THE VEGETATION OF THE GREAT NORTHERN PLAIN, NORTHEASTERN TASMANIA

by J.B. Kirkpatrick and J.M. Wells

(with two tables and four text-figures)

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The Great Northern Plain is the last major remnant of the extensive inland heaths found in northeastern Tasmania in the early nineteenth century. A polythetic divisive classification of the vegetation of the plain and its environs, based on data from 131 quadrats, indicated that variation in structure, dominance and floristics was largely continuous, and that this variation was closely related to topographic position. A transect through the plain and adjacent woodland and forest showed that the position of the watertable in the soil and soil pH were independently strongly related to floristic and structural variation in the vegetation. Herbaceous exotic plant species have invaded parts of the plain, particularly in the areas near tracks. These exotic species do not present as severe a threat to the integrity of the area as *Phytophthora cinnamomi*, which had invaded to the south but which exhibits no symptoms on the plain itself.
Key Words: heath, TWINSPAN, Great Northern Plain, Tasmania.

INTRODUCTION

The Great Northern Plain is the major surviving remnant of the extensive inland treeless plains of northeastern Tasmania noted by George Augustus Robinson in the 1830's (Plomley 1966). Most of the clearing that is responsible for the relictual status of the Great Northern Plain has occurred since 1964 (Kirkpatrick 1977), and such clearing continues. There was a need for the collection of detailed information on the ecology of these inland plains, both as an end in itself, and as an historical record, in case clearing ever becomes complete. In this paper we present the results of a quantitative vegetation survey of the Great Northern Plain.

METHODS

Field Data Collection

Ninety-two quadrats were located in a stratifiedcrandom manner in the western part of the Great Northern Plain (fig. 1). This sampling was supplemented by 35 extra quadrats on a longer transect and 4 extra quadrats on a shorter transect (fig. 1) that were located to investigate the role of topography and watertable in differentiating communities. Additional quadrats were purposely placed in a nearby small plain and in an area that had been mined (fig. 1).

All observed vascular plant species were recorded in each 10 x 10 m quadrat, and notes were

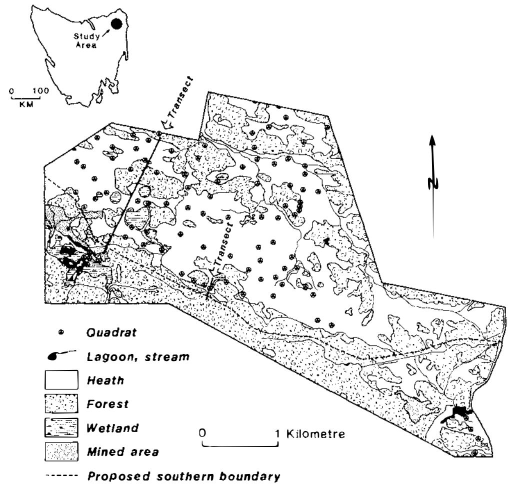

FIG. 1 — Vegetation map of Great Northern Plain study area, showing the transect locations, mined areas and the boundary recommended for listing in the Register of the National Estate.

made of dominance in each stratum, and of the structure of each stratum following the scheme of Specht (1972). Slope and slope aspect were measured using a compass/clinometer and pH was measured using a CSIRO soil-testing kit. The field texture class of the surface soil was also recorded.

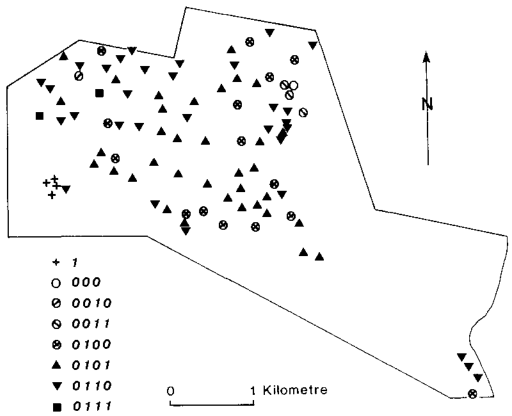

FIG. 2 — The distribution of the eight communities selected from the classificatory analysis of the Great Northern Plain data set.

