

**THE VEGETATION OF THE NORTHERN
SLOPES OF THE GOG RANGE**

Phil Barker, Consultant
C/o Dept of Geography and Environmental Studies
University of Tasmania

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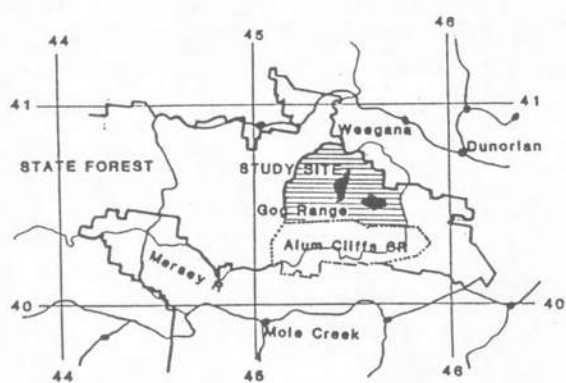
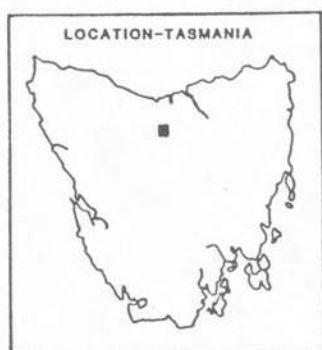
TECHNICAL REPORT 1992/3

**QUEEN VICTORIA MUSEUM AND ART GALLERY
LAUNCESTON**

**A Vegetation Survey of the Northern Slopes
of the Gog Range, Tasmania.**

March 1992.

**Consultant. Phil Barker
c/o Department of Geography and Environmental Studies
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The regional location of the study area.

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Summary and Recommendations

A total of 241 species were positively identified in the present survey. This comprises 155 dicotyledons, 49 monocotyledons and 37 ferns and fern allies. The most common species are *Eucalyptus amygdalina* and *Eucalyptus obliqua* as dominants; *Acacia melanoxylon*, *A. mucronata*, *Exocarpos cupressiformis*, *Monotoca glauca* as subdominants, and *Pultenaea juniperina*, *P. gunnii*, *Daviesia latifolia* and *Lomatia tinctoria* in the shrub layer. *Gonocarpus* spp., *Tetratheca pilosa*, *Viola hederacea*, *Goodenia lanata*, *Lagenophora stipitata*, *Geranium potentilloides*, *Hydrocotyle sibthorpioides* and *Poa rodwayi* are also very widespread. *Pteridium esculentum* occurs in every community. The suite of common species shared between communities makes community differentiation unclear in some areas and so only major units have been mapped.

The most apparent controls over the vegetation are the geological sequence from south to north and the narrow catchments separated by narrower ridges in the north of the study area. These features are reflected in the vegetation in the form of east-west belts associated with the geology and north-south belts associated with ridges in the northern part of the study area. Obviously this is most conspicuous in the gully communities.

Narrow belts of shrubby sclerophyll forest exist on the ridges above non-sclerophyll riparian vegetation which supports a diverse fern flora. Up to 19 species of ferns were recorded in a single 400 m² quadrat (240). The most diverse fern floras are associated with the most diverse tree floras, and probably reflect the variety of microsites associated with these dominant species.

Blechnum patersonii, a rare ground fern, occupies a restricted area of habitat along the Eel Hole Creek and adjacent to logging coupe 1. This habitat is vulnerable to siltation from upslope and bank disturbance by increased stream flow. It is, therefore, essential to prevent excessive overland flow or increases in the stream flood peak. If the area were to be logged, stream-side reserves would need to be at least 40m wide on each side to adequately protect the fern flora within these belts from desiccation and the erosion products carried by overland flow. This has been already been suggested by Williams (1987).

Nothing is known of the ecology of any of the other rare species in the study area, and as such, specific management initiatives are difficult to recommend. It would, however, be prudent to avoid disturbance of the immediate areas containing those rare or unreserved species that were recorded only from a restricted area during the present study. The sites are marked on figures 4 and 6. The species include *Desmodium varians* var. *gunnii*, *Phyllota diffusa*, *Goodia pubescens*, *Blechnum patersonii*, *Ajuga australis*, *Poa* sp *nova* and *Uncinia elegans*. The remaining two rare species, *Pimelea curviflora* var. *gracilis* and *Poa tenera* are relatively wide spread in the study area.

Almost the entire sclerophyll forest area of the study area has been degraded by woodcutting and associated vehicle tracks. The disturbance generated by this practice facilitates opportunities for weed invasion. Opening of the forest canopy changes the environment of the forest floor by increasing insolation. More rapid drying of the ground and accumulated leaves and twigs than would otherwise be expected coupled with increasing use by humans with their chainsaws and vehicles poses an increased threat of fire. The ban on woodcutting should therefore be imposed more rigorously. A single gate may be appropriate.

Introduction and Aims

The Gog Range is situated in the central north of Tasmania (146° 28', E 41° 34' N) (figure 1). The range has an east to west alignment and is flanked by the Mersey River from the south-west through the south to the north-east quarter.

Part of the southern water-shed of the range is included in the Alum Cliffs State Recreation Area. The northern water-shed is State Forest. An extensive area in the north-west foothills has been converted to *Pinus radiata* plantation. It is proposed to clear-fall and regenerate much of the remaining forest.

The aim of this survey is to intensively sample two proposed logging coupes on the northern foothills (figure 3) and to extensively survey an additional area of approximately 18 km² which represents the remainder of the northern slopes of the Gog Range.

This report covers the area of the remaining native forest on the northern slopes of the Gog Range. It records all species collected and describes the communities in which they exist. The conservation status of species and communities are determined and discussed. Communities are mapped at the maximum resolution possible from 1:20,000 aerial photography and ground verification based on quadrat data.

Climate

The climate is described as perhumid cool (Gentilli 1972). Snowfalls are common on the range in winter but snow does not usually lie on the ground for more than a few days. Winter also produces frequent frosts in the foothills and a moderate rainfall maximum. Temperatures above 30° C are only very occasional each summer.

Geology (Figure 2). (Reference. Jennings (1979))

The Gog Range is composed of Ordovician Roland conglomerate. This quartz conglomerate and is up to 300m thick. Immediately below the cliff faces of Mount Gog a quartzite and conglomerate talus extends along the length of the range. In steeper areas the talus is unstable and its influence extends down-slope considerably, affecting soil properties on other rock types. In the west of the study site, the conglomerate and the talus is succeeded by purple minnow keratophyre; this is the only exposure in the region.

On the lower slopes of the Gog Range the Gog Range Greywacke is extensive and covers the greater area of the study site. The Gog Range Greywacke represents a period of deposition with low level volcanic activity. This sequence is at least 600m thick. In most areas the formation contains volcanic members. These rocks are usually acid and related to the keratophyre.

The Minnow Keratophyre overlays the Greywacke and is itself overlain by the conglomerate. The formation consists of soda-rhyolite, keratophyre and tuff.

A small area along the Mersey River in the east of the study site is Recent alluvium. These deposits are dominated by boulders and cobbles in a clayey or sandy matrix.

Methods

The survey was designed to sample the study area using stream water catchments as the basis for the sampling strategy. This sampling strategy is superior to random stratified or regular grid-based strategies because the systems approach is able to conform to, and sample, variability in the landscape more readily.

The study area was divided into eleven catchments which included first, second and third order streams. The catchments vary in area from about 1 km² to 2.5 km² (Figure 3).

Ridgelines, midslopes and gullies were all sampled, and different aspects were sampled at similar altitudes or slope positions. Quadrats of 400 m² were used as the basic survey unit. All trees and shrubs within this area were recorded. Herbs, graminoids and grasses were sampled at 3 randomly located subplots each measuring about 4 m². Species noted outside of the sampling quadrats were included in the community list as present, otherwise abundance measures and status were attributed as:

1. Dominant in the stratum in which the plant occurs - tallest and most abundant.
2. Common - regular to abundant but not the dominant species.
3. Sparse - more than one but relatively few individuals present.
4. Isolated - only one recorded in the quadrat.

Community classification of the quadrat data was achieved by comparison of species lists to existing Tasmanian classifications.

Species nomenclature follows Buchanan *et al.* 1989.

