boulders generally comprise the substrate

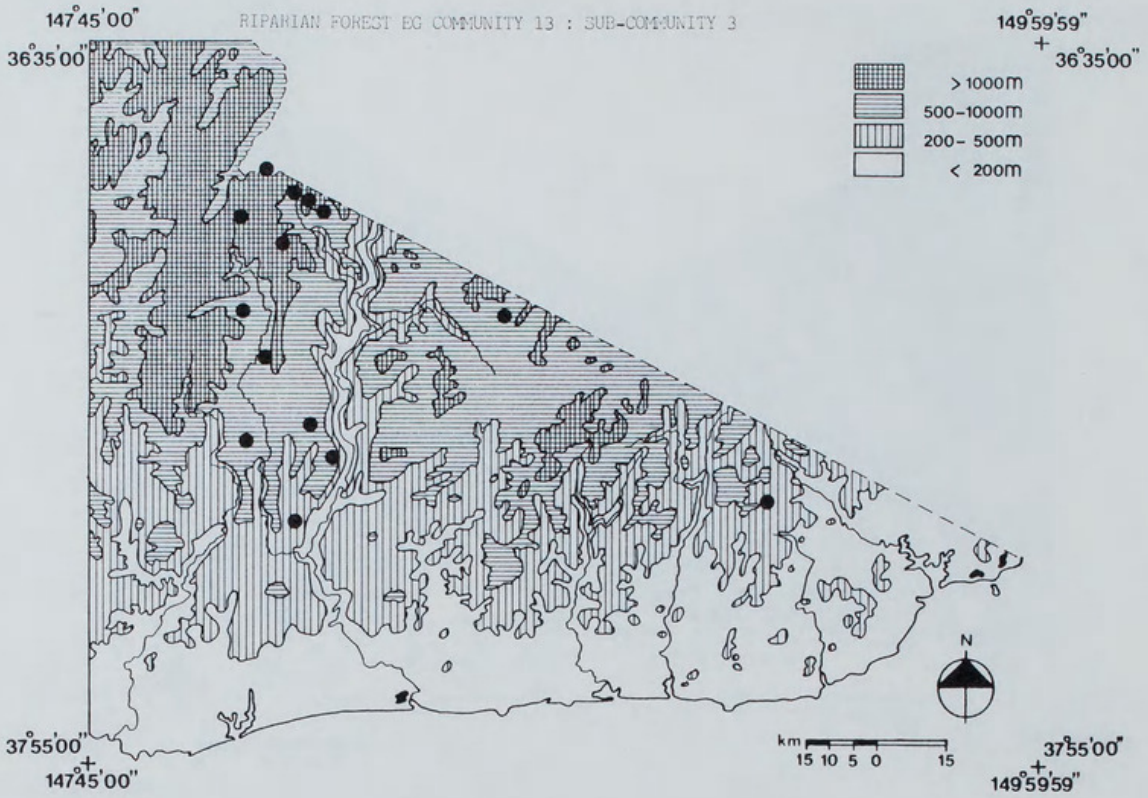
ALTITUDE: Mean = 292 m, Highest = 700 m, Lowest = 80 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 67 species per site

MEAN WEED COMPOSITION: 7% of species, 6% of cover

NOTES: High floristic richness is a feature of riparian vegetation and this sub-community has the highest mean number of species per site of any encountered in the study. Soil nutrients are concentrated in river valleys and water availability is rarely a limiting factor to plants of this environment. Seeds of plants, including weeds, are also concentrated near rivers, and moderately high numbers of weeds are not necessarily indicative of disturbance near the sampled site. 13.2 is an example of this process.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Lomandra longifolia	100	1	Poa australis spp. agg.	67	1	*Holcus lanatus	60	+
*Hypochoeris radicata	93	1	Prunella vulgaris	67	1	Hypericum japonicum	60	+
*Rubus fruticosus spp. agg.	73	1	Acaena anserinifolia	67	1	Pomaderris aspera	53	1
Acacia melanoxylon	73	1	Carex appressa	67	1	Epilobium cinereum	53	1
*Centaurium pulchellum	73	1	Agrostis avenacea	67	+	*Rosa rubiginosa	53	1
Geranium potentilloides	73	+	Leptospermum phylicoides	67	1	*Trifolium repens	53	1
Gratiola peruviana	73	1	Lomatia myricoides	60	1	Cyperus lucidus	53	1
Acacia dealbata	67	1	Hydrocotyle sibthorpioides	60	1	Polygonum hydropiper	53	+
Carex gaudichaundiana	67	1	Rumex brownii	60	1	Juncus spp.	53	1
Gnaphalium japonicum	67	1						

NO. OF SITES: 14 (2.6% of total)

DISTRIBUTION: Along the banks of the upper-Snowy and Buchan Rivers with one site beside the Genoa River near Wangarabell.

ENVIRONMENT: Banks of rivers flowing through dry, open-forest areas. Seasonal flooding forms banks of alluvial sands in some areas. Granite or sandstone boulders are common features of these shores

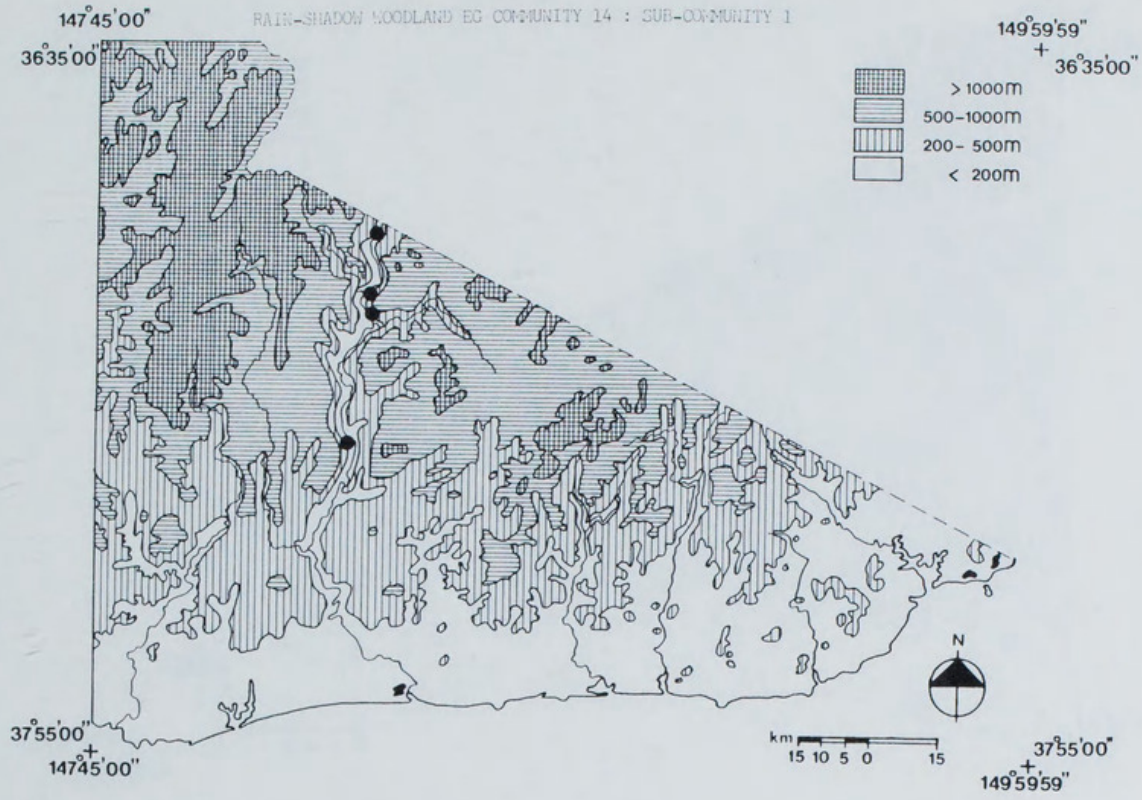
ALTITUDE: Mean = 529 m, Highest = 760 m, Lowest = 160 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 60 species per site

MEAN WEED COMPOSITION: 15% of species, 15% of cover

NOTES: A riparian vegetation-type of drier, more open areas than 13.2. Many areas in the vicinity of this sub-community have been converted to agricultural land and this influence is responsible for the high weed numbers of 13.3.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia boormanii	100	1	Lissanthe strigosa	75	1	*Conyza bonariensis	75	1
*Hypochoeris radicata	100	+	Acacia dealbata	75	1	Eucalyptus blakelyi	75	1
Leptospermum phylicoides	100	2	Arthropodium milleflorum	75	+	Gnaphalium luteoalbum	75	+
*Verbascum thapsus	100	+	Calytrix tetragona	75	1	*Hirschfeldia incana	75	+
Acacia mearnsii	75	1	Cheilanthes tenuifolia	75	1	*Petrorhagia velutina	75	+
Dodonaea viscosa	75	1						

NO. OF SITES: 4 (0.7% of total)

DISTRIBUTION: Restricted to the upper Snowy River, but common from the border downstream to near New Guinea.