In the case of the longer transect the texture and depth of all soil horizons were recorded as was the position of the watertable in mid-December 1985 after a week of heavy rain. Both transect lines were surveyed using a clinometer and tape. Watertable depths along the short transect line were recorded in August and mid-December 1985. All higher plant species observed in the study area were collected and pressed, a voucher collection being held in the Geography Department, University of Tasmania. Authorities for species nomenclature are given in the Appendix.

Numerical Analysis

The quadrat floristic data from the Great Northern Plain and adjacent vegetation were classified using the polythetic divisive computer programme TWINSPAN (Hill 1979). The eight-group level of division was used to describe the plant communities.

Data from the long transect were analysed using detrended correspondence analysis (Hill & Gauch 1980) and the relationship between the scores on the first two axes and environmental parameters was determined using Spearman's rank correlation coefficient (r).

RESULTS AND DISCUSSION

The Nature of the Plant Communities

The plant communities described below have been defined by their floristic composition rather than by structure and dominance. There is often a general coincidence between structural-dominance vegetation units and units defined by floristic composition. However, communities with heath as a dominant or subordinate stratum are usually very poorly differentiated if structure and dominance are used as the only criteria, because these attributes are highly dependent on the time elapsed since the last fire, and the past fire regime, in an environment where fire is a frequent event. In contrast, the time elapsed since the last fire has only a marginal effect on species composition, although an effect does exist (Russell & Parsons 1978).

The method used here to define the communities succeeds admirably in grouping like with like, but lacks clarity, there being few species or species combinations that can unambiguously be used to differentiate groups. This lack of clarity is largely a product of the general lack of sharp discontinuities in vegetation, the apparently sharp boundaries in the field usually being only the product of variation in abundance of one of the many species that compose the vegetation. Continuous variation means that the boundaries between plant communities can only be defined arbitrarily. Nevertheless, such arbitrary definition provides a useful framework for description, and this framework is most valuable when the internal homogeneity of groups is maximised.

As the variation between the groups is continuous and not necessarily closely related to structural variation, the vegetation map differentiates only previously mined areas, forest and woodland, heath and scrub, and wetland (fig. 1). These categories are partially transgressed by the classificatory groups (fig. 2, table 1), and are spatial generalizations of highly complex vegetation patterns (fig. 3).

The Plant Communities

The community codes denote the position of a group in the TWINSPAN classification. Thus, group 1 and all the groups starting with 0 are the result of the first division. Group 1 and 000 could not be further divided because of low numbers. All other groups are at the same level of division and thus are approximately equal in their variability.

Group 1

This community consists of four quadrats containing three distinct vegetation types, all occurring in the area affected by alluvial tin-mining (fig. 2). Three of the quadrats are dominated by herbs, grasses or graminoids, two being *Juncus-Holcus lanatus* sedgeland, and one being *Cyperus-Juncus* sedgeland. The fourth quadrat in the group

TABLE 1

Environmental characteristics, mean quadrat species richness, mean percentage of exotics in quadrats (E) and the percentage of quadrats with exotics (Ep) for the eight TWINSPAN groups from the Great Northern Plain.

Group	No. of quadrats	pH		Slope (°)		Vegetation			Species richness		E	Ep
		$\overline{X}$	σ_n	$\overline{X}$	σ_n	forest/ woodland	heath/ scrub	sedgeland	$\overline{X}$	σ_n		
1	4	6.5	0.5	0.0	0.0	—	25	75	7.7	2.6	23.2	75
000	1	*	aquatic	********	********	********	********	********	8.0	0.0	0.0	0
0010	4	4.9	0.5	0.1	0.1	—	—	100	16.7	3.9	3.2	50
0011	5	5.3	0.7	0.2	0.3	—	—	100	26.8	10.3	2.4	40
0100	15	5.2	0.6	0.4	0.7	—	27	73	33.4	8.9	3.4	47
0101	56	4.9	0.7	1.4	1.3	4	75	21	42.6	7.4	1.6	46
0110	40	4.9	0.8	1.4	1.0	40	60	—	37.7	9.9	1.9	38
0111	6	5.9	1.0	3.8	2.8	83	17	—	28.3	7.0	10.2	90