The Communities (See Table 2. Communities by quadrats)

Dry sclerophyll forest

A. Grassy *Eucalyptus amygdalina* forest

This forest type is restricted to the far north-east of the study area and was sampled in only two quadrats, 434 and 442. The forest is dominated by *E. amygdalina* with sparse *Acacia melanoxylon* and *Exocarpos cupressiformis* as subdominants. Small shrub species typically less than 30cm tall include *Acrotriche serrulata*, *Pultenaea gunnii* var. *baeckioides*, *Hovea heterophylla*, *Epacris impressa* and *Bossiaea prostrata*. *Lomandra longifolia* dominates above this level. The straggling peas, *Glycine clandestina* and the vulnerable *Desmodium varians* var. *gunnii*, can be found amongst the ground layer. Grasses are common throughout and include *Poa rodwayi*, *Danthonia pilosa*, *D. penicillata*, *Dichelachne rara*, *Deyeuxia monticola*, *Echinopogon ovatus*, *Ehrharta stipoides*, *Poa labillardieri* and *Themeda triandra*.

B. Shrubby *Eucalyptus amygdalina* forest

This occupies the north facing ridgelines and associated north-western slopes to about midslope level on soils derived from greywacke in the north of the study area (figure 5). This community is dominated by *E. amygdalina* sometimes with *E. obliqua* or *E. viminalis* co-dominant at 15 to 25 m and is **poorly reserved**. A subdominant stratum is present in some quadrats, but not all. It is composed of *Banksia marginata*, *Exocarpos cupressiformis* or *Acacia dealbata* may occur. *Lomandra longifolia* is common and dominates the low shrub level. Shrubs at the same level are sparse and most often include *Lomatia tinctoria*, *Pultenaea juniperina*, *P. gunnii* and *Epacris impressa*. The ground layer is peculiar in its diversity of prostrate or low cushion-like shrubs. These are typically represented by abundant *Acrotriche serrulata* and *Hibbertia serpyllifolia* but also common are *Hovea heterophylla*, *Bossiaea prostrata*, *B. cordigera* and *Astroloma humifusum*. The litter load can be subjectively estimated as low with bare ground and fragmented Greywacke occupying 5-10% of the surface. The position of this habitat in the landscape ensures that it receives perhaps the highest radiation while also having the most restricted catchments of any community. Consequently it is likely to be the driest community in the study area.

C. *Allocasuarina littoralis* woodland

This community occurs on dry western slopes in the north of the study area. It normally occupies the midslope position below the shrubby *Eucalyptus amygdalina* forest and sparse *E. amygdalina* and *E. obliqua* may occur throughout. *Exocarpos cupressiformis* is also important and in some cases co-dominant. *Banksia marginata* and *Notelaea ligustrina* are also conspicuous and common. *Bursaria spinosa*, *Acacia melanoxylon* and *Pomaderris apetala* appear to be adventive from gully communities below and are sparsely scattered. The understorey is often sparse and heathy being composed of small shrubs such as *Lomatia tinctoria*, *Persoonia juniperina*, *Pultenaea juniperina*, *P. gunnii* var. *baeckioides*, *Hibbertia serpyllifolia* and *Epacris impressa*. *Tetradlea pilosa*, *Oxalis corniculata*, *Goodenia lanata*, *Poranthera microphylla* and *Billardiera scandens* appear regularly but are all sparse as are *Lomandra longifolia*, *Dianella revoluta* and *Lepidosperma laterale*. The native grasses *Poa rodwayi*, *Danthonia pilosa* and *D. penicillata* are frequent but similarly do not produce more than a sparse cover.

D. Shrubby *Eucalyptus obliqua* open forest (Type 1.)

Eucalyptus amygdalina shares dominance with *E. obliqua* but is not present in the same density. *Acacia mucronata* is a common subdominant and *A. dealbata* and or *A. verticillata* may also be present. *Bedfordia salicina* and *Olearia lirata* are sparsely scattered through the community. The shrub layer is quite depauperate even in areas where *Pteridium esculentum* does not dominate and is usually represented by abundant *Pultenaea juniperina*, with *P. gunnii* var. *baeckioides*, *Billardiera scandens*, *Lomatia tinctoria* and *Epacris impressa*. The ground cover is sparse but quite diverse and includes *Drymophila*

cyanocarpa, *Gonocarpus tetragynus*, *Goodenia lanata*, *Viola hederacea*, *Geranium potentilloides*, *Oxalis corniculata*, *Hydrocotyle sibthorpioides* and *Lagenifera stipitata*. Grasses and graminoids are rare. In broad depressions between ridges the ground fern *Calcuta dubia* is often abundant in place of *Pteridium esculentum* and dominating the stratum.

The community grades into *Eucalyptus obliqua* / *Eucalyptus amygdalina*-*Monotoca glauca* open forest on the siliceous fan below the conglomerate talus. This *E. obliqua* shrubby forest is clearly transitional toward wetter forest types. This community occupies an extensive area in the study area and is characterised by *E. amygdalina* and *E. obliqua* as co-dominants. *E. amygdalina* sometimes assumes single species dominance on low ridges. The area faces north on slopes of 3 - 7 degrees. The most conspicuous floristic feature of this forest is the subdominance of *Monotoca glauca* as a small tree up to 5m tall. *Acacia mucronata*, *Leptospermum scoparium*, *Banksia marginata* and *Exocarpos cupressiformis* are occasional but may form a mid-dense canopy with *M. glauca* and *Oxylobium arborescens*, and *Acacia verticillata* replacing *A. mucronata* in the heads of bowls between low ridges and along creeklines. *Pteridium esculentum* is often abundant across extensive areas. It is suggested that abundant *Pteridium* indicates regular burning (Duncan and Brown 1985) but this view may be somewhat dogmatic as areas of free drainage may also indicate *Pteridium*'s prime habitat. Shrubs of *Pultenaea juniperina*, *Lomatia tinctoria*, *Aotus ericoides*, *Epacris impressa* and *Persoonia juniperina* are sparsely scattered over *Gonocarpus teucrioides*, *Tetratheca billardiera*, *T. pilosa* and *Stylidium graminifolium* which are also sparse. Herbs are rare but include *Viola hederacea*, *Goodenia lanata*, *Lagenifera stipitata*, *Geranium potentilloides*, *Helichrysum scorpioides* and *Hydrocotyle sibthorpioides*.

Type 2. A floristically more depauperate version of this community in which the shrub layer is completely dominated by *Daviesia latifolia* occurs predominantly in the north-east of the study area along broad ridges and their higher slopes but also on the Keratophyre geology in the west.

E. Heathy *Eucalyptus amygdalina* woodland

This community is on talus and talus wash derived from conglomerate possibly over richer greywacke. This is reflected in the change of vegetation formation to the west where the community gives way to heathy scrub on deeper talus. *Eucalyptus amygdalina* dominates to a height of 20m. *Leptospermum scoparium* and *L. glaucescens*, *Monotoca glauca* and *Banksia marginata* are common while *Oxylobium arborescens* is locally frequent in scattered pockets. *Pteridium esculentum* can be abundant, but where it is not the heath species such as *Aotus ericoides*, *Persoonia juniperina*, *Boronia pilosa*, *Xanthosia ericoides*, *Leucopogon collinus* and *Epacris impressa* are sparsely scattered amongst the *Pteridium esculentum*, *Lomandra longifolia*, *Pultenaea juniperina*, *P. gunnii* and *Tetratheca glandulosa*.

Wet sclerophyll communities

F. *Eucalyptus obliqua* Tall Open Forest. OB0110 (Kirkpatrick *et al.* 1988) (Quadrats 458, 473, 466, 238, 4, 5, 25, 203)

This community is considered to be both common and widespread (Kirkpatrick *et al.* 1988). In the study area it occurs from mid to lower slope positions usually adjacent to creek lines on a range of aspects but in the most protected situations. In all but one case in the study area *Eucalyptus obliqua* is dominant at a height of about 40m with a single occurrence of *E. regnans* co-dominance. *Acacia dealbata* and or *A. melanoxylon* are subdominant and emergent over a dense canopy at about 10 to 15m. The dense canopy is composed of *Pomaderris apetala*, *Olearia argophylla* and occasional *Bursaria spinosa* with *Bedfordia salicina* at the margins. A fairly sparse lower tree layer at about 4m supports *Zieria arborescens*, *Coprosma quadrifida* and *Beyeria viscosa*. *Cyathodes glauca* and *Pimelea drupacea* also persist as sparse understorey shrubs. The tree-fern *Dicksonia antarctica* is common although it is replaced by *Cyathea australis* in the *E. regnans* association. The

remaining fern flora is scattered but quite diverse and most quadrats contain *Hymenophyllum cupressiformis*, *Histiopteris incisa*, *Rumohra adiantiformis*, *Microsorium diversifolium*, *Pteridium esculentum*, *Hypolepis rugosula*, *Polystichum proliferum*, *Blechnum watsii*, *Tmesipteris billardieri*, *Asplenium bulbiferum* and *Grammitis billardieri*. Where this forest reaches a senescent stage the eucalypts and Acacias are very sparse above an understorey which appears to be self-perpetuating although simplifying floristically. The small trees, *Bedfordia salicina* and *Olearia argophylla* become less frequent while the *Pomaderris apetala* appear to be resprouting and the *Beyeria* and *Coprosma* may be regenerating continuously. Most of the remaining components such as *Pimelea*, *Cyathodes* and the ground fern species are evident in treefall gaps.