ENVIRONMENT: Coarse alluvial sands beside the river. Sites sampled are within the north-eastern rainshadow area (mean annual rainfall less than 800 mm). Flooding of the river is a common occurrence

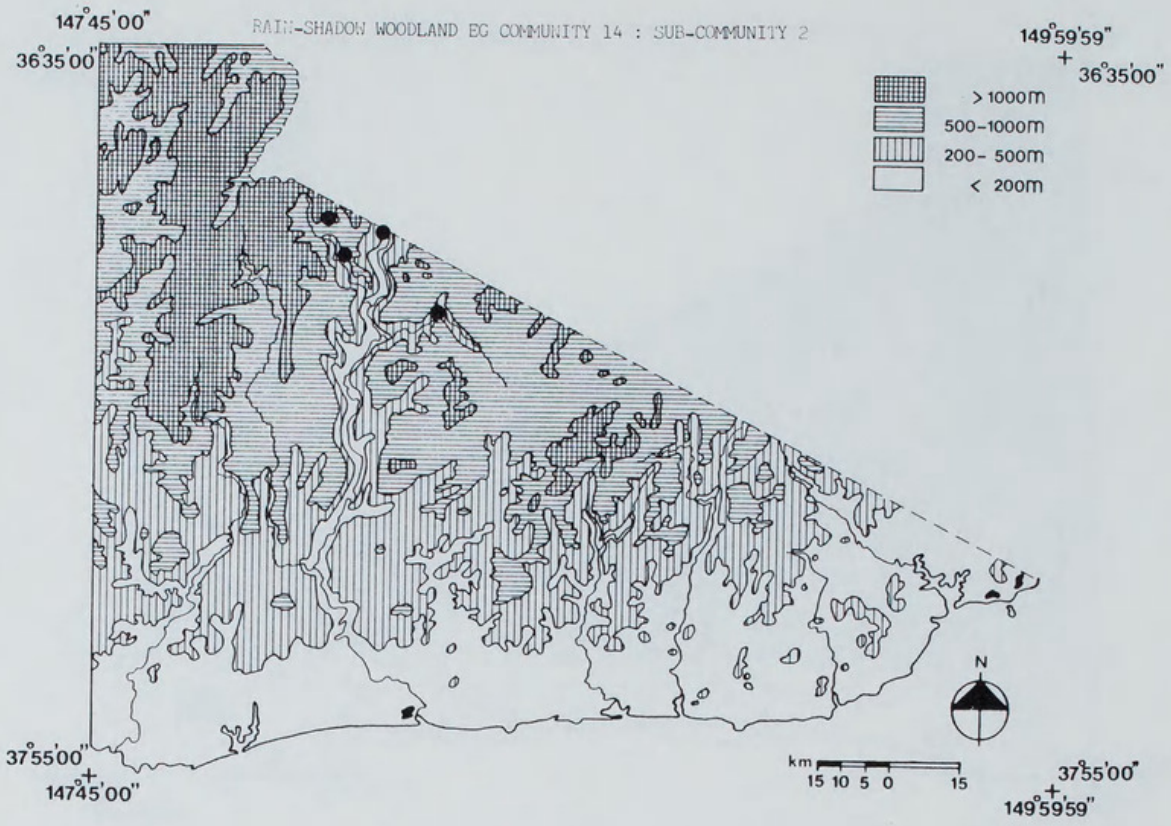
ALTITUDE: Mean = 170 m, Highest = 210 m, Lowest = 100 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 54 species per site

MEAN WEED COMPOSITION: 32% of species, 27% of cover

NOTES: Short-lived species, particularly weeds (*Verbascum thapsus, Petrorhagia velutina, Hirschfeldia incana*), capable of completing their life-cycle between flood periods, are common in this sub-community. Other woody species (*Leptospermum phylicoides, Calytrix tetragona, Eucalyptus blakelyi*) are often contorted by successive flooding of the river. Above the flood-prone section of the bank species characteristic of the surrounding woodlands are common.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Agropyron scabrum	100	1	Aristida ramosa	75	1	Hardenbergia violacea	75	+
Cheilanthes tenuifolia	100	1	Cheilanthes distans	75	+	Lissanthe strigosa	75	1
Eucalyptus albens	100	1	Danthonia racemosa	75	1	Melichrus urceolatus	75	1
Poa australis spp. agg.	100	1	Dichanthium sericeum	75	+	Oxalis corniculata	75	+
Clematis microphylla	75	1	Dichelachne crinita	75	+	Stellaria pungens	75	1
Cymbopogon refractus	75	1	Dichondra repens	75	+	Themeda australis	75	2
Lomandra longifolia	75	+	Dodonaea angustissima	75	+	Vittadinia triloba	75	1
Acacia implexa	75	1	Enneapogon nigricans	75	1			

NO. OF SITES: 4 (0.7% of total)

DISTRIBUTION: Areas surrounding the upper Snowy River and it's tributaries; particularly near Willis, Suggan Buggan and Tubbut.

ENVIRONMENT: Dry, often steep slopes (mean annual rainfall less than 700 mm) of gravelly soils with frequent granite outcrops

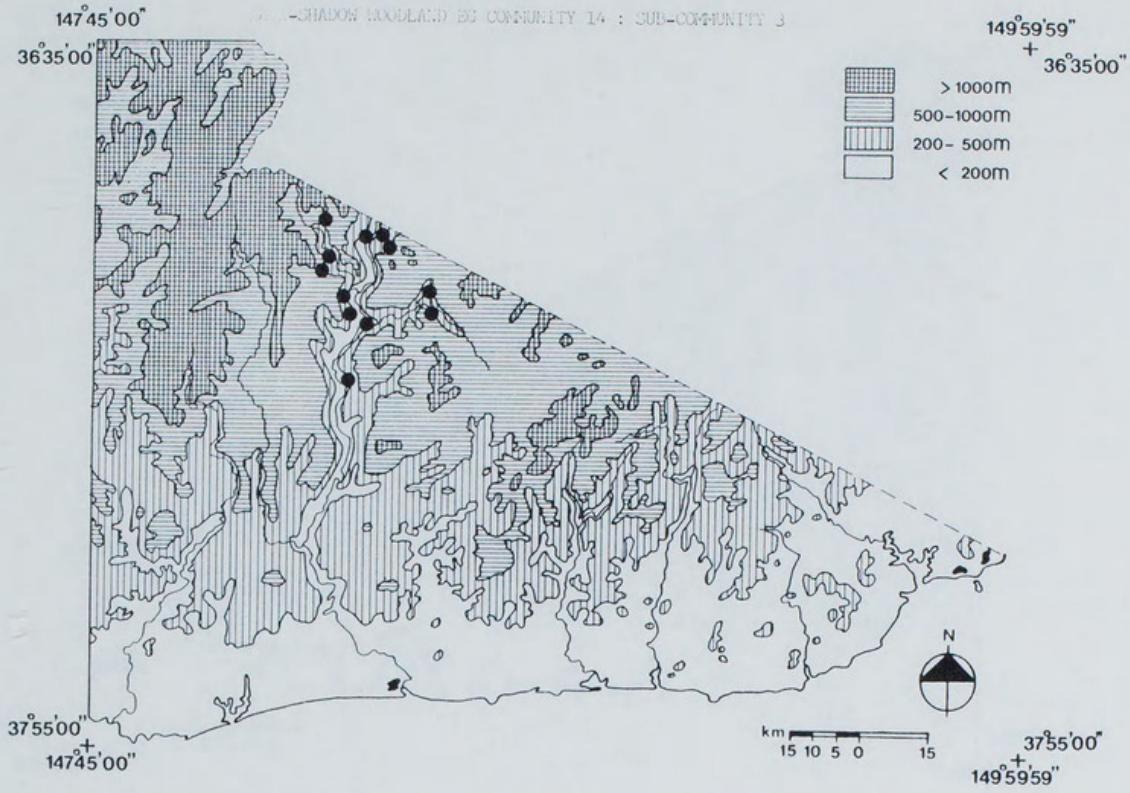
ALTITUDE: Mean = 590 m, Highest = 800 m, Lowest = 320 m.

STRUCTURE: Grassy low-woodland

MEAN FLORISTIC RICHNESS: 44 species per site

MEAN WEED COMPOSITION: 7% of species, 7% of cover

NOTES: A unique vegetation type in eastern Victoria which includes grasses common in the Central and Northern Plains (*Aristida ramosa, Dichanthium sericeum, Enneapogon nigricans*) but which are not frequent in Gippsland. Species other than grasses possess physical and physiological adaptations to the dry, nutrient-poor environment such as small sclerophyllous foliage (e.g. the heaths *Melichrus urceolatus, Lissanthe strigosa*) and an ability to rapidly respond to sporadic rains (e.g. *Cheilanthes tenuifolia*, a resurrection fern). The extent and floristic integrity of this sub-community has been severely reduced as a result of grazing.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Clematis microphylla	100	1	Agropyron scabrum	73	1	Cheilanthes tenuifolia	60	1
Eucalyptus albens	93	2	Cymbonotus preissianus	67	+	Brachychiton populneus	60	+
Lissanthe strigosa	93	1	Astroloma humifusum	67	1	Hydrocotyle hirta	53	+
Poa australis spp. agg.	87	1	Dichondra repens	60	1	Callitris columellaris	53	1
*Centaurium pulchellum	73	1	Senecio quadridentatus	60	1	Geranium potentilloides	53	1

NO. OF SITES: 15 (3.9% of total)

DISTRIBUTION: Areas surrounding the upper Snowy River and it's tributaries, particularly near Willis, Suggan Buggan and Tubbut.

ENVIRONMENT: Dry, gravelly sites within a range 500 m laterally and 150 m vertically from the river

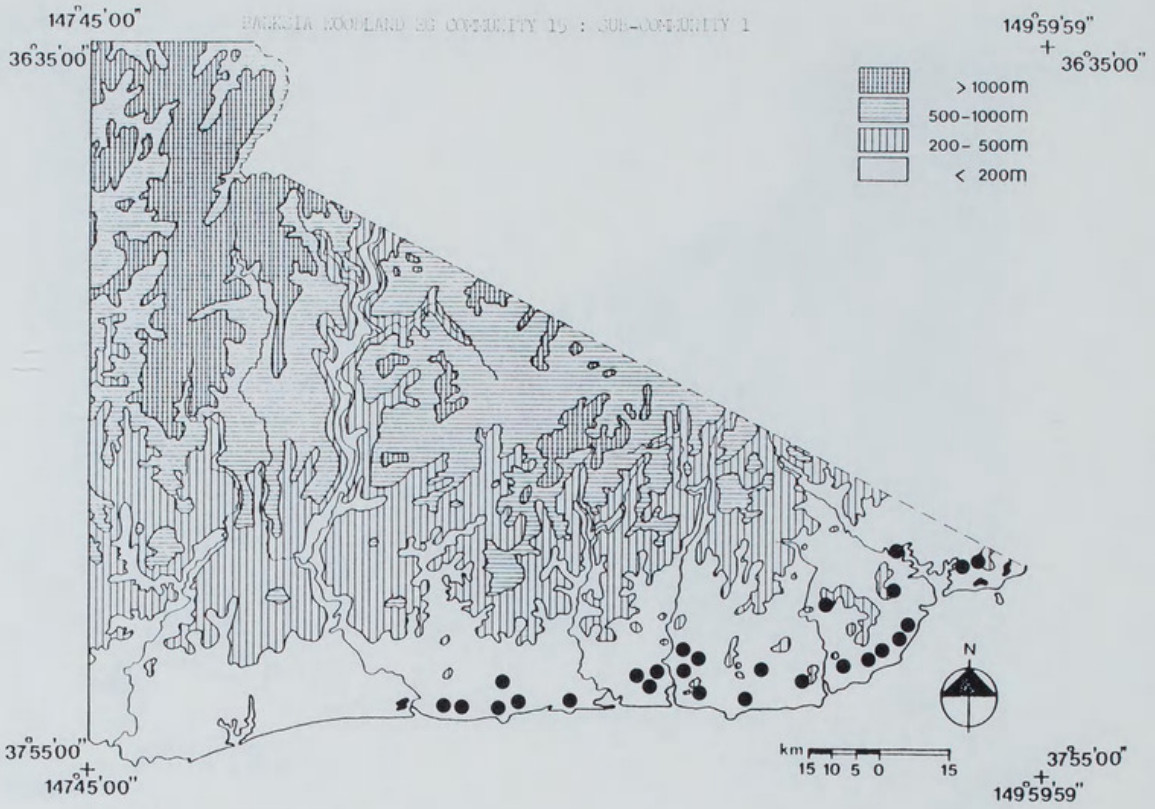
ALTITUDE: Mean = 403 m, Highest = 600 m, Lowest = 120 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 35 species per site