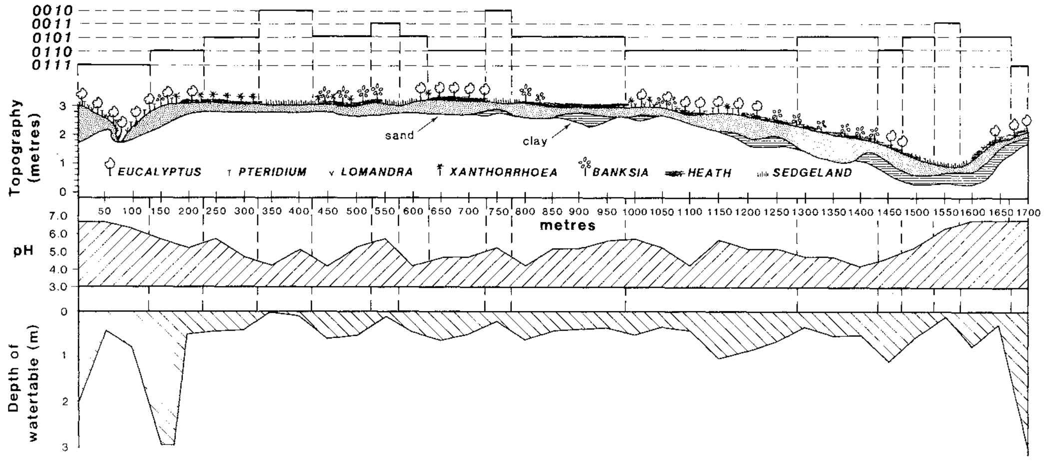

FIG. 3 — The long transect across the Great Northern Plain (fig. 1) showing structure and dominance of the vegetation, distribution of the floristic groups (selected from the classificatory analysis of the plain data set), soil characteristics, topography and watertable depth on 11 December 1985. The scale for topography is x10 the scale shown, which refers to the depth of soil horizons.

consists of *Leptospermum lanigerum* closed-scrub. Species richness is low (x = 7.75, σ_n = 2.28) and a considerable proportion of the biomass and species (x = 23.25%) are exotic, although the *Leptospermum lanigerum* closed-scrub quadrat is free of exotics. *Carex* spp., *Myosotis* spp., Juncus spp. and *Cyperus* spp. best characterize the group (table 2).

Group 000

This group consists of a single quadrat located in aquatic herbland dominated by *Triglochin procera* and *Potamogeton tricarinatus*. Six other species are recorded in the quadrat, none of which is exotic.

Group 0010

This group consists of four shallow wetland quadrats (fig. 2). The quadrats are all *Lepidosperma longitudinale* sedgeland. Half the quadrats in this group have no exotic species, the mean percentage of exotic species being only 3.25. Species richness is relatively low (x = 16.75, σ_n = 3.9). The species most characteristic of the group are *Brachycome cardiocarpa*, *Scirpus fluitans*, *Villarsia reniformis* and *Schoenus tesquorum*.

TABLE 2
The percentage frequencies of species by twinspan group.

Species that do not occur in more than three quarters of the quadrats in at least one group have been excluded. Exotic species are denoted with an asterisk.

Group	1	0010	0011	0100	0101	0110	0111
No. of quadrats	(4)	(4)	(5)	(15	(56)	(40)	(6)
Carex spp.	100	0	0	0	0	0	0
Myosotis sp.*	75	0	0	0	0	0	0
Cyperus sp.	75	0	0	0	2	0	0
Juncus spp.	75	0	60	27	0	2	33
Brachycome cardiocarpa	0	100	40	13	0	0	0
Scirpus fluitans	25	75	20	7	0	0	0
Lepidosperma longitudinale	0	100	80	93	79	62	66
Villarsia reniformis	0	75	40	27	7	0	0
Haloragis micrantha	0	75	100	87	89	32	0
Selaginella uliginosa	0	75	80	93	95	62	0
Schoenus tesquorum	0	75	40	13	2	0	0
Leptocarpus tenax	0	75	60	87	93	67	0
Melaleuca gibbosa	0	75	40	66	16	5	0
Drosera pygmaea	0	0	100	60	73	37	0
Calorophus lateriflorus	0	25	80	40	39	5	0
Schoenus apogon	0	25	80	87	48	25	33
Centella cordifolia	0	50	80	47	7	0	0
Boronia parviflora	0	0	0	80	68	10	0
Restio complanatus	0	0	20	73	84	40	0
Poa sp.	0	50	60	73	52	25	0
Schoenus tenuissimus	0	0	0	73	75	60	0
Haloragis tetragyna	0	25	0	13	100	90	17
Burchardia umbellata	0	0	0	47	95	82	17
Patersonia fragilis	0	0	0	60	95	52	17
Banksia marginata	0	0	40	66	95	87	83
Epacris lanuginosa	0	0	20	47	93	30	0
Lindsaya linearis	0	0	0	20	89	37	17
Tetrarrhena distichophylla	0	0	0	13	89	45	33
Leptospermum scoparium	0	0	0	60	84	85	17
Xanthorrhoea australis	0	0	0	0	77	80	33
Dillwynia glaberrima	0	0	0	0	75	70	0
Goodenia lanata	0	0	20	13	73	56	50
Lepidosperma filiforme	0	0	0	33	73	40	0
Lomandra longifolia	0	0	0	66	71	82	50
Epacris impressa	0	0	0	27	45	95	33
Eucalyptus amygdalina	0	0	0	0	21	90	83
Hypolaena fastigiata	0	0	0	7	45	75	17
Pteridium esculentum	0	0	0	7	0	52	100
Centaurium spp.*	0	0	0	20	4	15	83