G. *Eucalyptus obliqua* OB010 (Kirkpatrick *et al.* 1988).

This community is found on higher slopes and is transitional toward shrubby *E. obliqua* forest. The community is dominated by *E. obliqua* but may also support one or both of *E. viminalis* and *E. amygdalina*. *Bedfordia salicina* is often subdominant although occasional *Acacia* spp. may overtop it. These may vary dependant upon the adjacent community and include *Acacia dealbata*, *A. melanoxylon*, *A. mucronata* and *A. verticillata*. Common shrubs are *Lomatia tinctoria*, *Pultenaea juniperina*, *Olearia lirata*, *Cyathodes glauca* and *Cassinia aculeata*. Herbs are also present and include most commonly *Acaena novae-zelandiae* and *Viola hederacea* and more sparse *Hydrocotyle* sp., *Poranthera microphylla*, *Gonocarpus tetragynus*, *Drymophila cyanocarpa*, *Geranium potentilloides* and *Oxalis corniculata*. In some situations *Pteridium esculentum* may dominate the fern layer.

H. *Eucalyptus obliqua* mixed forest

This is the only mixed forest community in the study area and is not described by Kirkpatrick *et al.* (1988). This type is very restricted in the study area being sampled only at quadrat 478. In a similar manner to the former community this one is restricted to a creekline in a broad shallow gully. *Nothofagus cunninghamii* and *Atherosperma moschatum* are subdominant. The understorey trees include *Pomaderris apetala*, *Phebalium squameum* and *Beyeria viscosa*. Common shrubs are *Pomaderris pilifera*, *Olearia lirata*, *Aristotelia peduncularis* associated with *Gahnia grandis*. The most common fern is *Blechnum watsii* mixed with *B. nudum*, *Sticherus tenner*, *Polystichum proliferum* and *Histiopteris incisa*. *Gleichenia dicarpa* is patchy while the shrubs *Pimelea drupacea* and *Coprosma quadrifida* are rare.

I. *Eucalyptus obliqua* OB0111 (Kirkpatrick *et al.* 1988)

This community is very restricted and was only sampled at one quadrat (406). It has been distinguished from the other *E. obliqua* wet forests on the presence of *Phebalium squameum*. The community occurs along an upper tributary of the Eel Hole Creek which drains the siliceous talus area to its south. *Acacia melanoxylon* is subdominant. *Zieria arborescens* is abundant and *Acacia mucronata* and *Monotoca glauca* are common understorey associates. The ground stratum consists of ferns including common *Pteridium esculentum* and *Blechnum watsii* but also *Histiopteris incisa*, *Hypolepis rugosula* and isolated *Dicksonia antarctica*.

J. *Eucalyptus viminalis* open forest, VIM0100 (Kirkpatrick *et al.* 1988).

This wet sclerophyll forest community is widespread in the north and east of the state but is very restricted in the study area. *Eucalyptus viminalis* is associated with *E. obliqua* to about 30m tall on south-eastern aspects on moderate to steep slopes adjacent to creeklines. *Acacia melanoxylon* is usually a common emergent over a dense canopy of *Pomaderris apetala* and *Olearia argophylla*. Common shrub species include *Olearia lirata* and *Coprosma quadrifida* with sparse *Pimelea drupacea* and *Lomatia tinctoria*. The ground ferns *Pteridium esculentum*, *Blechnum nudum* and *Polystichum proliferum* are usually common but epiphytic fern species are rare. *Viola hederacea*, *Oxalis corniculata* and *Geranium potentilloides* are scattered as a very sparse ground cover. The orchids *Chiloglottis* sp. and *Acianthus* sp. are common around animal diggings. In a similar manner to other wet

sclerophyll communities in the study area *Bursaria spinosa* and *Bedfordia salicina* are often subdominant at the uphill margins of this community.

K. *Eucalyptus viminalis* tall open forest, VIM0011 (Kirkpatrick *et al.* 1988)

One quadrat (428) is closely related to this type which otherwise is restricted to rocky sites on the Western Tiers. In the present study, the community is distinguished by its higher number of herb species. This probably indicates its transition toward the dry sclerophyll association between *E. viminalis* and *E. amygdalina*. This locality supports a tall open forest in which *Acacia melanoxylon* is subdominant. *Bursaria spinosa* is common amongst the small tree stratum and *Pomaderris apetala* is a more sparse associate. *Cassinia aculeata*, *Olearia lirata* and *Coprosma quadrifida* are under-shrubs and *Pultenaea juniperina* and *Lomatia tinctoria* are common smaller shrubs. *Pteridium esculentum* is present as a fern layer over the herbs *Viola hederacea*, *Acaena novae-zelandiae*, *Oxalis corniculata*, *Geranium potentilloides* and *Gonocarpus tetragynus*.

Riparian communities

L. *Pomaderris* closed forest

This community is best described structurally as a low closed forest. It is distinguished from its wet sclerophyll relatives on the basis of the sparse, adventive nature of eucalypts. The forest is broadleaf and not sclerophyll. The community typically occupies a narrow belt along small streams and often extends up to the midslope position. It may occupy more extensive areas where stream flats occur in shallow valleys between ridges and at stream confluences at the toes of spurs. The closed canopy of 10 - 15m is composed of *Pomaderris apetala*, often to the exclusion of any other species. *Olearia argophylla* may be occasional at the stream bank where additional light possibly eases the competition from the vigorously growing *P. apetala*. Occasional *Acacia melanoxylon* or *A. dealbata* are sparse emergents and *Pittosporum bicolor* may be sparsely scattered throughout at some sites. *Coprosma quadrifida* is common although etiolated in the otherwise very depauperate shrub layer. *Pimelea drupacea* tends to occur at the stream banks. The ground layer is quite variable in this community but typically *Lepidosperma elatius* is common if stream flats are present otherwise *Polystichum proliferum* and *Blechnum nudum* are predominant. Where the community occupies steep slopes the ground cover is very sparse supporting only occasional *Oxalis corniculata*, *Clematis aristata* seedlings, *Hydrocotyle javanica*, *Viola hederacea* and rare *Australina pusilla*. The fern flora remains quite rich being supported as epiphytes which include *Hymenophyllum* spp. *Rumohra adiantiformis*, *Asplenium terrestre*, *A. bulbiferum*, and *Grammitis billardieri* plus the ground fern *Blechnum watsii*. The stream line itself may support *Dicksonia antarctica* and its associated epiphytic ferns, *Tmesipteris billardieri* and *Microsorium diversifolium*. Where the stream broadens slightly and the flow slows the King fern *Todea barbara* dominates the sandy stream bed. At the upslope margin of this community *Bedfordia salicina* and or *Bursaria spinosa* are often subdominant to eucalypts.