MEAN WEED COMPOSITION: 12% of species, 11% of cover

NOTES: Low-nutrient soils and steep slopes have diverted agricultural interest from these botanically interesting *Eucalyptus albens/Callitris columellaris* woodlands. Historic exploitation of the *Callitris* trees has left few mature individuals. Regeneration of these conifers is at risk due to grazing by dense rabbit populations which also remove most of the softer ground-layer species. Ground cover is scant, annuals *(Senecio quadridentatus)* and short-lived weeds *(Centaurium pulchellum)* comprise most of this stratum. *Lissanthe strigosa* is ubiquitous and frequently the only shrub beneath the open canopy.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Banksia serrata	93	1	Xanthosia pilosa	83	1	Patersonia glabrata	60	1
Epacris impressa	90	1	Leptospermum juniperinum	83	1	Anisopogon avenaceus	60	1
Amperea xiphoclada	87	1	Dillwynia glaberrima	80	1	Leucopogon collinus	57	1
Dampiera stricta	87	1	Lomandra longifolia	77	1	Tetratheca pilosa	57	1
Aotus ericoides	87	1	Acacia terminalis	77	1	Monotoca scoparia	53	+
Pteridium esculentum	87	1	Correa reflexa	73	1	Leptospermum attenuatum	53	1
Cassytha glabella	87	1	Lepidosperma concavum	70	1	Platylobium formosum	50	1
Ricinocarpos pinifolius	83	1	Acacia suaveolens	63	1	Burchardia umbellata	47	+
Gonocarpus teucrioides	83	1	Pimelea linifolia	63	1	Selaginella uliginosa	47	1

NO. OF SITES: 30 (5.1% of total)

DISTRIBUTION: Coastal lowlands from the Snowy River east to the Victoria-N.S.W. border.

ENVIRONMENT: Inland from full oceanic influence, on siliceous sands

ALTITUDE: Mean = 61 m, Highest = 180 m, Lowest = 0 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 42 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: Although no single species of eucalypt occurs in more than 30% of these sites, one or more species are usually present (e.g. *Eucalyptus globoidea, E. gummifera, E. sieberi, E. consideniana, E. muelleriana* or *E. botryoides*). *E. gummifera* has it's most southerly occurrence in far East Gippsland, and is Victoria's only member of the bloodwood group. A diverse shrub layer of small-leafed, sclerophyllous species is present (e.g.*Epacris impressa, Leptospermum juniperinium*) above a ground layer of monocotyledons (e.g. *Lepidosperma concavum, Anisopogon avenaceus*) and semi-shrubs (e.g.*Dampiera stricta, Amperea xiphoclada*). Areas of restricted drainage are indicated by the presence of *Selaginella uliginosa* and *Melaleuca squarrosa* in some quadrats. This woodland has little presently merchantable timber.

CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia terminalis	100	1	Eucalyptus globoidea	86	1	Poa australis spp. agg.	64	1
Pteridium esculentum	100	1	Lomandra longifolia	86	1	Hibbertia empetrifolia	64	1
Tetratheca pilosa	100	1	Xanthosia pilosa	86	1	Leptospermum juniperinum	64	1
Epacris impressa	93	1	Tetrarrhena juncea	79	1	Patersonia glabrata	64	1
Platylobium formosum	93	1	Anisopogon avenaceus	79	1	Platysace lanceolata	64	1
Amperea xiphoclada	93	1	Dillwynia glaberrima	79	1	Ricinocarpos pinifolius	64	1
Aotus ericoides	93	1	Persoonia linearis	79	1	Billardiera scandens	57	+
Banksia serrata	93	1	Pimelea linifolia	79	1	Lomatia ilicifolia	57	1
Dampiera stricta	93	1	Cassytha glabella	71	+	Scaevola ramosissima	57	+
Dianella caerulea	93	1	Eucalyptus sieberi	71	2	Eucalyptus consideniana	57	1
Gonocarpus teucrioides	93	1	Lepidosperma laterale	71	1	Leptospermum attenuatum	57	1

NO. OF SITES: 14 (2.4% of total)

DISTRIBUTION: Coastal lowlands and foothills from the Snowy River east to the Victoria-N.S.W. border.

ENVIRONMENT: Siliceous sands

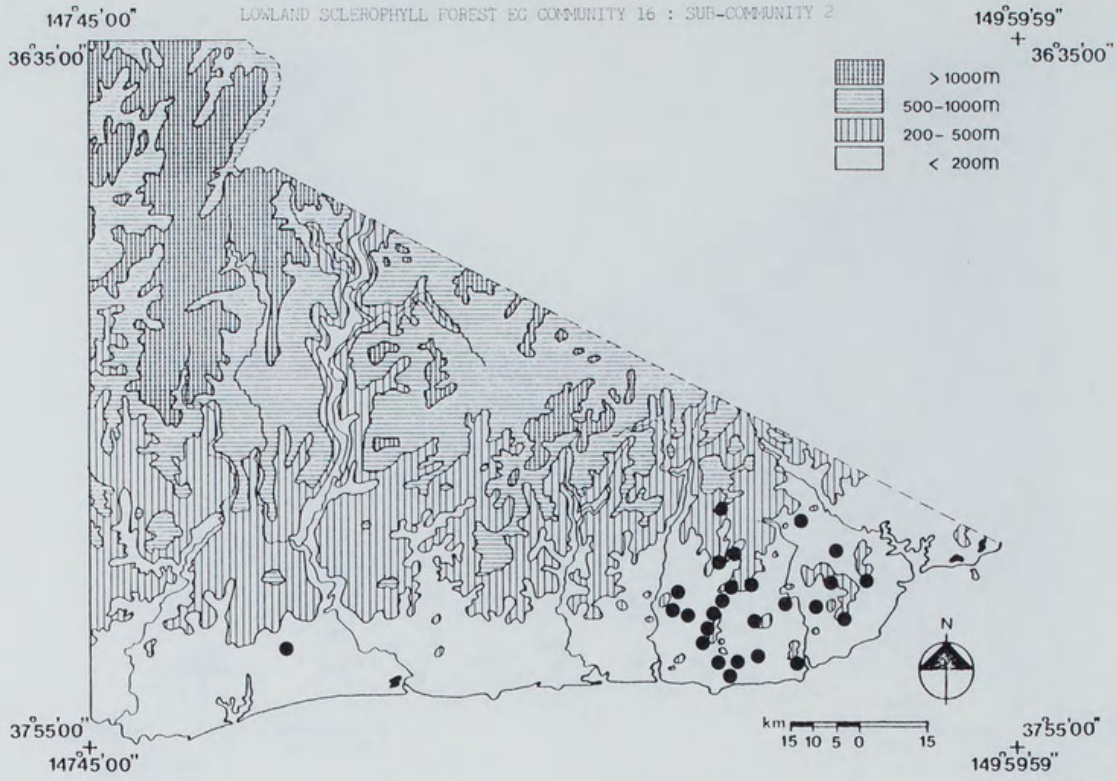
ALTITUDE: Mean = 91 m, Highest = 200 m, Lowest = 40 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 46 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: Sub-community 16.1 is floristically intermediate between sub-communities 15.1 and 16.2. The sub-community is grouped with Lowland Sclerophyllous Forest because of it's structural affinities with that community (i.e. a high cover and consistent occurrence of eucalypts).



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Epacris impressa	93	1	Lepidosperma laterale	81	1	Patersonia glabrata	59	1
Gonocarpus teucrioides	93	1	Tetratheca pilosa	78	1	Lomandra longifolia	59	1
Persoonia linearis	93	1	Banksia serrata	74	1	Anisopogon avenaceus	56	+
Platylobium formosum	93	1	Poa australis spp. agg.	70	1	Cassytha phaeolasia	56	1
Amperea xiphoclada	89	+	Acacia terminalis	67	1	Pimelea humilis	56	+
Dianella caerulea	89	1	Eucalyptus globoidea	67	1	Banksia spinulosa	56	1
Lomatia ilicifolia	89	1	Acacia myrtifolia	67	1	Leptospermum juniperinum	52	+
Eucalyptus sieberi	85	2	Lindsaya linearis	63	+	Danthonia pallida	52	1
Pteridium esculentum	85	1	Hakea sericea	63	1	Correa reflexa	48	+
Dampiera stricta	85	1	Scaevola ramosissima	63	1	Lycopodium deuterodensum	48	1
Tetrarrhena juncea	85	1	Billardiera scandens	63	+	Eucalyptus consideniana	48	1
Caustis flexuosa	81	1	Burchardia umbellata	63	+	Xanthosia tridentata	48	+
Hibbertia empetrifolia	81	1						

NO. OF SITES: 27 (4.6% of total)

DISTRIBUTION: Coastal lowlands and foothills of Mallacoota and Cann River districts, also an isolated occurrence near Tostaree