Group 0011

This group also consists of shallow wetland quadrats, the quadrats in the group occurring in less frequently inundated areas than those in group 0010 (fig. 2). Four quadrats are *Lepidosperma longitudinale* sedgeland, one of these with sparse emergent *Melaleuca gibbosa* and *Leptospermum lanigerum*, and one quadrat is marginal herbland with no clear dominant. Three of the five quadrats have no exotic species, and the mean percentage of exotics is 2.42. Species richness is higher than that of group 0010 ($x = 26.8$, $\sigma_n = 10.3$). The species most characteristic of the group are *Drosera pygmaea*, *Empodisma minus* and *Centella cordifolia*.

Group 0100

This group largely consists of sedgeland (table 1). Dominance of the sedgeland is variably shared between *Lepidosperma longitudinale*, *Leptocarpus tenax* and *Lomandra longifolia* in six quadrats. *Lepidosperma longitudinale*, *Gahnia grandis* and *Gymnoschoenus sphaerocephalus* are singly dominant in two, two and one quadrats respectively. Three quadrats are open-heath, two dominated by *Melaleuca gibbosa* and *Casuarina*, and one dominated by *Leptospermum scoparium*. Closed-scrub dominated by *Melaleuca squarrosa*, with an understorey dominated by *Leptospermum longitudinale*, occupies one quadrat. The mean percentage of exotic species per quadrat is 3.4, the highest figure for the communities largely restricted to the plain (table 1). The mean species richness per quadrat is 33.4 (σ_n = 8.9). The group is best characterized by *Schoenus apogon*, *Boronia parviflora* and *Poa* spp. (table 2).

Group 0101

This group contains 56 quadrats, most of which are heath. Most of the quadrats have an emergent sparse to very sparse layer of tall shrubs to small trees, these almost totally consisting of *Banksia marginata*, *Eucalyptus amygdalina* and *E. ovata* in order of frequency. In order of frequency, the heath stratum is variably dominated or co-dominated by *Casuarina monilifera*, *Leptospermum scoparium*, *Banksia marginata*, *Xanthorrhoea australis* and *Sprengelia incarnata*. Other species that are commonly dominant or codominant in the taller strata are *Lomandra longifolia*, *Leptocarpus tenax*, *Lepidosperma longitudinale* and *Gymnoschoenus sphaerocephalus*, again in order of frequency. The mean percentage of exotic species per quadrat is the lowest for any of the terrestrial communities (x = 1.6). Species richness is the highest of any community (x = 42.6, σ_n = 7.4). The species that best discriminate this group are *Epacris lanuginosa*, *Lindsaya linearis* and *Tetrarrhena distichophylla*.

Group 0110

The quadrats in this group are almost equally divided between vegetation dominated by trees, and heath (table 1). The major dominants and codominants in the taller strata, in order of frequency, are *Eucalyptus amygdalina*, *Banksia marginata*, *Xanthorrhoea australis*, *Lomandra longifolia*, *Casuarina monilifera*, *Leptospermum scoparium*, *Gahnia grandis*, *Leptocarpus tenax*, *Pteridium esculentum*, *Epacris impressa* and *Dillwynia* spp. The mean quadrat species richness is 37.7 (σ_n = 9.9), with an average of 1.9% of the species in each quadrat being of exotic origin. Sixty-two percent of the quadrats contain no exotic species. The group is best characterized by *Epacris impressa*, *Eucalyptus amygdalina* and *Hypolaena fastigiata*.