M. *Atherosperma-Beyeria* closed forest

Atherosperma moschatum is common and forms a mid-dense canopy while *Beyeria viscosa* is predominant amongst mixed small tree species including *Pomaderris apetala* and *Bursaria spinosa*. It is this association of co-dominants which distinguishes this community from Sassafras-Musk rainforest described by Jarman *et al.* (1991). Generally, Eucalypts are absent, but emergent trees of *Acacia dealbata* are a common characteristic. In the shrub layer *Coprosma quadrifida* is most important and is common while *Pimelea drupacea* and *Correa lawrenciana* are more sparse. *Goodia lotifolia* may occur where the instability of the stream bank provides the disturbance necessary for its perpetuation. The fern flora is more diverse and more abundant than in the *Pomaderris* forest probably in response to the greater diversity of suitable microsites. *Dicksonia antarctica* supports *Tmesipteris billardieri*, *Microsorium diversifolium* and *Hymenophyllum* spp. plus *Ctenopterus heterophylla* and *Polyphlebium venosum*. Less specialist epiphytic ferns include *Rumohra adiantiformis*, *Asplenium terrestre* and *A. bulbiferum*. Ground ferns recorded were *Blechnum watsii*, *B.*

nudum, *Polystichum proliferum*, *Lastreopsis acuminata* and *Hypolepis rugosula*. *Pellaea falcata* may be localised on rocky banks while *Histiopteris incisa* and *Pteridium esculentum* occur in disturbed areas or where the light levels are higher. This community is in a similar landscape position to the last community and it appears to be buffered from some fires by its environment and its own less combustible structure and floristics. Neyland (1991) described communities similar to this surrounding *Atherosperma* forest as rainforest buffers from which eucalypts were excluded even though fire is part of the community's ecology. It appears that eucalypts only enter the community as adventive species possibly after the occasional breach by fire or in gaps caused by mechanical disturbance. The community's own regeneration may be stimulated by mechanical disturbance produced when the tall eucalypts at the perimeter and the emergent Acacias fall and consequently open the canopy.

The rare fern *Blechnum patersonii* was found on stream banks in this community. Three populations were located in the Eel Hole Creek catchment. The largest was greater than 100 vigorous plants on the steep west-facing bank (quadrat 36) from 1m to 3m above the creek bed and extending for approximately 40m along the creek. Few other plants existed on the bank. At this location no *B. patersonii* were observed on the opposite bank which was not nearly as steep and supported thicker and more diverse vegetation at the ground level.

N. Myrtle-Musk rainforest. (See Jarman *et al.* 1991)

The community has strong affinity with Jarman's rainforest type but the presence of wet sclerophyll elements distinguish it. The community is restricted to narrow gullies and stream confluences. Typically, however, it is also restricted in its extent along the length of creeks only occurring sporadically in the most sheltered parts of gullies. The community is dominated by *Nothofagus cunninghamii* and *Atherosperma moschatum* up to 20m tall. The *Nothofagus cunninghamii* are either multi-stemmed or single-stemmed indicating both vegetative and seed regeneration after disturbance, probably by fire. *Pomaderris apetala* and *Olearia argophylla* often reach subdominance while *Beyeria viscosa* and *Pittosporum bicolor* are common below them. *Zieria arborescens* and *Bursaria spinosa* are occasional adventive species. The shrub layer supports *Coprosma quadrifida*, *Aristotelia peduncularis*, *Correa lawrenciana*, *Prostanthera lasianthos*. The fern flora is rich and commonly includes *Histiopteris incisa*, *Blechnum watsii*, *B. nudum*, *Tmesipteris billardieri*, *Dicksonia antarctica*, *Microsorium diversifolium*, *Rumohra adiantiformis*, *Ctenopteris heterophylla*, *Hypolepis rugosula*, *Grammitis magellanica*, *G. billardieri*, *Polyphlebium venosum*, *Sticherus tener*, *Hymenophyllum rarum*, *H. flabellatum*, *H. cupressiforme* and *Asplenium bulbiferum*.

O. Riverine scrub

The eastern and northern limits of the study area are bounded by the Mersey River along which a narrow strip of riparian vegetation exists. The soil is recent alluvium. Much of the length of this strip exists on private agricultural land and has consequently been modified. The native community is fairly homogeneous along the eastern section of the river and is most commonly dominated by *Eucalyptus viminalis* but occasionally by either *E. amygdalina* or *E. obliqua*. The most common subdominant tree species are *Pomaderris apetala*, *Acacia verticillata*, *A. dealbata*, *Leptospermum lanigerum*, *Callistemon pallidus*, *Bursaria spinosa* and *Notelaea ligustrina*. The most common shrubs are *Bossiaea riparia*, *Lomatia tinctoria* and the scrambling shrub *Hibbertia empetrifolia*. Also commonly seen are *Tasmannia lanceolata*, *Grevillea australis*, *Correa lawrenciana*, *Bauera rubioides*, *Pimelea nivea* and *Melaleuca squarrosa*. *Lepidosperma elatius* and *Gahnia grandis* occasionally dominate the shrublayer. Ferns tend to be confined to the bank of the river and include *Blechnum nudum*, *B. watsii*, *B. minus*, *B. fluviatile*, *Adiantum aethiopicum* and *Dicksonia antarctica*.

Rarer and sporadic components include *Aristotelia peduncularis*, *Pomaderris pilifera*, *P. phyllicifolia*, *Pittosporum bicolor*, *Epacris exserta*, *Prostanthera lasianthos*, *Carex appressa*, *Juncus subsecundus* and *Stylidium graminifolium*.

The narrow width of this and most riparian strips results in such communities often containing adventive species due to edge effect from the adjoining communities. In this case those species include *Pultenaea juniperina*, *P. gunnii*, *Pteridium esculentum*, *Olearia lirata* and *Lomandra longifolia*.

P. Heathy scrub

Eucalyptus amygdalina dominates this scrub as a low sparse woodland. The community occurs on the slopes immediately below the conglomerate rock faces in the south west of the study area. The substrate is sandy with occasional large conglomerate boulders scattered throughout. Although the catchment faces north, its considerable size and position below the main water-shed ameliorates the effect of drought in this community. *Leptospermum scoparium* and *L. glaucescens* completely dominate the scrub component of the community with *Banksia marginata* frequent but more scattered. Other species which are common and occur throughout are *Aotus ericoides*, *Leucopogon collinus*, *L. ericoides* and *Epacris impressa*. *Amperia xiphioclada* and *Xanthosia pilosa* are more sparse.

The community has been burnt in patches at different times and this is evident by the different heights of the scrub but also by the presence of small herbs in the early successional phases. Most notable are *Styliidium graminifolium*, *Tetratheca glandulosa* and *Gonocarpus teucrioides*. On the margins of this scrub the community becomes a tall open heath as it grades into *Eucalyptus amygdalina* heathy woodland. Species that appear in this ecotone include *Monotoca glauca*, *Acacia mucronata* and *Banksia marginata* as subdominant trees. *Boronia pilosa*, *Persoonia juniperina* and *Hibbertia procumbens* enter as common shrubs, while *Lycopodium deuterodensum*, *Xyris operculata* and *Drosera auriculata* produce a very sparse ground layer.

Q. Buttongrass Moorland. Common Wet Eastern Heathy (Jarman *et al.* 1988)

This community is most commonly found in the north-east, north-west and far south of the state. It is restricted in distribution in the study area to poorly drained locations at the foot of the conglomerate talus fan and also occurs on top of the range on the poorly drained narrow plateau. The unit in the study area was too small to map. The community is generally quite variable (Jarman *et al.* 1988) and in this instance occurs beneath sparse *Eucalyptus amygdalina*, one of the less common dominants of this community type. *Melaleuca squamea* and *Leptospermum glaucescens* form a medium canopy in which *Banksia marginata* and *Leptospermum scoparium* are common. The moorland component supports abundant *Gymnoschoenus sphaerocephalus* as pedestals up to 80 cm tall. Shrubs include *Aotus ericoides*, *Epacris lanuginosa* and *E. impressa* all of which are common. Common sedges are represented by *Empodisma minus*, *Xyris operculata* and *Schoenus tenuissimus* and the ferns by *Gleichenia dicarpa* and *Pteridium esculentum*, the former producing a dense but patchy cover.

R. Rockface heathy scrub

The northern face of the Gog Range features broken cliff-lines in conglomerate. This part of the landscape also supports sparse *Eucalyptus amygdalina* of poor form. However, *Leptospermum scoparium* and *L. glaucescens* form extensive scrubs on ridges and in gullies. The heath species *Epacris impressa*, *Aotus ericoides*, *Xanthosia pilosa*, *Leucopogon ericoides*, *L. collinus* and *Pentachondra involucrata* are common but form only a sparse cover. *Oxylobium arborescens* is frequent and may become subdominant to *E. amygdalina* over *Pteridium esculentum* on loose talus. *Monotoca glauca* is subdominant on soil pediments immediately below the cliffs. *Dianella tasmanica* and *Dianella revoluta* occur in wetter and drier sites respectively while *Lomandra longifolia* is also on soil pediments at the base of the rocks. *Microsorium diversifolium* and *Asplenium flabellifolium* are occasional amongst mosses in rock crevices. The grasses *Poa rodwayi*, *P. tenera* and *Deyeuxia monticola* are also scattered but may also dominate small areas. The orchids *Caladenia* sp. and *Paracaleana minor* are rare but regular.