ENVIRONMENT: Siliceous sands

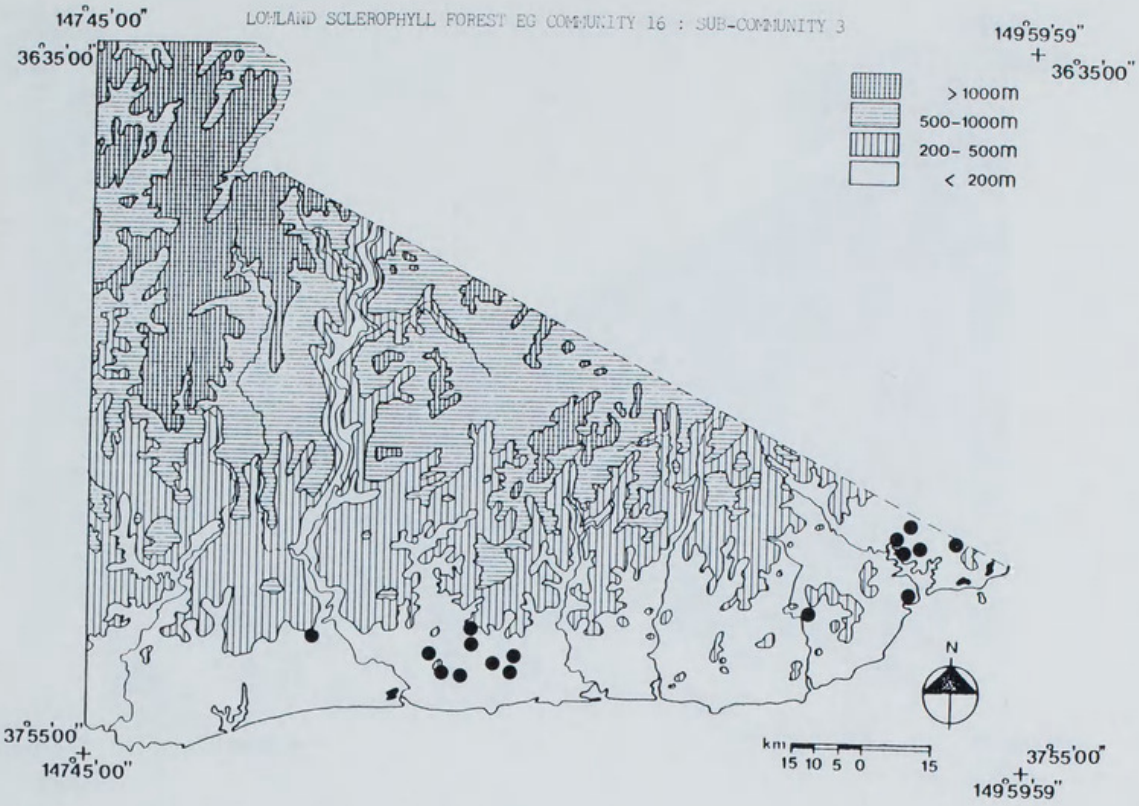
ALTITUDE: Mean = 137 m, Highest = 320 m, Lowest = 60 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 50 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: The understory of this sub-community forms an open scrub above a shrub layer typical of Lowland Sclerophyllous Forest. The scrub is mostly comprised of members of the Proteaceae. These are significant for nectiferous animals, supplying nectar through much of the year. *Banksia spinulosa* is winter flowering, *Hakea sericea* flowers in spring, whilst *B. serrata* and *Persoonia linearis* flower in summer. Monocotyledons and semi-shrubs, including showy-flowering species such as *Dampiera stricta* and *Scaevola ramosissima* make up the ground layer. Of the four species of grass, the scrambling wire grass, *Tetrarrhena juncea*, and the broad-leafed oat spear grasses *Danthonia pallida* and *Poa australis* spp. agg. may be confused with each other. *Lycopodium deuterodensum* may grow to 1 m and has the appearance of a small pine tree. It is a member of the primitive Lycopodiinae, a group with few extant species. The opportunistic species, *Platylobium formosum*, *Pteridium esculentum* and *T. juncea* examined in conjunction have significant cover values, and disturbance probably by fire is implied.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Dianella caerulea	94	1	Billardiera scandens	76	1	Scaevola ramosissima	65	+
Gonocarpus teucrioides	94	1	Poa australis spp. agg	76	1	Goodenia ovata	65	+
Dampiera stricta	88	1	Patersonia glabrata	71	1	Hypericum gramineum	65	+
Tetratheca pilosa	88	1	Entolasia marginata	71	1	Leptospermum juniperinum	65	1
Epacris impressa	88	1	Lomandra longifolia	71	1	Lomandra filiformis	59	1
Lepidosperma laterale	88	1	Hibbertia empetrifolia	71	1	Acrotriche serrulata	59	+
Persoonia linearis	88	1	Viola hederacea	71	1	Lindsaya linearis	59	1
Pteridium esculentum	88	1	Gahnia sieberana	65	1	Pimelea humilis	59	+
Deyeuxia quadriseta	82	+	Xanthorrhoea minor	65	1	Eucalyptus muelleriana	59	1
Eucalyptus sieberi	82	1	Acacia myrtifolia	65	1	*Hypochoeris radicata	53	+
Burchardia umbellata	76	+	Platylobium formosum	65	1	Eucalyptus globoidea	53	1
Tetrarrhena juncea	76	1	Lomatia ilicifolia	65	+			

NO. OF SITES: 16 (2.9% of total)

DISTRIBUTION: Coastal lowlands, in Marlo and Mallacoota districts.

ENVIRONMENT: Siliceous sands and clay-loams

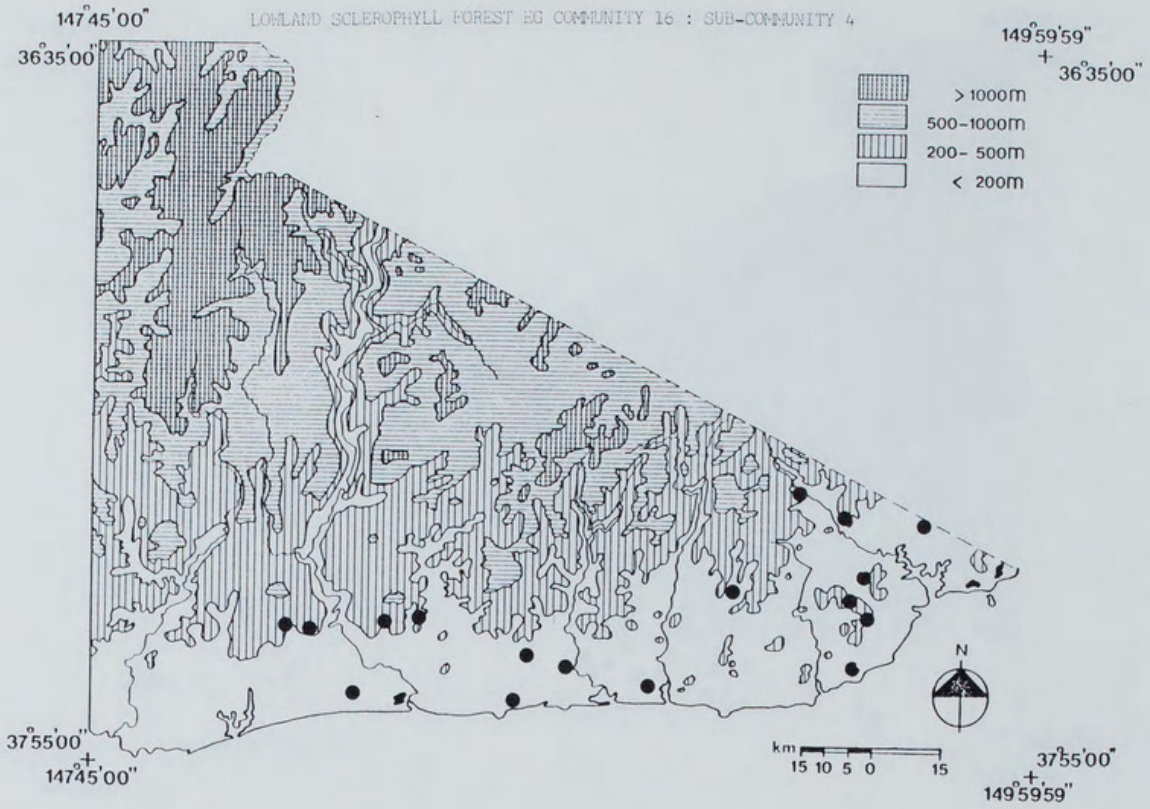
ALTITUDE : Mean = 84 m, Highest = 200 m, Lowest = 0 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 57 species per site

MEAN WEED COMPOSITION: 1% of species, 1% of cover

NOTES: *Eucalyptus muelleriana* shares the tree canopy with *E. sieberi* and *E. globoidea* on clay-loams. A shrub layer of small-leafed sclerophyllous species occurs above a ground layer of semi-shrubs (e.g. *Dampiera stricta, Hibbertia empetrifolia*) and monocotyledons (e.g. *Lepidosperma laterale, Patersonia glabrata*). One of the few herbs present is *Hypochoeris radicata*, and it constitutes the only occurrence of an introduced character species in this Lowland Sclerophyllous Forest. The opportunistic species, *Pteridium esculentum* and *Tetrarrhena juncea* examined in conjunction have significant cover values, and disturbance, probably by fire, is implied. Nevertheless sub-community 16.3 has the highest mean floristic richness within community 16. *T. juncea* is often tangled with *Entolasia marginata*, a species of quite similar appearance.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Epacris impressa	100	1	Poa australis spp. agg.	76	1	Helichrysum scorpioides	59	+
Gonocarpus teucrioides	94	1	Tetratheca pilosa	76	1	Billardiera scandens	53	+
Dianella caerulea	88	1	Dampiera stricta	71	1	Cassytha phaeolasia	53	1
Lepidosperma laterale	88	+	Acacia terminalis	71	1	Platysace lanceolata	53	+
Lomandra longifolia	82	+	Persoonia linearis	71	1	Leucopogon lanceolatus	53	+
Pteridium esculentum	82	1	Tetrarrhena juncea	71	1	Patersonia glabrata	53	+
Eucalyptus globoidea	82	1	Viola hederacea	65	+	Platylobium formosum	53	1
Hibbertia empetrifolia	76	+	Amperea xiphoclada	59	+	Scaevola ramosissima	53	+
Eucalyptus sieberi	76	1						

NO. OF SITES: 17 (2.9% of total)

DISTRIBUTION: Coastal lowland and foothills, from the Snowy River east to the Victoria-N.S.W. border.