Group 0111

This group of six forest and woodland quadrats consists of vegetation dominated by *Eucalyptus amygdalina* or *E. pauciflora*. The quadrats in the group are heavily invaded by exotic species, the mean percentage per quadrat being 10.2. Species richness is much lower than that found for the heath groups, the mean per quadrat being 28.3 (σ_n = 7.0).

Community Relationships

The communities characterized above form a continuum from sedgeland through heath to open-forest (table 1, fig. 3). This structural continuum parallels the floristic continuum. The vegetation dominated by trees falls almost totally within the sedgey *Eucalyptus amygdalina-E. pauciflora-E. ovata* woodland class of Duncan & Brown (1985). The Great Northern Plain also includes some small areas of grassy *E. ovata* woodland in which the ground stratum is dominated by *Themeda australis*. The heath contains five of the communities defined by Kirkpatrick (1977): *Sprengelia incarnata-Gymnoschoenus sphaerocephalus-Xyris* heath; *Boronia parviflora-Banksia marginata-Leptocarpus tenax* heath; *Gompholobium huegelii-Epacris lanuginosa* heath; *Bossiaea prostrata-Melaleuca gibbosa* heath; *Melaleuca squarrosa-Poa gunnii-Agrostis* heath. The wetland plant communities are widespread in the State, especially *Triglochin procera* aquatic sedgeland and *Lepidosperma longitudinale* sedgeland (Kirkpatrick & Harwood 1983). The arbitrary nature of classification within a continuum means that there is no necessary coincidence between groups defined in this study and those defined in others.

Environmental Relationships

The detrended correspondence analysis (DCA) of the floristic data from the long transect gave an eigenvalue for the first axis of 0.494, with the second axis scoring 0.292. The first axis proved to be strongly correlated with the depth of the watertable on 11 December 1985 ($r = 0.71$, $P < 0.001$) and less strongly correlated with slope ($r = 0.47$, $P < 0.01$). Table 2 also shows a general relationship between slope and plant communities, with the forest being on the steepest slopes and the sedgeland on the gentlest. Slope in itself is ecologically meaningless, being, in this case, a partial surrogate of soil hydrological characteristics. It should also be noted that the depth of the watertable on one day cannot be expected to give a highly accurate measure of the ecologically relevant hydrological properties of the ecosystem, as the duration of water-logged conditions at various depths, and probabilities of moisture deficits occurring, are not necessarily closely related to any single measurement. For example, the precipitation that occurred immediately previously to the measurements would not have been fully distributed through the system on 11 December, and the soils would not have been at their maximum degree of watertable depth differentiation. Some data are available on the latter point. Watertable depths from the short transect at the end of winter 1985 were 0.43, 0.20, 0.13 and 0.25 m compared respectively with the December 11 measurements of 0.43, 0.33, 0.32 and 0.27 m.

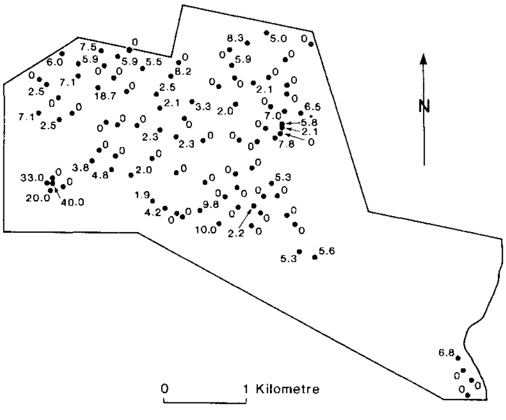

FIG. 4 — The percentage of species of exotic origin by quadrat.

The second axis of the DCA of the long transect data is most closely related to pH ($r = 0.80$, $P < 0.001$), which in turn seems at least partially related to the presence of clay in the subsoil (fig. 3), and which is the best single surrogate for the complex of soil chemical conditions that constitutes fertility. The heath soils have generally lower pH values than either the wetland or woodland soils (table 1, fig. 3).