Tasmanian Reserves

Alum Cliffs State Reserve (SR)	AC	Fluted Cape SR	FC	Mt. Field NP	MF
Asbestos Range National Park (NP)	AR	Forth Falls SR	FF	Mt. Montgomery SR	MM
Baldock Cave SR	BC	Freycinet NP	F	Mt. William NP	MW
Beagle Island Nature Reserve (NR)	BE	George III Monument IIS	GT	Native Point NR	NP
Big Green Island NR	BG	Green Point NR	GP	Notlely Gorge SR	NG
Betscy Island NR	BI	Hartz Mtns. NP	HM	Pierman River SR	P
Ben Lomond NP	BL	Hastings Caves SR	HA	Point Puer-Crescent Bay SR	PP
Brown Mt - Remarkable Cave SR	BM	Hellyer Gorge SR	HG	Rocky Cape NP	RC
Bruny Neck Game Reserve (GR)	BN	Holwell Gorge SR	HO	Rodondo Island NR	RI
Bass Strait Nature Reserves in Furneaux Group	BS	Hospital Creek NR	HC	Roger River SR	RR
Cape Bernier SR	CB	Ida Bay SR	IB	St. Patrick's Head SR	PH
Cape Pillar SR	CA	Isabella Island NR	IS	St. Mary's Pass SR	SM
Cape Raoul SR	C	Kentford Forest SR	KF	Seal Rocks SR	SR
Croesus Cave SR	CC	Kubla Khan SR	KK	South West NP	SW
St. Columba Falls SR	CC	King Solomon Cave SR	KS	Steppes SR	ST
Chappel Islands NR	CF	Kimberley Thermal Springs SR	KI	Strezlecki NP	S
Cradle Mtn.Lake St.Clair NP	CI	Labillardiere SR	KS	Sundown Point AS	SP
Coal Mines Historic Site (HS)	CM	Low Islets NR	L	Sydney Cove HS	SY
Central Plateau part of World Heritage Area (WHA)	CO	Lake Tiberias GR	LI	Tasman Arch SR	TA
(not including WJ)	CP	Lavinia NR	LT	Tasman Peninsula SRs	T
Coal River NR	CR	Lime Bay NR	LV	The Nut SR	TU
Curtis Island NR	CU	Macquarie Is NR	LB	Three Hummock Is. NR	TH
Douglas Apsley NP	DA	Marakoopa Cave SR	MQ	Three Sisters Goat Island NR	TS
Devils Gullet SR	DG	Marriotts Falls SR	MA	Trowutta Caves SR	TR
Dismal Swamp NR	DS	Maria Island NP	MT	Tunbridge NR	TU
Eaglehawk Neck-Tarama SR	EA	Moultling Lagoon GR	M	Walls of Jerusalem NP	WJ
Epping Forest NR	EF	Mt. Barrow SR	ML	West Point Aboriginal Site	WP
East Risdon NR	ER	Mt. Barrow Falls SR	MR	Wild Rivers (Franklin-Gordon) NP	WR
Fairy Glade SR	FG	Mt. Cameron West Aboriginal Site (AS)	MC	World Heritage Area (outside NPs)	WH
Ferndene SR	FE	Mt. Direction HS	MD		

Conservation Significance of Communities. (Reference. Kirkpatrick 1991)

A. Grassy <i>Eucalyptus amygdalina</i> Forest	Unreserved
B. Shrubby <i>Eucalyptus amygdalina</i> Forest	Well reserved F, DA
C. <i>Allocasuarina littoralis</i> woodland.	Unknown
D. Shrubby <i>Eucalyptus obliqua</i> Forest	Well reserved DA, PH, CR, M, F, AR, LB, MM, L, CA
E. Heathy <i>Eucalyptus amygdalina</i> Woodland.	Unknown
F. <i>Eucalyptus obliqua</i> OB0110 CR	Well reserved M, MB, MM, HC, SM, HG, CA, CR, MF, MBF, CF,
G. <i>Eucalyptus obliqua</i> OB010	Poor M, DA
H. <i>Eucalyptus obliqua</i> OB0111	Well reserved RC, CM, M, CA
I. <i>Eucalyptus obliqua</i> Mixed Forest	Unknown
J. <i>Eucalyptus viminalis</i> Vim0100	Well reserved M, SM
K. <i>Eucalyptus viminalis</i> Vim0011	Unreserved
L. Pomaderris closed forest.	Unknown
M. Atherosperma/Beyeria closed forest.	Unknown
N. Myrtle-Musk rainforest	Poor CP
O. Riverine scrub	Unknown
P. <i>E. amygdalina</i> Heathy scrub	Unknown
Q. Common Wet eastern heathy	Well reserved AR, MW, CA
R. Rockface heathy scrub.	Unknown

Table 1. A list of all of the communities recorded in the study area, their known conservation status and reserves containing them.

Species of Considerable Conservation Significance.

KEY TO CODES

Risk Code		NATIONAL (modified from Briggs & Leigh, 1988)	
STATE			
Endangered	e	Endangered	E
Extinct	x	Extinct	X
Probably extinct	x7	Rare	R
Unknown	k	Unknown	K
Unreserved	u	Vulnerable	V
Vulnerable	v		
Endemic	EN		

Desmodium varians var. *gunnii* is listed as **unreserved** and **vulnerable uv**, that is, it is likely to become extinct in Tasmania over the longer period if current land clearing and landuse practices continue. It is restricted to the grassy areas in shrubby *E. amygdalina* forest adjacent to the private land (Quadrat 442) in the north east. Although the area is fenced it does appear to be grazed by domestic stock. The Fabaceae family in which *Desmodium* belongs is well know for its palatability to grazers and as such grazing of the area by domestic stock should be actively discouraged immediately. A more sparse population was recorded in quadrat 35, within the proposed logging coupe number 1, also in *E. amygdalina* forest.

Goodia pubescens is a widespread species but is currently **unreserved**. The plant was only recorded in one quadrat in the study area which may be its only occurrence in the study site (Quadrat 444). The position is steep and adjacent to a creekline in shrubby *E. obliqua* forest.

Blechnum patersonii had previously been reported from the Eel Hole Creek catchment (Williams 1987). During the present survey two additional sites in the same creekline where recorded. One in particular is a large and vigorous part of the population on the eastern bank of the creek (Quadrat 36). The species is considered as **rare** in Tasmania being recorded in less than twenty 10 X 10 km mapping grid squares. Its conservation status is therefore coded as **r2**. The species was also recorded in quadrats 30 and 38.

The grass species *Poa tenera* is currently **poorly reserved** being recorded in only one secure reserve, Freycinet National Park. The species was found across a broad range in the study area from *Eucalyptus amygdalina* shrubby forest to *E. viminalis* 0100 wet sclerophyll forest. The plant is not abundant occurring only as sparse individuals.

Phyllota diffusa is assigned an **r2** rarity status. This species is restricted in its east coast distribution but occurs all down the west coast (pers. comm M. Cameron). Only one other inland population has been reported but no collection was made, that distribution is in the north east. The species is located in (quadrat 214), heathy *E. amygdalina* forest.

Poa sp nova The taxonomy of the material collected is not clear at this stage. It is not a species recorded in Tasmania (D. Morris pers. com.). However, a more thorough search of mainland records is required to be certain of its status. The specimens were collected from quadrats 315, 316 and 317. The latter two sites being on conglomerate cliffs, this is not a common habitat in Tasmania.

Pimelea curviflora var. *gracilis* Although this species was located in 7 quadrats (39, 430, 310, 432, 243, 14, 321) in all but quadrat 39 it was a rare plant. Quadrat 39 is in the proposed logging coupe 1. The taxonomy of this species has recently been reviewed in the

Flora of Australia. The Tasmanian flora recognized *Pimelea curviflora* ssp, *gracilis* and *micrantha* and 1 var. *sericea*. However, the Flora of Australia now indicates ssp. *curviflora* includes the var. *gracilis*. The ssp. *micrantha* has been assigned species recognition. *P. curviflora* var. *sericea* is still distinguished. *P. curviflora* var. *gracilis* attracts a r2 rarity status and although it is found in three secure reserves, BS, CI and S all of these are Bass Strait islands, it remains unreserved on the Tasmanian mainland.

Ajuga australis was recorded from only one site, in proposed logging coupe 1 (quadrat 39). The species has an r2 rarity status in Tasmania.

***Uncinea elegans* ?**. (not a positive identification) This species has an r1 rarity status being found in less than ten 10 km map grids. It is reserved in the South West National Park. The species was found in the riparian Myrtle-Musk Rainforest community in this survey and was rare.