ENVIRONMENT: Siliceous sands

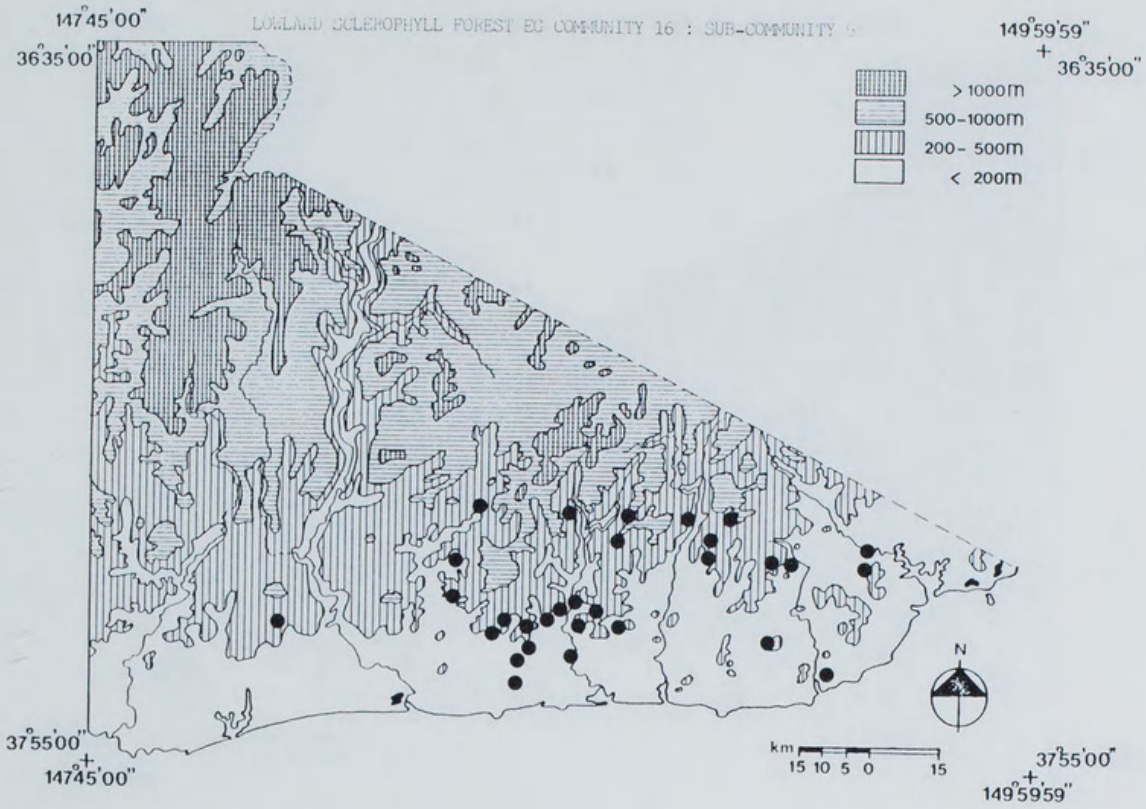
ALTITUDE: Mean = 140 m, Highest = 280 m, Lowest = 0 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 50 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: As in all other sub-communities of community 16, *Eucalyptus sieberi* and *E. globoidea* are the major tree species. A floristically rich shrub layer (e.g. *Epacris impressa, Acacia botryocephala*) is developed over a range of semi-shrubs (e.g. *Tetratheca pilosa, Hibbertia empetrifolia*) and monocotyledons (e.g. *Dianella caerulea, Lepidosperma laterale*). *Cassytha phaeolasia*, a leafless parasitic twiner confined in Victoria to East Gippsland grows in tangles over host species.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Tetrarrhena juncea	94	2	Eucalyptus globoidea	77	1	Amperea xiphoclada	55	+
Gonocarpus teucrioides	94	1	Epacris impressa	74	1	Blechnum cartilagineum	55	1
Pteridium esculentum	90	1	Persoonia linearis	74	1	Alsophila australis	55	+
Dianella caerulea	90	1	Hibbertia empetrifolia	71	1	Lomatia ilicifolia	55	1
Viola hederacea	87	+	Leucopogon lanceolatus	71	1	Lomandra longifolia	52	1
Billardiera scandens	81	+	Acacia mucronata	68	1	Eucalyptus obliqua	52	1
Goodenia ovata	81	1	Lepidosperma laterale	68	1	Cassinia longifolia	48	+
Cassytha phaeolasia	77	1	Poa australis spp. agg.	61	1	Tylophora barbata	48	1
Eucalyptus sieberi	77	2	Gahnia sieberana	61	1	Daviesia ulicifolia	48	1
Hierochloe rariflora	77	1	Correa reflexa	58	1	Culcita dubia	45	1
Tetratheca pilosa	77	1	Platylobium formosum	58	1	Pultenaea daphnoides	45	1

NO. OF SITES: 31 (5.3% of total)

DISTRIBUTION: Coastal lowland and foothills, from the Snowy River east to the Victoria-N.S.W. border.

ENVIRONMENT: Siliceous sands and sandy-loams, often in minor gullies

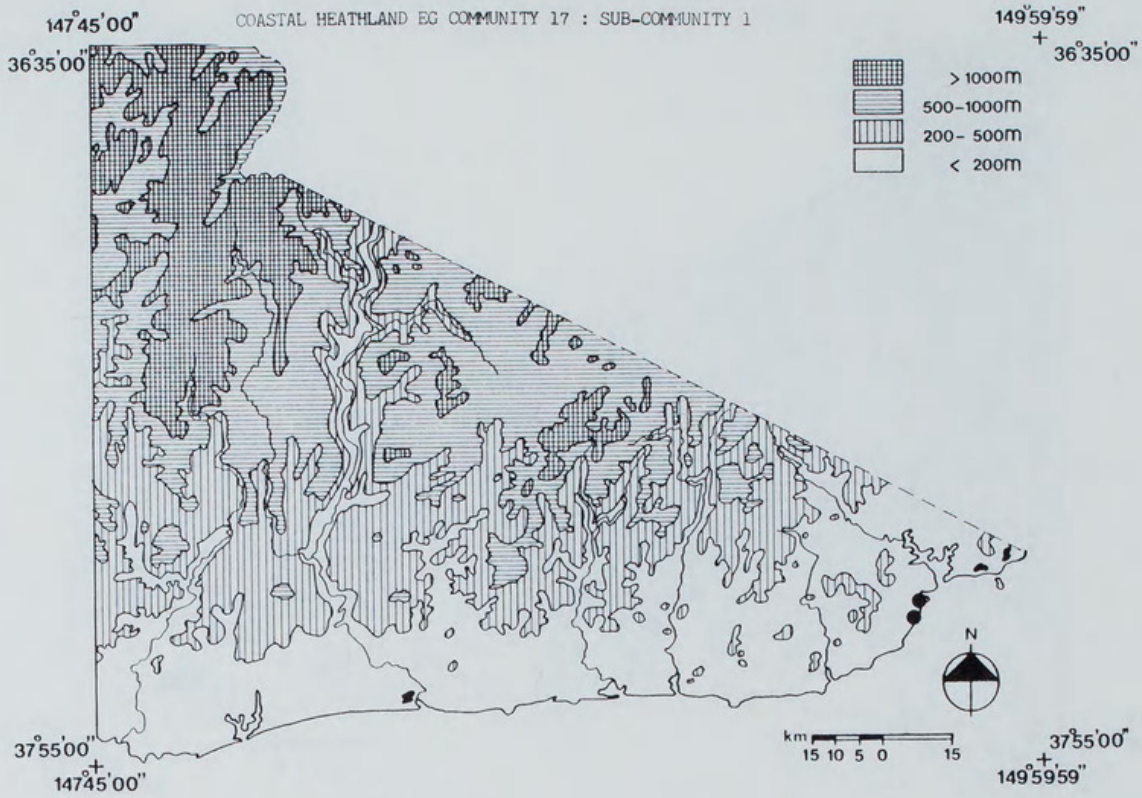
ALTITUDE: Mean = 207 m, Highest = 440 m, Lowest = 40 m.

STRUCTURE: Open-forest to Tall open-forest

MEAN FLORISTIC RICHNESS: 48 species per site

MEAN WEED COMPOSITION: 1% of species, 0% of cover

NOTES: The occurrence of *Eucalyptus obliqua* in this sub-community, along with the ferns *Culcita dubia, Alsophila australis* and *Blechnum cartilagineum*, suggest a relationship with the higher altitude forests such as those of community 13.1. The shrub layer has a significant complement of opportunistic species (e.g. *Pteridium esculentum, Goodenia ovata, Acacia mucronata, Platylobium formosum, Gahnia sieberana, Cassinia longifolia*) which often occur with high cover values suggesting disturbance as a result of fire or forestry operations. The attractive, coumarin-scented grass, *Hierochloe rariflora* and the robust, tangled wire-grass *Tetrarrhena juncea* may also form unbroken swards after disturbance.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Acacia myrtifolia	100	+	Lindsaya linearis	100	1	Pimelea linifolia	67	1
Banksia marginata	100	+	Patersonia glabrata	100	1	Poa australis spp. agg.	67	1
Bossiaea prostrata	100	+	Scaevola ramosissima	100	+	Stipa nervosa	67	1
Burchardia umbellata	100	1	Schoenus apogon	100	+	Stipa semibarbata	67	1
Cassytha glabella	100	1	Schoenus brevifolius	100	1	Acrotriche serrulata	67	1
Casuarina paludosa	100	1	Schaerolobium vimineum	100	1	Amperea xiphoclada	67	+
Dampiera stricta	100	+	Themeda australis	100	1	Empodisma minus	67	1
Danthonia pilosa	100	1	Thysanotus juncifolius	100	+	Comesperma ericinum	67	1
Dillwynia sericea	100	1	Xanthosia pusilla	100	+	Gahnia radula	67	1
Entolasia marginata	100	+	Anisopogon avenaceus	67	2	Goodenia ovata	67	1
Epacris impressa	100	1	Astroloma humifusum	67	1	Hibbertia empetrifolia	67	1
Gompholobium huegelii	100	1	Chamaescilla corymbosa	67	1	Platysace heterophylla	67	1
Gonocarpus teucrioides	100	1	Cyathochaeta diandra	67	1	Platysace lanceolata	67	1
Helichrysum scorpioides	100	+	Drosera auriculata	67	+	Schoenus tenuissimus	67	1
Laxmannia sessiliflora	100	+	Euphrasia collina	67	1	Selaginella uliginosa	67	1
Lepidosperma neesii	100	1	Lomandra filiformis	67	+	Xanthosia dissecta	67	+
Leptospermum juniperinum	100	1	Opercularia varia	67	+			

NO. OF SITES: 3 (0.5% of total)

DISTRIBUTION: Restricted to near-coastal plains between Betka River and Seal Creek.