The structure and floristic composition of the vegetation of the plain suggests that much of the area could become Banksia or eucalypt woodland in the absence of firing. The frequency of firing has probably interacted with slow growth rates related to nutrient-poor and occasionally water-logged soils, such that tree species cannot achieve their height potential, being set back to ground level with each blaze. Tree seedling establishment after fire in the plain would be rendered difficult by competition from the rapidly resprouting heath and sedge species, which form a mat of rhizomes and other roots at the soil surface. This mat would provide strong competition for moisture during dry periods. During wet periods the destruction of the above-ground biomass by fire would eliminate transpiration losses, and thus increase the probabilities of seedlings being killed by water-logging. The fresh growth that follows firing attracts grazing animals that also present a hazard to small eucalypt seedlings. Nevertheless, the presence of fertile eucalypts, albeit as shrubs, throughout much of the heath indicates that establishment has occurred in the past, perhaps during a sequence of particularly favourable years. The relatively recent use of the plain by animals introduced from overseas, particularly by cattle, may reduce or preclude such regeneration in the future.

Management Problems

After land clearance and alluvial tin-mining, the major threat to the natural integrity of the vegetation of the Great Northern Plain is the invasion of exotic plant species, particularly the root rot fungus *Phytophthora cinnamomi*. Several herbaceous exotic higher plants, such as *Aira caryophyllea*, *Briza minor*, *Centaurium* spp., *Hypochaeris glabra* and *Leontodon leysseri*, have established themselves in parts of the plain, particularly in the vicinity of track access, and on the more fertile soils adjacent to cleared land (fig. 4). However, this opportunistic species assemblage is probably incapable of displacing the native vegetation without an enormous increase in soil fertility.

Although *Phytophthora cinnamomi* has become established along the access track to the Great Northern Plain in *Eucalyptus amygdalina* forest (C. Palzer, pers. comm.), there is no evidence of its presence on the plain itself. In fact, the almost ubiquitous abundance of epacrids, *Banksia* and *Xanthorrhoea* in the heath indicates its absence, or, at least, its very recent invasion. However, with infestations nearby there is a strong likelihood that the heath vegetation of the plain could be substantially modified by pathogen attack within the next century, the natural spread of the organism in the soil being a few metres per year across and upslope, but potentially much faster downslope.

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APPENDIX

Native species observed in the Great Northern Plain study area.

Nomenclature generally follows Curtis (1963), Curtis (1967), Willis (1970) and Curtis & Morris (1975).

PTERIDOPHYTA

Adiantaceae
Adiantum aethiopicum L.

Dennstaedtiaceae
Pteridium esculentum (Forst.f.) Nakai

Gleicheniaceae
Gleichenia dicarpa R. Br.
G. microphylla R. Br.

Lindsayaceae
Lindsaya linearis Swartz

Selaginellaceae
Selaginella uliginosa (Labill.) Spring

Schizaeaceae
Schizaea bifida Willd.
S. fistulosa Labill.

MONOCOTYLEDONEAE

Centrolepidaceae
Centrolepis aristata (R. Br.) Roem. & Shult.
C. fascicularis Labill.
C. strigosa (R. Br.) Roem. & Shult.

Cyperaceae
Baumea acuta (Labill.) Palla
B. arthrophylla (Nees) Boeck
B. tetragona (Labill.) S.T.Blake
Chorizandra cymbarica R. Br.
Cyperus sp.
Eleocharis sphacelata R. Br.
Gahnia grandis (Labill.) S.T.Blake
Gymnoschoenus sphaerocephalus (R. Br.) Hook. f.
Lepidosperma concavum R. Br.
L. filiforme Labill.
L. laterale R. Br.
L. longitudinale Labill.
Schoenus apogon Roem. & Schult.
S. maschalinus Roem. & Schult.
S. tenuissimus Benth.
Scirpus fluitans Hook. f.
S. inundatus (R. Br.) Poir.
S. sp.

Hypoxidaceae
Hypoxis hygrometrica Labill.

Iridaceae
Diplarrena moraea Labill.
Patersonia fragilis (Labill.) Druce
P. longiscapa Sweet

Juncaceae
Juncus sp.
J. bufonius L.
J. pallidus R. Br.
Luzula sp.

Juncaginaceae
Triglochin procera R. Br.
T. striata Ruiz. & Pav.