List of species by community

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Apiaceae																		
<i>Hydrocotyle hirta</i>				*	*	*	*	*	*	*	*	*						
<i>Hydrocotyle sibthorpioides</i>		*		*	*	*	*		*	*								
<i>Xanthosia pilosa</i>					*										*		*	
Apocynaceae																		
<i>Parsonsia brownii</i>												*						
Asteraceae																		
<i>Bedfordia salicina</i>				*		*	*		*	*								
<i>Cassinia aculeata</i>		*		*			*			*	*			*				
<i>Gnaphalium collinum</i>				*	*				*									
<i>Helichrysum dendroideum</i>						*	*		*									
<i>Helichrysum scorpioides</i>	*	*	*	*	*					*								*
<i>Helichrysum dealbatum</i>		*		*	*		*											*
<i>Hypochaeris radicata</i>		*	*	*	*													
<i>Lagenifera stipitata</i>	*	*	*	*	*													
<i>Leontodon taraxacoides</i>				*		*												
<i>Olearia argophylla</i>						*				*	*	*	*					
<i>Olearia lirata</i>		*	*	*	*		*	*	*	*					*			
<i>Olearia phlogopappa</i>				*	*									*				*
<i>Olearia ramulosa</i>				*														
<i>Senecio biserratus</i>	*	*																
<i>Senecio linearifolius</i>		*		*														
<i>Senecio jacobaea</i>				*														
<i>Senecio minimus</i>	*	*	*	*	*													
<i>Senecio</i> sp.								*										
Atherospermaceae																		
<i>Atherosperma moschatum</i>								*				*	*					
Brassicaceae																		
<i>Cardamine</i> sp.												*						
Campanulaceae																		
<i>Lobelia gibbosa</i>		*		*														
<i>Wahlenbergia tagelli</i>	*	*	*	*	*													*
<i>Wahlenbergia gymnoclada</i>		*		*	*													
<i>Wahlengergia consimilis</i>				*														
Caryophyllaceae																		
<i>Cerastium fontanum</i>				*	*													
<i>Stellaria flaccida</i>				*	*	*				*								
<i>Stellaria pungens</i>	*	*								*								
Casuarinaceae																		
<i>Allocasuarina littoralis</i>		*	*	*														*
<i>Allocasuarina monilifera</i>															*		*	
Cunoniaceae																		
<i>Bauera rubioides</i>														*				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Dilleniaceae																		
<i>Hibbertia procumbens</i>															*		*	
<i>Hibbertia empetrifolia</i>				*										*				
<i>Hibbertia serpyllifolia</i>																		
	*	*	*															
Crassulaceae																		
<i>Crassula sp.</i>																*		
Droseraceae																		
<i>Drosera planchonii</i>		*		*														
<i>Drosera auriculata</i>					*										*		*	
Elaeocarpaceae																		
<i>Aristotelia peduncularis</i>								*				*			*			
Epacridaceae																		
<i>Acrotriche serrulata</i>	*	*	*	*														
<i>Cyathodes glauca</i>				*		*	*											
<i>Epacris impressa</i>	*	*	*	*	*										*	*	*	*
<i>Epacris lanuginosa</i>															**			
<i>Epacris exserta</i>															*			
<i>Leucopogon ericoides</i>		*	*		*										*		*	*
<i>Leucopogon collinus</i>					*										*		*	
<i>Monotoca glauca</i>				*	*										*		*	
<i>Pentachondra involucreta</i>																	*	
Euphorbiaceae																		
<i>Amperia xiphoclada</i>		*		*											*			
<i>Beyeria viscosa</i>						*		*					*	*				
<i>Phyllanthus gunnii</i>											*							
<i>Poranthera microphylla</i>		*	*	*	*													
Fabaceae																		
<i>Aotus ericoides</i>					*										*	*	*	*
<i>Astroloma humifusum</i>		*	*												*			
<i>Bossiaea prostrata</i>	*	*	*															
<i>Bossiaea cordigera</i>		*	*															
<i>Bossiaea riparia</i>															*			
<i>Daviesia latifolia</i>		*		*	*													
<i>Daviesia ulicifolia</i>	*	*		*														
<i>Desmodium varians</i>																		
var. <i>gunnii uv</i>	*	*																
<i>Phyllota diffusa r2</i>					*													
<i>Glycine clandestina</i>	*																	
<i>Goodia lotifolia</i>				*				*			*		*					
<i>Goodia pubescens u</i>				*														
<i>Hovea heterophylla</i>	*	*	*	*														
<i>Indigofera australis</i>		*		*														
<i>Pultenaea daphnoides</i>																		
var. <i>obcordata</i>				*	*		*								*	*		
<i>Pultenaea gunnii</i>																		
var. <i>baeckoides</i>	*	*	*	*	*													
<i>Pultenaea juniperina</i>		*	*	*	*		*			*					*	*		
<i>Oxylobium arborescens</i>				*											*	*		*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Fagaceae																		
<i>Nothofagus cunninghamii</i>									*		*							
Gentianaceae																		
<i>Centaurium pulchella</i>										*								
Geraniaceae																		
<i>Geranium potentilloides</i>	*	*		*	*	*	*	*	*	*	*	*	*				*	
<i>Geranium solanderi</i>		*		*	*													
Goodeniaceae																		
<i>Goodenia lanata</i>		*	*	*	*		*		*									
Halagoraceae																		
<i>Gonocarpus tetragynus</i>	*	*	*	*	*				*		*							
<i>Gonocarpus teucrioides</i>																*		*
<i>Gonocarpus humilis</i>							*											
<i>Haloragis sp.</i>				*	*													
Hypericaceae																		
<i>Hypericum graminium</i>		*							*									
Lamiaceae																		
<i>Prostanthera lasianthos</i>							*						*		*		*	
<i>Ajuga australis Ur2</i>							*											
Mimosaceae																		
<i>Acacia dealbata</i>		*	*	*	*	*	*	*	*	*	*	*	*					
<i>Acacia melanoxylon</i>	*	*		*	*	*	*	*	*	*	*	*	*					
<i>Acacia myrtifolia</i>		*	*		*											*		
<i>Acacia mucronata</i>				*	*												*	
<i>Acacia stricta</i>								*										
<i>Acacia verniciflua</i>							*											
<i>Acacia verticillata</i>				*	*	*	*						*					
Myrtaceae																		
<i>Eucalyptus amygdalina</i>	*	*	*	*	*		*						*		*	*	*	
<i>Eucalyptus obliqua</i>		*		*	*	*	*	*	*	*	*		*					
<i>Eucalyptus viminalis</i>		*		*	*	*			*	*								
<i>Eucalyptus regnans</i>						*												
<i>Leptospermum scoparium</i>				*	*										*	*	*	*
<i>Leptospermum glaucescens</i>																*	*	*
<i>Leptospermum lanigerum</i>															*			
<i>Melaleuca squarrosa</i>				*	*											*		*
<i>Melaleuca squamea</i>															*	*	*	*
<i>Melaleuca ericifolia</i>															*	*	*	*
<i>Callistemon paludosus</i>															*			
<i>Callistemon palidus</i>								*										
Oleaceae																		
<i>Notelaea ligustrina</i>		*	*	*		*							*					
Oxalidaceae																		
<i>Oxalis corniculata</i>	*		*	*	*	*			*	*	*		*					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Pittosporaceae																		
<i>Billardiera longifolia</i>				*														
<i>Billardiera scandens</i>		*	*	*	*													
<i>Bursaria spinosa</i>	*	*		*		*	*				*		*			*		
<i>Pittosporum bicolor</i>						*	*			*	*	*		*		*		
Polygalaceae																		
<i>Comesperma volubile</i>		*		*	*													
Proteaceae																		
<i>Banksia marginata</i>		*	*	*	*										*		*	
<i>Lomatia tinctoria</i>		*	*	*	*	*		*	*	*	*		*					
<i>Persoonia juniperina</i>	*	*	*	*	*											*		
<i>Grevillea australis</i>														*				
Ranunculaceae																		
<i>Clematis aristata</i>				*	*	*	*	*		*		*						
<i>Ranunculus trilobus</i>	*	*		*	*													
<i>Ranunculus glabrifolius</i>							*											
Rhamnaceae																		
<i>Pomaderris apetala</i>				*	*	*	*	*	*	*	*	*	*	*				
<i>Pomaderris pilifera</i>						*	*											
<i>Pomaderris phyllicifolia</i>																*		
Rosaceae																		
<i>Acaena novae-zelandiae</i>		*		*	*	*	*			*	*		*	*				*
<i>Rubus parvifolius</i>		*		*		*				*								
Rubiaceae																		
<i>Asperula gunnii</i>		*		*														
<i>Coprosma quadrifida</i>				*	*	*	*	*	*	*	*	*	*	*				
<i>Coprosma hirtella</i>				*	*													*
<i>Galium australe</i>		*		*														
<i>Opercularia ovata</i>				*														
Rutaceae																		
<i>Correa lawrenciana</i>					*					*	*			*				
<i>Boronia anemonifolia</i>		*		*												*		*
<i>Boronia pilosa</i>				*												*		
<i>Phebalium squameum</i>					*		*											
<i>Phebalium bilobum</i>																		*
<i>Zieria arborescens</i>					*							*		*				
Santalaceae																		
<i>Exocarpos cupressiformis</i>	*	*	*	*	*										*			
<i>Leptomeria drupacea</i>		*	*	*	*													
Scrophulariaceae																		
<i>Veronica calycina</i>				*						*	*							
Stackhousiaceae																		
<i>Stackhousia monogyna</i>		*		*														
Stylidiaceae																		
<i>Stylidium graminifolium</i>	*	*	*	*	*										*	*		*