ENVIRONMENT: Cliff-top plateau within 1 km of the sea. Buffered from strong, salt-laden winds by sea cliff and a dense band of shrubland vegetation (such as 19.1 and 20.1)

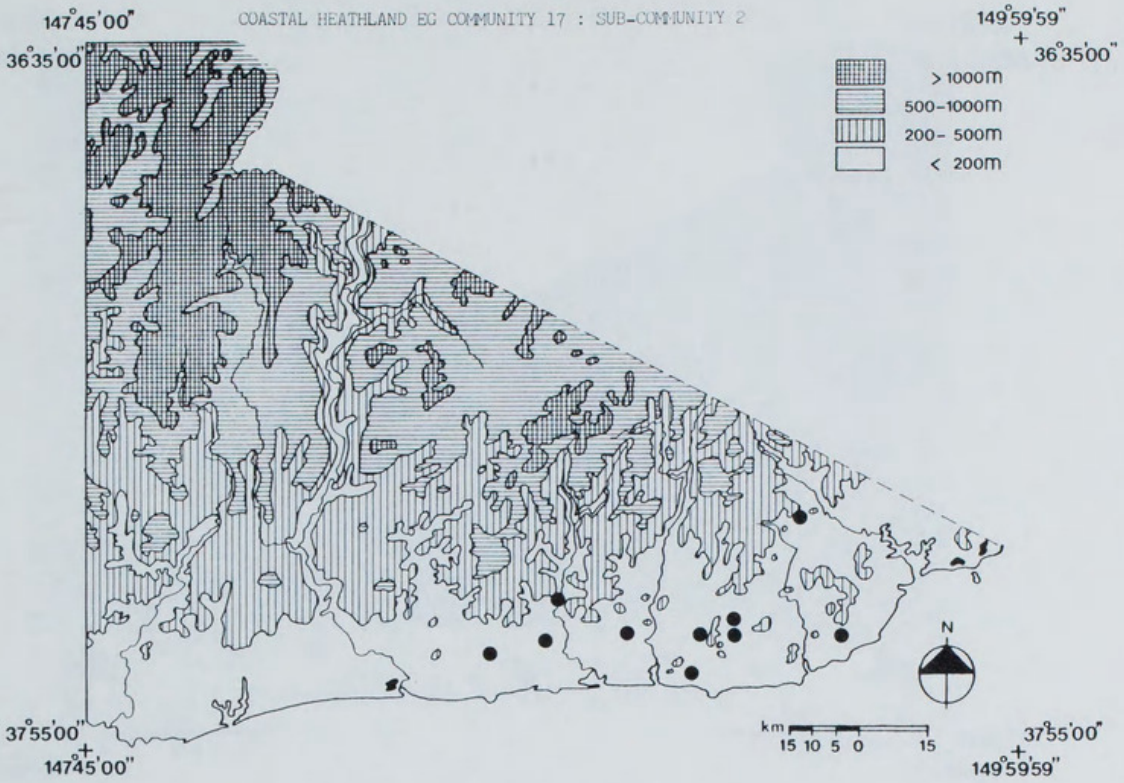
ALTITUDE: Mean = 30 m, Highest = 40 m, Lowest = 20 m.

STRUCTURE: Open-heath

MEAN FLORISTIC RICHNESS: 44 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: Grasses, sedges and lilies form an unusually high proportion of the species in this coastal heath sub-community. Character species, *Cyathochaeta diandra* and *Thysanotus juncifolius*, are rare in Victoria and restricted to this region. *Spyridium cinereum*, a species of very disjunct distribution, is found only here and in the north-eastern Grampians.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Selaginella uliginosa	100	1	Epacris impressa	73	1	Lindsaya linearis	64	1
Xanthorrhoea hastilis	100	2	Burchardia umbellata	73	+	Gahnia clarkei	55	1
Dampiera stricta	91	1	Epacris obtusifolia	73	1	Banksia serrata	55	1
Melaleuca squarrosa	91	2	Dillwynia glaberrima	64	1	Comesperma ericinum	55	1
Leptospermum juniperinum	91	1	Gonocarpus teucrioides	64	+	Lepidosperma filiforme	55	2
Empodisma minus	82	1	Gahnia sieberana	64	1	Sprengelia incarnata	55	1
Cassytha glabella	82	1	Aotus ericoides	64	+			

NO. OF SITES: 10 (1.7% of total)

DISTRIBUTION: Frequent between Marlo and Little Ram Head and up to 20 km inland, with an outlying occurrence west of the Genoa River near Wangarabell.

ENVIRONMENT: Depressions and poorly drained plains within undulating, near-coastal regions. Soils are generally peaty sands

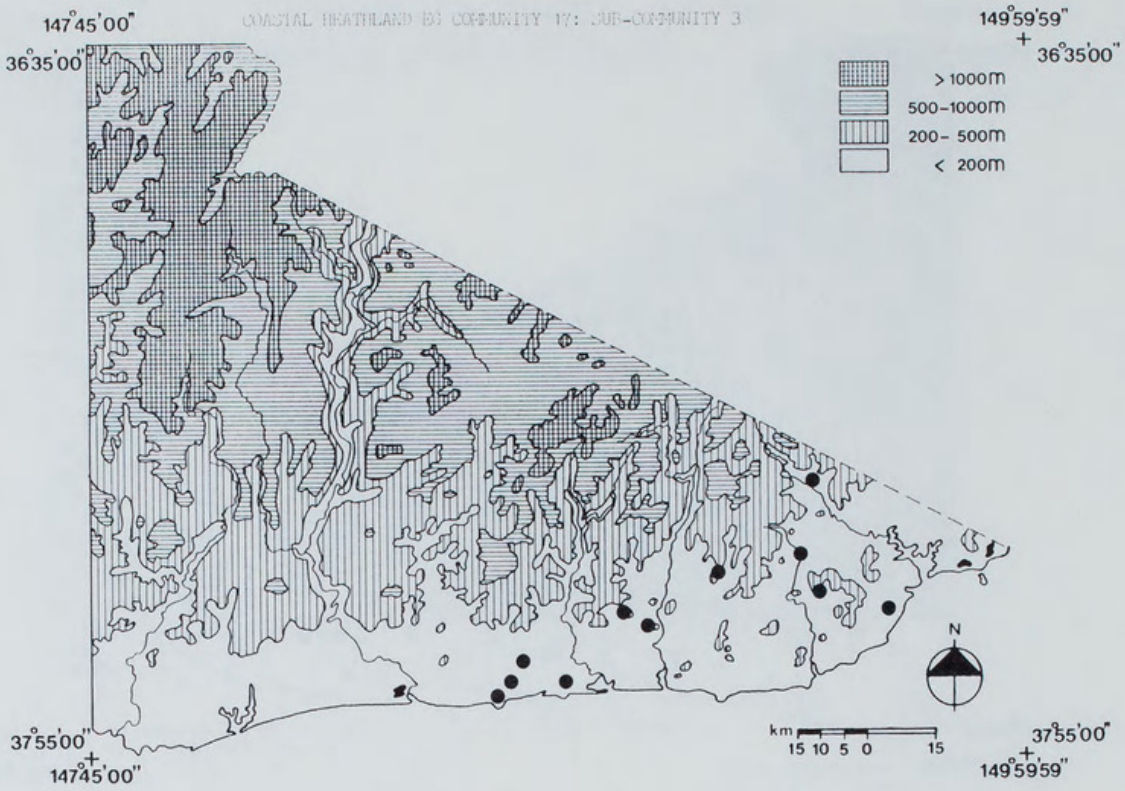
ALTITUDE: Mean = 89 m, Highest = 120 m, Lowest = 20 m.

STRUCTURE: Closed-heath

MEAN FLORISTIC RICHNESS: 42 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: This distinct vegetation type, restricted in Victoria to East Gippsland, is widely known as "grass-tree plain" and dominated by *Xanthorrhoea hastilis* (Spear Grass-tree). This sub-community lacks any arborescent plants and is often extensive. Despite frequent burning and seasonal grazing, many ephemeral species and orchids persist in this sub-community (e.g. *Drosera*, *Utricularia* and *Prasophyllum* spp.).



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Xanthorrhoea hastilis	100	2	Burchardia umbellata	75	+	Xyris operculata	67	1
Casuarina paludosa	92	1	Cassytha glabella	75	+	Lindsaya linearis	67	1
Leptocarpus tenax	92	1	Dampiera stricta	75	+	Gonocarpus teucrioides	58	1
Leptospermum juniperinum	92	1	Hakea teretifolia	75	1	Gahnia sieberana	58	1
Empodisma minus	83	1	Lepidosperma filiforme	75	1	Patersonia fragilis	58	1
Restio complanatus	83	1	Epacris impressa	67	1	Tetraria capillaris	58	1
Selaginella uliginosa	83	1	Sprengelia incarnata	67	1	Tetrarrhena distichophylla	58	1

NO. OF SITES: 13 (2.2% of total)

DISTRIBUTION: Near-coastal plains between Marlo and Bemm River, but extending to 30 km inland near Genoa.

ENVIRONMENT: Damp depressions within near-coastal plains. Soils are of peaty sands or deep siliceous sand on hardpan base

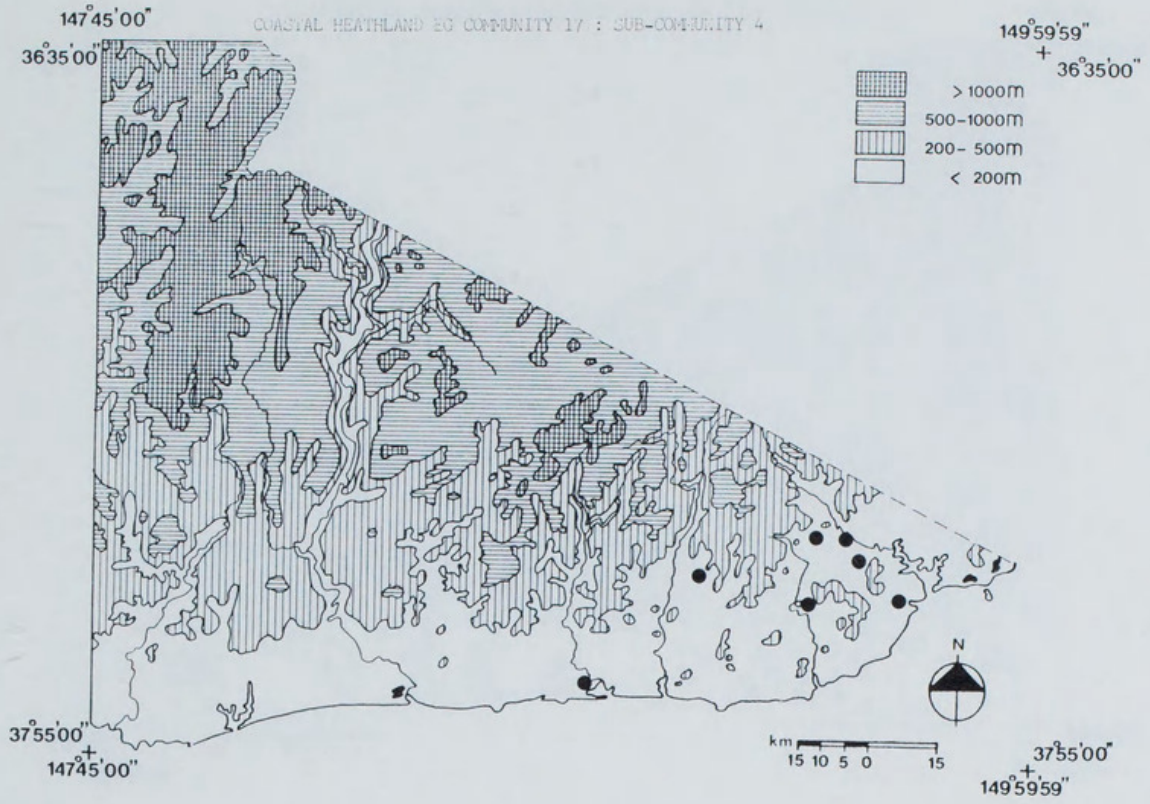
ALTITUDE: Mean = 80 m, Highest = 160 m, Lowest = 40 m.