Liliaceae
Anguillaria dioica R. Br.
Arthropodium milleflorum (DC.) Macbride
Burchardia umbellata R. Br.
Caesia parviflora R. Br.
Chamaescilla corymbosa (R. Br.) F.Muell. ex Bent
Dianella revoluta R. Br.
Dichopogon strictus (R. Br.) J.G. Baker
Laxmannia sessiliflora Decaisne
Lomandra longifolia Labill.
Stypandra caespitosa R. Br.
Tricoryne elatior R. Br.
Xanthorrhoea australis R. Br.

Orchidaceae
Acianthus sp.
Caladenia catenata (Sm.) Druce
C. dilata R. Br.
Cryptostylis subulata (Labill.) Reichenb. f.
Diuris sulphurea R. Br.
Gastrodia sesamoides R. Br.
Microtis atrata Lindl.
M. biloba W.H. Nicholls
M. orbicularis R.S. Rogers
M. unifolia (Forst. f.) Reichenb. f.
Prasophyllum gracile R.S. Rogers
P. rogersii H.M.R. Rupp
P. uroglossum H.M.R. Rupp
Pterostylis barbata Lindl.
P. nana R. Br.
Thelymitra media R. Br.

Poaceae
Agrostis avenacea J.F. Gmel.
A. venusta Trin.
Amphibromus recurvatus J.R. Swallen
Danthonia caespitosa Gaudich
D. laevis J.W. Vickery
D. pilosa R. Br.
D. semiannularis (Labill.) R. Br.
D. setacea R. Br.
Deschampsia caespitosa (L.) Pal. Beauv.

Deyeuxia quadriseta (Labill.) Benth.
Dichelachne crinata (L. f.) Hook. f.
D. rara (R. Br.) Vickery
Microlaena stipoides (Labill.) R. Br.
Pentapogon quadrifidus (Labill.) Baill.
Poa L.
Stipa mollis R. Br.
S. pubinodis Trin. et Rupr.
. *semibarbata* R. Br.
Tetrarrhena acuminata R. Br.
T. distichophylla (Labill.) R. Br.
Themeda australis (R. Br.) Stapf.

Potamogetonaceae
Potamogeton tricarinatus F. Muell. et A. Bennet

Restionaceae
Calorophus lateriflorus (R. Br.) F. Muell.
Hypolaena fastigiata R. Br.
Leptocarpus tenax (Labill.) R. Br.
Restio australis R. Br.
R. complanatus R. Br.

Xyridaceae
Xyris gracilis R. Br.
X. marginata Rendle Endemic
X. operculata Labill.

DICOTYLEDONEAE

Apiaceae
Centella cordifolia (Hook. f.) Nannf.
Hydrocotyle capillaris F. Muell.
H. javanica Thunb.
H. muscosa R. Br.
H. sibthorpioides Lamk.
Xanthosia dissecta Hook. f.
X. pilosa Rudge
X. pusilla Bunge
X. tridentata DC.

Asteraceae
Brachycome cardiocarpa F. Muell. ex Benth.
Cotula reptans Benth.
Craspedia glauca (Labill.) Spreng.
Gnaphalium japonicum Thunb.
Helichrysum bicolor Lindl.
H. dealbatum Labill.
H. scorpioides Labill.
Lagenophora stipitata (Labill.) Druce
Leptorhynchos squamatus (Labill.) Less.
Microseris scapigera (Sol. ex A. Cunn.) Schult. Bip.
Senecio hispidulus A. Rich

Baueraceae
Bauera rubioides Andr.

Campanulaceae
Wahlenbergia consimilis N. Lothian
W. gracilenta N. Lothian
W. gymnoclada N. Lothian
W. quadrifida (R. Br.) A. DC.
W. tadgellii N. Lothian

Casuarinaceae
Casuarina littoralis Salisb.
C. monilifera L. Johnson
C. paludosa Sieb. ex Spreng.
C. stricta Ait.

Dilleniaceae
Hibbertia acicularis (Labill.) F. Muell.
H. empetrifolia (DC.) Hoogl.
H. procumbens (Labill.) DC.
H. riparia (R. Br. ex DC.) Hoogl.

Droseraceae
Drosera auriculata Backh. ex Planch.
D. binata Labill.
D. gracilis Hook. f. ex Planch.
D. peltata Sm. ex Willd.
D. planchonii Hook. f.
D. pygmaea DC.