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Thymelaeaceae																		
<i>Pimelea curviflora</i>																		
var. <i>gracilis</i>		*		*	*					*								
<i>Pimelea drupacea</i>						*		*			*	*	*					
<i>Pimelea ligustrina</i>				*		*	*		*		*		*					
<i>Pimelea linifolia</i>		*		*	*												*	
<i>Pimelea nivea</i>			*														*	
Tremandraceae																		
<i>Tetratheca pilosa</i>		*	*	*	*												*	
<i>Tetratheca billardiera</i>					*												*	*
Urticaceae																		
<i>Urtica incisa</i>											*		*					
<i>Australina pusilla</i>												*						
Violaceae																		
<i>Viola hederacea</i>	*	*		*	*	*	*			*	*		*	*				*
<i>Viola betonicifolia</i>		*		*														
PTERIDOPHYTA																		
Adiantaceae																		
<i>Adiantum aethiopicum</i>																		*
Aspidiaceae																		
<i>Lastreopsis acuminata</i>						*	*				*	*	*					
<i>Polystichum proliferum</i>		*		*		*	*	*		*	*	*	*	*				
Aspleniaceae																		
<i>Asplenium flabellifolium</i>	*	*		*													*	
<i>Asplenium terrestre</i>						*						*	*	*				
<i>Asplenium bulbiferum</i>						*						*	*	*				
Blechnaceae																		
<i>Blechnum chambersii</i>													*					
<i>Blechnum fluviatile</i>																	*	
<i>Blechnum minus</i>																	*	
<i>Blechnum nudum</i>		*		*	*	*	*	*		*	*	*	*	*	*	*	*	*
<i>Blechnum patersonii</i> r2													*					
<i>Blechnum penna-marina</i>												*	*					
<i>Blechnum wattsii</i>				*	*	*	*	*		*	*	*	*	*	*	*	*	*
Cyatheaceae																		
<i>Cyathea australis</i>						*												
Davalliaceae																		
<i>Rumohra adiantiformis</i>						*						*	*	*				
Dennstaedtiaceae																		
<i>Histiopteris incisa</i>						*	*	*		*	*	*	*	*				
<i>Hypolepis rugosula</i>						*	*											
<i>Pteridium esculentum</i>	*	*	*	*	*	*	*			*	*	*	*	*	*	*	*	*
Dicksoniaceae																		
<i>Dicksonia antarctica</i>				*	*							*	*	*				
<i>Culcita dubia</i>				*	*	*								*				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	
<i>Luzula flaccida</i>				*		*						*						*	
Liliaceae																			
<i>Arthropodium milleflorum</i>		*																	
<i>Dianella tasmanica</i>				*		*	*		*	*	*	*	*	*			*		
<i>Dianella revoluta</i>		*	*		*													*	
<i>Dryophila cyanocarpa</i>				*	*	*	*	*	*	*	*	*	*						
Orchidaceae																			
<i>Acianthus exsertus</i>		*		*		*	*												
<i>Acianthus sp.</i>		*		*		*				*		*							
Chiloglottis																			
<i>Chiloglottis gunnii</i>		*		*		*	*		*	*		*							
<i>Chiloglottis cornuta</i>											*								
<i>Corybas dilatatus</i>				*		*	*	*	*	*	*	*							
<i>Corybas sp.</i>		*		*	*	*		*		*	*	*							
<i>Dipodium punctatum</i>		*		*	*														
<i>Pterostylis pedunculata</i>		*		*		*				*									
<i>Pterostylis longifolia</i>		*		*		*	*			*		*							
<i>Paracaleana minor</i>																			*
<i>Caladenia sp.</i>		*		*											*			*	
<i>Gastrodia sesamoides</i>		*		*															
<i>Eriochilus cucullatus</i>		*		*	*														
Poaceae																			
<i>Agrostis parviflora</i>									*										
<i>Australopyrum pectinatum</i>				*					*										
<i>Danthonia pilosa</i>		*		*		*													
<i>Danthonia penicillata</i>		*	*	*															
<i>Dichelachne rara</i>		*	*	*	*														
<i>Deyeuxia monticola</i>		*	*	*	*	*													*
<i>Echinopogon ovatus</i>		*																	
<i>Ehrharta stipoides</i>		*	*	*	*														
<i>Poa labillardieri</i>		*	*	*															
<i>Poa sp. nova ?unknown</i>																			*
<i>Poa tenera poorly reserved</i>			*	*		*				*									
<i>Poa rodwayi</i>		*	*	*	*	*													*
<i>Themeda triandra</i>		*	*												*				
Restionaceae																			
<i>Empodisma minus</i>																	*	*	*
Xanthorrhoeaceae																			
<i>Lomandra longifolia</i>		*	*	*	*	*			*	*							*	*	*

Quadrat grid references, slope (deg.), aspect (deg. compass) and community type.

Site	E	N	Slope	Aspect	Type
Coupe 1.					
1	4548	54065	25	45	Heathy <i>E. amygdalina</i> forest
2	4549	54065	25	45	<i>E. obliqua</i> OB0111
3	4549	54065	03	45	Atherosperma/Beyeria closed forest
4	4548	54067	45	45	<i>E. obliqua</i> OB0111
5	4548	54067	05	360	<i>E. obliqua</i> OB0111
6	4547	54067	15	300	Heathy <i>E. amygdalina</i> forest
7	4547	54067	25	245	Musk/Myrtle rainforest
8	4545	54066	25	245	Atherosperma/Beyeria closed forest
9	4545	54065	25	245	Musk/Myrtle rainforest
10	4547	54062	10	90	Heathy <i>E. amygdalina</i> forest
11	4548	54061	15	45	<i>E. obliqua</i> OB0111
12	4548	54060	15	45	Pomaderris closed forest
13	4548	54059	15	45	Pomaderris closed forest
14	4546	54058	01	360	Heathy <i>E. amygdalina</i> forest
15	4545	54050	07	340	Shrubby <i>E. obliqua</i> forest
16	4545	54048	05	340	Shrubby <i>E. obliqua</i> forest
17	4544	54051	06	245	Shrubby <i>E. obliqua</i> forest
18	4543	54051	15	245	<i>E. obliqua</i> OB0111
19	4542	54052	20	60	<i>E. obliqua</i> OB010
20	4542	54051	02	20	Shrubby <i>E. obliqua</i> forest
21	4546	54054	07	320	<i>E. viminalis</i> VIM0100
22	4545	54054	25	50	<i>E. obliqua</i> OB0111
23	4545	54055	25	50	Pomaderris closed forest
24	4549	54057	25	50	Pomaderris closed forest
25	4547	54057	20	45	<i>E. obliqua</i> OB0111
26	4547	54064	08	270	Heathy <i>E. amygdalina</i> forest
27	4546	54064	12	270	Heathy <i>E. amygdalina</i> forest
28	4545	54063	02	270	Heathy <i>E. amygdalina</i> forest
29	4544	54063	10	90	Pomaderris closed forest
30	4544	54062	10	270	Musk/Myrtle rainforest
31	4545	54062	13	270	Heathy <i>E. amygdalina</i> forest
32	4546	54060	07	250	Heathy <i>E. amygdalina</i> forest
33	4544	54055	03	360	<i>E. obliqua</i> OB010
34	4544	54057	03	300	<i>E. obliqua</i> OB010
35	4544	54058	12	360	Heathy <i>E. amygdalina</i> forest
36	4544	54062	30	290	Atherosperma/Beyeria closed forest
37	4545	54061	17	300	Heathy <i>E. amygdalina</i> forest
38	4539	54061	04	260	Atherosperma/Beyeria closed forest
39	4541	54059	04	320	<i>E. obliqua</i> OB0111
40	4542	54058	04	300	<i>E. viminalis</i> VIM0100
41	4543	54057	04	300	<i>E. obliqua</i> OB010
42			04	280	<i>E. obliqua</i> OB010
43			04	340	Musk/Myrtle rainforest
Coupe 2.					
201	4556	54053	01	220	Heathy <i>E. amygdalina</i> forest
202	4556	54056	05	160	<i>E. obliqua</i> OB010
203	4555	54059	10	160	<i>E. obliqua</i> OB0111
204	4561	54061	04	90	Pomaderris closed forest
205	4563	54062	15	140	<i>E. obliqua</i> OB010
206	4564	54061	15	045	Pomaderris closed forest
207	4565	54059	11	270	Heathy <i>E. amygdalina</i> forest
208	4564	54058	01	270	<i>E. obliqua</i> OB0111