STRUCTURE: Closed-heath

MEAN FLORISTIC RICHNESS: 43 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: A version of grass-tree plain in which both *Casuarina paludosa* and *Xanthorrhoea hastilis* constitute the major species. This vegetation type occupies wetter sites than those supporting sub-community 17.2 a feature reflected in the presence of *C. paludosa* and other wetland species such as *Xyris operculata*, *Patersonia fragilis* and *Sprengelia incarnata*.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Epodisma minus	100	1	Epacris lanuginosa	83	1	Lindsaya linearis	67	1
Cassytha glabella	100	+	Lomandra longifolia	83	1	Callistemon citrinus	67	1
Casuarina paludosa	100	1	Amperea xiphoclada	67	+	Hakea teretifolia	67	1
Leptospermum juniperinum	100	1	Anisopogon avenaceus	67	+	Hypericum gramineum	67	1
Selaginella uliginosa	100	1	Burchardia umbellata	67	+	Lepidosperma neesii	67	+
Banksia serrata	83	1	Eucalyptus globoidea	67	1	Sphaerolobium vimineum	67	1
Dampiera stricta	83	1	Gonocarpus teucrioides	67	1			

NO. OF SITES: 6 (1.0% of total)

DISTRIBUTION: Uncommon from Marlo to Cape Conran and scattered between Cann River, Genoa and Mallacoota.

ENVIRONMENT: Near Marlo, immediately leeward of the foredunes, otherwise in damp depressions of the near-coastal plains

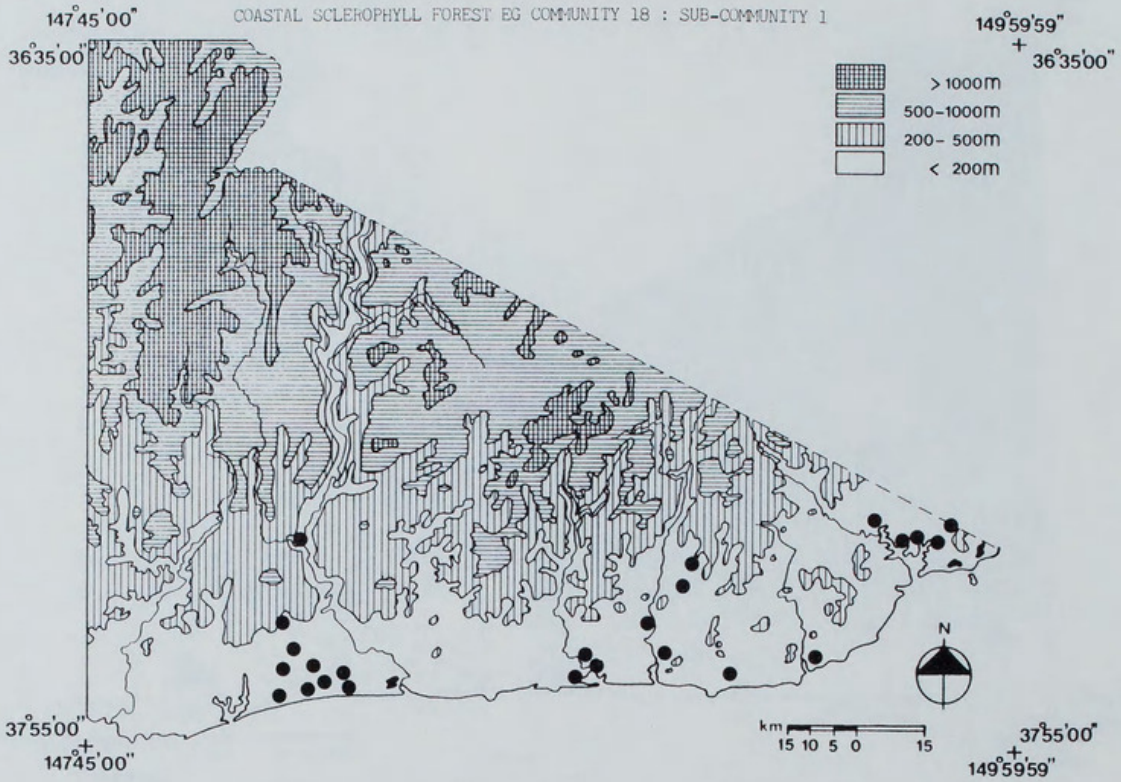
ALTITUDE: Mean = 76 m, Highest = 120 m, Lowest = 40 m.

STRUCTURE: Closed-heath

MEAN FLORISTIC RICHNESS: 56 species per site

MEAN WEED COMPOSITION: 0% of species, 0% of cover

NOTES: This sub-community, dominated by *Casuarina paludosa*, replaces the grass-tree plain vegetation in wetter areas of deep sandy soils. Sub-community 17.4 has greater floristic affinities with the surrounding open-forest than do 17.1, 17.2 or 17.3. *Banksia serrata, Gonocarpus teucrioides, Lomandra longifolia* and *Pteridium esculentum* are some of the species shared with the forest. On exposed, sea-facing slopes the height of the tallest plants of this vegetation may not exceed 0.5 m, but sheltered sites, such as dune swales, may support much taller (to 1.5 m) vegetation.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Pteridium esculentum	90	1	Microlaena stipoides	59	+	Glycine clandestina	48	1
Viola hederacea	79	+	Poa australis spp. agg.	59	1	Dianella caerulea	48	1
Lomandra longifolia	76	1	Tylophora barbata	55	1	Echinopogon ovatus	48	+
Gonocarpus teucrioides	69	1	Geranium potentilloides	52	+	Galium gaudichaudii	48	+
Eucalyptus botryoides	66	1	Dichondra repens	52	+			

NO. OF SITES: 28 (4.9% of total)

DISTRIBUTION: Common in near-coastal regions and around the lower reaches of the Snowy, Cann, Bemm and Genoa Rivers.

ENVIRONMENT: Moist, sheltered sites throughout the lowlands

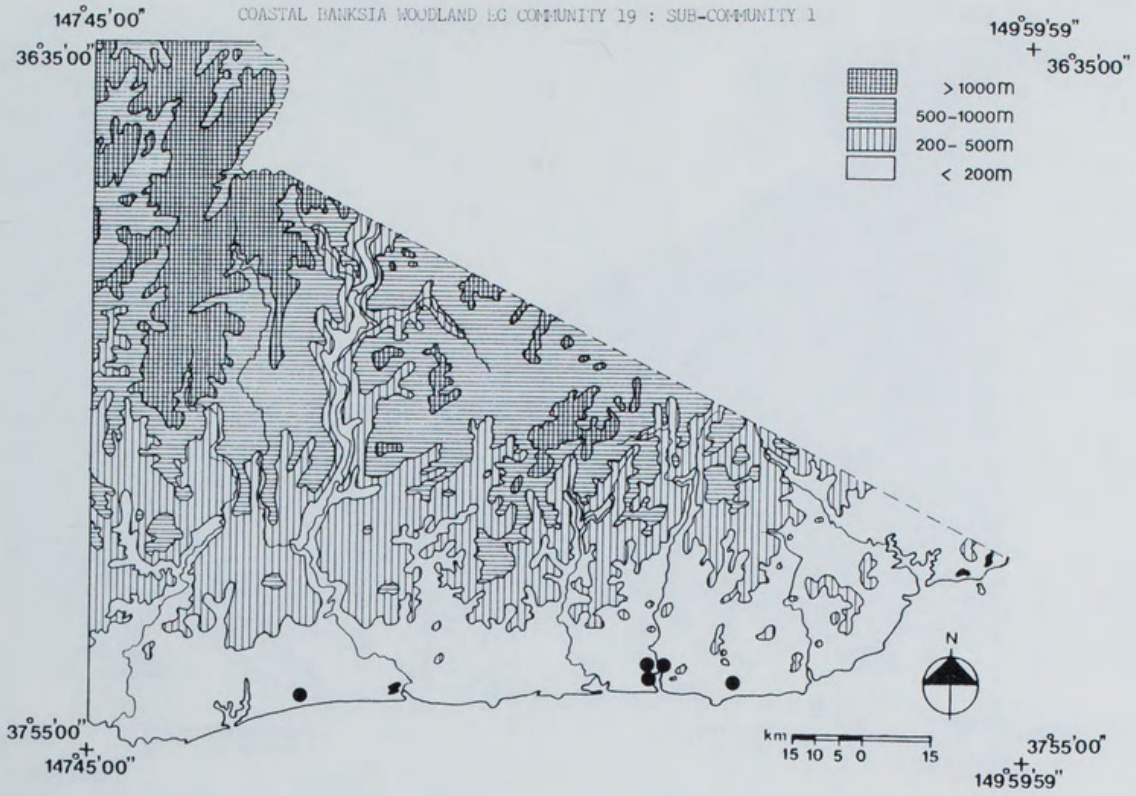
ALTITUDE: Mean = 32 m, Highest = 80 m, Lowest = 0 m.