Epacridaceae
Acrotriche serrulata (Labill.) R. Br.
Astroloma humifusum (Cav.) R. Br.
A. pinifolium (R. Br.) Benth.
Brachyloma ciliatum (R. Br.) Benth.
Epacris impressa Labill.
E. lanuginosa Labill.
E. obtusifolia Sm.
Leucopogon collinus (Labill.) R. Br.
L. ericoides (Sm.) R. Br.
L. virgatus (Labill.) R. Br.
Lissanthe strigosa (Sm.) R. Br.
Sprengelia incarnata Sm.
Styphelia adscendens R. Br.

Euphorbiaceae
Amperea xiphoclada (Sieb. ex Spreng.) Druce
Poranthera microphylla Brogn.

Fabaceae
Bossiaea cinerea R. Br. ex Ait. f.
B. prostrata R. Br.
Dillwynia glaberrima Sm.
D. sericea A. Cunn.
Kennedia prostrata R. Br. ex Ait. f.
Gompholobium huegelii Benth.
Hovea heterophylla A. Cunn. ex Hook. f.
Platylobium formosum Sm.
P. obtusangulum Hook.
P. triangulare R. Br. ex Ait. f.

Pultenaea dentata Labill.
P. juniperina Labill.
Sphaerolobium vimineum Sm.

Gentianaceae
Villarsia reniformis R. Br.

Goodeniaceae *Dampiera stricta* (Sm.) R. Br.
Goodenia humilis R. Br.
G. lanata R. Br.
Scaevola hookeri (de Vriese) Hook. f.
Selliera radicans Cav.

Haloragaceae
Haloragis micrantha (Thunb.) R. Br. ex Sieb. & Zucc.
H. tetragyna (Labill.) Hook. f.
H. teucrioides (DC.) Schlechtendal
Myriophyllum pedunculatum Hook. f.
M. propinquum A. Cunn.

Hypericaceae
Hypericum gramineum Forst. f.
H. japonicum Thunb.

Lauraceae
Cassytha glabella R. Br.

Lentibulariaceae
Utricularia dichotoma Labill.
U. lateriflora R. Br.

Lobeliaceae
Lobelia alata Labill.
Pratia pedunculata R. Br.

Loganiaceae
Mitrasacme paradoxa R. Br.
M. pilosa Labill.
M. serpyllifolia R. Br.

Mimosaceae
Acacia genistifolia Link.
A. melanoxylon R. Br.
A. mucronata Willd. ex H. Wendl.
A. myrtifolia (Sm.) Willd.
A. sophorae (Labill.) R. Br. ex Ait.
A. ulicifolia (Salisb.) Court
A. verticillata (L'Herit.)

Myrtaceae
Baeckea ramosissima A. Cunn.
Eucalyptus amygdalina Labill. Endemic
E. ovata Labill.
E. pauciflora Sieb. ex Spreng.
Kunzea ambigua (Sm.) Druce
Leptospermum glaucescens S. SchauerEndemic
L. lanigerum (Ait.) Sm.
L. scoparium J.R. & G. Forst.
Melaleuca ericifolia Sm.
M. gibbosa Labill.
M. squamea Labill.
M. squarrosa Donn ex Sm.

Oxalidaceae
Oxalis corniculata L.

Pittosporaceae
Marianthus procumbens (Hook.) Benth.

Plantaginaceae
Plantago debilis R. Br.
P. varia R. Br.

Polygalaceae
Comesperma calymega Labill.
C. volubile Labill.

Proteaceae
Banksia marginata Cav.
Hakea teretifolia (Salisb.) J. Britt.
Lomatia tinctoria R. Br. Endemic
Persoonia juniperina Labill.

Rhamnaceae
Pomaderris apetala Labill.
P. elliptica Labill. Endemic

Rosaceae
Acaena echinata Nees
A. novae-zelandiae Kirk

Rubiaceae
Asperula gunnii Hook. f.
Opercularia varia Hook. f.

Rutaceae
Boronia nana Hook.
B. parviflora Sm.
B. pilosa Labill.

Santalaceae
Exocarpos cupressiformis Labill.
Leptomeria drupacea (Labill.) Druce

Scrophulariaceae
Gratiola latifolia R. Br.
G. nana Benth.

Stylidiaceae
Stylidium perpusillum Hook. f.
S. graminifolium Swartz

Thymelaeaceae
Pimelea humilis R. Br.
P. linifolia Sm.

Violaceae
Viola betonicifolia Sm.
V. hederacea Labill.
V. sieberana Spreng.