STRUCTURE: Open-forest

MEAN FLORISTIC RICHNESS: 47 species per site

MEAN WEED COMPOSITION: 4% of species, 3% of cover

NOTES: This riparian sub-community also contains elements of heathland and coastal open-forest communities. This feature is indicative of the environment of this sub-community. Riparian lowland vegetation in Victoria has largely disappeared in the wake of agricultural pursuits. This sub-community although comprising few rare or restricted species, is therefore an example of a diminishing vegetation type within the state.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Banksia integrifolia	100	1	Eucalyptus botryoides	86	1	Lepidosperma concavum	71	1
Dianella tasmanica	100	+	Pteridium esculentum	86	1	Melaleuca ericifolia	71	1
Elaeocarpus reticulatus	100	1	Banksia serrata	71	1	Amperea xiphoclada	57	1
Lomandra longifolia	100	+	Ricinocarpos pinifolius	71	+	Goodenia ovata	57	1
Cassytha phaeolasia	86	+	Acacia longifolia	71	1	Melaleuca squarrosa	57	1
Gahnia clarkei	86	2	Epacris impressa	71	1	Tetrarrhena juncea	57	1
Monotoca elliptica	86	1	Pultenaea daphnoides	71	+	Dianella caerulea	57	+
Platylobium formosum	86	+	Gonocarpus teucrioides	71	1	Poa australis spp. agg.	57	1

NO. OF SITES: 7 (1.3% of total)

DISTRIBUTION: Recorded only between Tamboon Inlet and the mouth of the Thurra River but probably more widespread than sampling indicates.

ENVIRONMENT: Areas of drainage or inundation with a strong coastal influence but sheltered from direct ocean winds

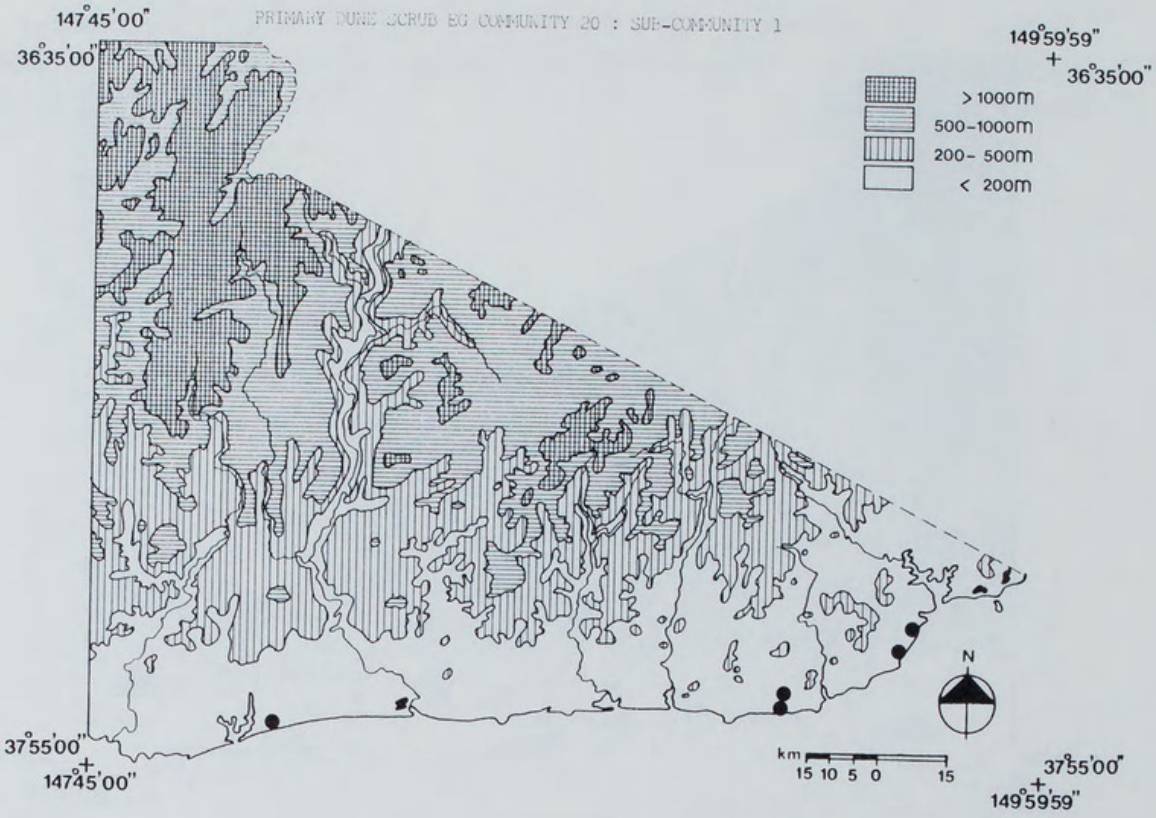
ALTITUDE: Mean = 36 m, Highest = 40 m, Lowest = 10 m.

STRUCTURE: Woodland

MEAN FLORISTIC RICHNESS: 50 species per site

MEAN WEED COMPOSITION: 4% of species, 3% of cover

NOTES: Dense thickets of *Melaleuca ericifolia*, *M. squarrosa* and *Gahnia clarkei* are a constituent of this *Banksia integrifolia - Eucalyptus botryoides* woodland. Within these thickets, species numbers are low and a large complement of the species at any site are those which occur more commonly within the surrounding vegetation.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Carpobrotus rossii	100	1	Myoporum insulare	83	1	Spinifex hirsutus	67	1
Helichrysum paralium	100	1	Senecio lautus	83	+	Acaena anserinifolia	67	1
Leptospermum laevigatum	100	1	Acacia longifolia	67	2	Correa alba	67	1
Calocephalus brownii	83	1	Olearia axillaris	67	1	Oxalis corniculata	67	+
Banksia integrifolia	83	1	Actites megalocarpus	67	+	Scirpus nodosus	67	1

NO. OF SITES: 6 (1.0% of total)

DISTRIBUTION: Along the coast throughout the study area.

ENVIRONMENT: Exposed foredunes or seacliffs with substrates, respectively, of pure calcareous sand or sedimentary rock

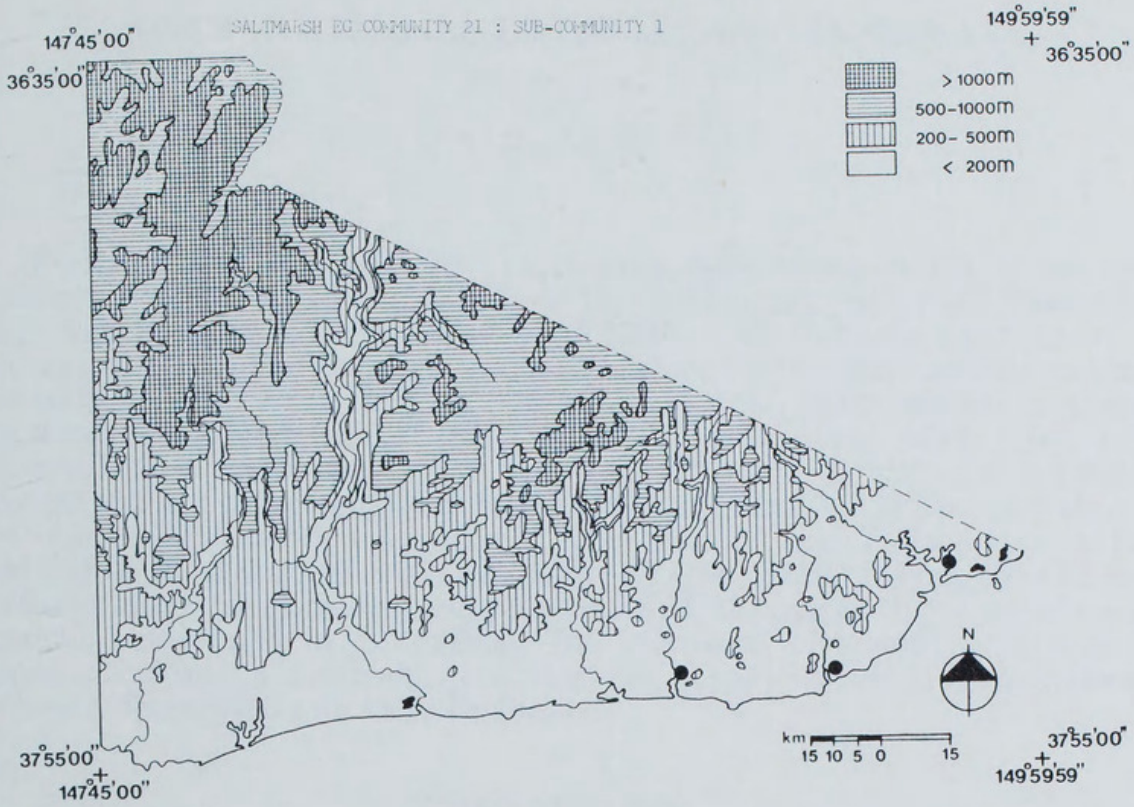
ALTITUDE: Mean = 20 m, Highest = 40 m, Lowest = 0 m.

STRUCTURE: Low-shrubland

MEAN FLORISTIC RICHNESS: 27 species per site

MEAN WEED COMPOSITION: 4% of species, 2% of cover

NOTES: This is a floristically depauperate sub-community but one which is well-adapted to the exposed, seafront environment. It is widespread along the Victorian coastline throughout which range the species composition is largely unaltered.
The rhizomatous growth habit of some, and extensive root systems of most species of sub-community 20.1 contribute to the important function of dune stabilization. The protection from strong, salt winds afforded by the foredunes is essential for the maintenance of communities further inland.



CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A	CHARACTER SPECIES	% FREQ	C/A
Juncus kraussii	100	2	Melaleuca ericifolia	67	2	Carpobrotus rossii	67	+
Samolus repens	100	1	Apium prostratum	67	1	Salicornia quinqueflora	67	2
Selliera radicans	100	+	*Aster subulatus	67	1	Suaeda australis	67	1
Baumea juncea	67	2						

NO. OF SITES: 3 (0.5% of total)

DISTRIBUTION: Restricted to the estuaries of the Benm, Cann, Mueller, Wingan and Genoa Rivers.

ENVIRONMENT: Alluvial muds or silts bordering sheltered shallow waters of variable salinity

ALTITUDE: 0 m.

STRUCTURE: Tussock-grassland and intersecting herbland

MEAN FLORISTIC RICHNESS: 18 species per site

MEAN WEED COMPOSITION: 8% of species, 4% of cover

NOTES: This sub-community, dominated by *Juncus kraussii* occupies the same zone as the saltmarsh communities (i.e. between shorefront and *Melaleuca ericifolia* shrubland) common elsewhere in Victoria. Shrubby plants (particularly *Arthrocnemum* spp.) dominate the latter communities but are absent from 21.1. However, most species characteristic of 21.1 (*Apium prostratum, Samolus repens, Selliera radicans, Salicornia quinqueflora, Suaeda australis*) are common in saltmarsh vegetation.

Forbes, Stephen Julian, Walsh, N. G., and Gullan, P K. 1982. "Vegetation of East Gippsland Victoria Australia." *Muelleria: An Australian Journal of Botany* 5(1), 53–114. https://doi.org/10.5962/p.184067.

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