Site	E	N	Slope	Aspect	Type
209	4563	54057	20	60	Musk/Myrtle rainforest
210	4560	54053	10	360	Heathy <i>E. amygdalina</i> forest
211	4549	54069	20	270	Heathy <i>E. amygdalina</i> forest
212	4548	54072	20	90	<i>E. viminalis</i> VIM0100
213	4559	54048	12	60	Shrubby <i>E. obliqua</i> forest
214	4556	54045	10	315	Heathy <i>E. amygdalina</i> woodland
215	4557	54046	35	315	Heathy <i>E. amygdalina</i> woodland
216	4558	54043	40	315	Rockface heathy scrub
217	4559	54043	40	360	Rockface heathy scrub
218	4559	54043	40	340	Rockface heathy scrub
219	4560	54043	40	010	Rockface heathy scrub
220	4561	54044	20	20	<i>E. obliqua</i> mixed forest
221	4559	54046	15	20	Heathy <i>E. amygdalina</i> woodland
222	4564	54052	06	30	Shrubby <i>E. obliqua</i> forest (2)
223	4563	54053	04	30	Shrubby <i>E. obliqua</i> forest (2)
224	4563	54053	08	30	Shrubby <i>E. obliqua</i> forest (2)
225	4563	54054	20	270	Pomaderris closed forest
226	4566	54056	12	320	<i>E. obliqua</i> OB010
227	4566	54052	08	70	<i>E. obliqua</i> OB010
228	4564	54050	14	120	<i>E. viminalis</i> VIM0100
229	4567	54052	10	90	<i>E. obliqua</i> OB010
230	4568	54051	05	30	Pomaderris closed forest
231	4569	54048	02	90	Shrubby <i>E. obliqua</i> forest (2)
232	4574	54048	20	90	Riverine scrub
233	4573	54048	20	360	Pomaderris closed forest
234	4567	54047	03	60	Shrubby <i>E. obliqua</i> forest (2)
235	4564	54047	06	360	Shrubby <i>E. obliqua</i> forest (2)
236	4563	54048	30	180	Musk/Myrtle rainforest
237	4541	54054	08	360	Shrubby <i>E. obliqua</i> forest
238	4539	54052	20	90	<i>E. obliqua</i> OB0111
239	4535	54053	05	220	Shrubby <i>E. obliqua</i> forest
240	4533	54054	20	40	Atherosperma/Beyeria closed forest
241	4533	54057	04	180	Atherosperma/Beyeria closed forest
242	4535	54057	25	165	<i>E. obliqua</i> OB0111
243	4535	54057	25	165	<i>E. obliqua</i> OB010
244	4536	54056	25	165	<i>E. obliqua</i> OB0111
245	4535	54055	10	360	Heathy <i>E. amygdalina</i> forest
246	4512	54049	10	360	Heathy scrub
Extensive survey.					
301	4561	54050	05	10	Shrubby <i>E. obliqua</i> forest
302	4560	54049	05	45	Shrubby <i>E. obliqua</i> forest
303	4559	54049	04	350	Shrubby <i>E. obliqua</i> forest
304	4558	54050	04	45	Shrubby <i>E. obliqua</i> forest (2)
305	4557	54051	14	40	Shrubby <i>E. obliqua</i> forest
306	4555	54051	04	300	Heathy <i>E. amygdalina</i> woodland
307	4553	54050	04	340	Shrubby <i>E. obliqua</i> forest
308	4561	54053	03	30	Shrubby <i>E. obliqua</i> forest (2)
309	4562	54054	20	360	<i>E. obliqua</i> OB0111
310	4561	54054	04	360	Pomaderris closed forest
311	4558	54055	01	60	Pomaderris closed forest
312	4557	54053	03	30	Pomaderris closed forest
313	4558	54052	07	360	<i>E. obliqua</i> OB010
314	4537	54050	05	270	Shrubby <i>E. obliqua</i> forest
315	4538	54047	07	300	Shrubby <i>E. obliqua</i> forest
316	4539	54045	30	340	Heathy <i>E. amygdalina</i> woodland

Site	E	N	Slope	Aspect	Type
317	4544	54045	30	340	Heathy <i>E. amygdalina</i> woodland
318	4644	54047	07	340	Heathy <i>E. amygdalina</i> woodland
319	4544	54050	04	340	Shrubby <i>E. obliqua</i> forest
320			02	340	<i>E. obliqua</i> OB010
321			05	360	<i>E. obliqua</i> OB010
400	4538	54057	20	120	Atherosperma/Beyeria closed forest
401	4538	54062	30	90	<i>E. obliqua</i> OB0111
402	4542	54063	25	180	<i>E. obliqua</i> OB0111
403	4535	54060	03	180	Shrubby <i>E. obliqua</i> forest (2)
404	4530	54060	05	210	Shrubby <i>E. obliqua</i> forest (2)
405	4524	54058	15	180	Heathy <i>E. amygdalina</i> forest
406	4523	54057	02	60	<i>E. obliqua</i> OB0111
407	4529	54051	03	320	Shrubby <i>E. obliqua</i> forest
408	4529	54057	15	190	<i>E. obliqua</i> OB0110
409	4538	54067	01	280	Heathy <i>E. amygdalina</i> forest
410	4539	54071	15	120	<i>E. obliqua</i> OB010
411	4538	54073	08	340	Shrubby <i>E. obliqua</i> forest
412	4534	54063	12	340	Shrubby <i>E. obliqua</i> forest (2)
413	4532	54067	10	300	Shrubby <i>E. obliqua</i> forest (2)
414	4533	54069	02	340	<i>E. obliqua</i> OB010
415	4532	54072	20	60	Atherosperma/Beyeria closed forest
416	4532	54073	25	90	<i>E. obliqua</i> OB0111
417	4528	54068	10	360	Shrubby <i>E. obliqua</i> forest (2)
418	4528	54063	02	320	Shrubby <i>E. obliqua</i> forest (2)
419	4528	54076	07	265	Heathy <i>E. amygdalina</i> forest
420	4532	54075	25	70	<i>E. viminalis</i> VIM0100
421	4524	54074	01	320	<i>E. obliqua</i> OB0111
422	4524	54067	01	360	Shrubby <i>E. obliqua</i> forest (2)
423	4527	54071	20	330	Shrubby <i>E. obliqua</i> forest (2)
424	4522	54068	20	270	Allocasuarina woodland
425	4519	54065	12	270	Allocasuarina woodland
426	4518	54054	30	300	Allocasuarina woodland
427	4523	54053	02	280	Heathy <i>E. amygdalina</i> forest
428	4536	54080	05	428	<i>E. viminalis</i> VIM0011
429	4537	54076	15	260	Shrubby <i>E. obliqua</i> forest
430	4540	54077	10	320	Heathy <i>E. amygdalina</i> forest
431	4541	54068	06	60	<i>E. obliqua</i> OB010
432	4544	54068	20	150	<i>E. viminalis</i> VIM0100
433	4544	54069	12	30	<i>E. obliqua</i> OB010
434	4543	54073	05	30	Grassy <i>E. amygdalina</i> forest
435	4549	54050	05	360	Heathy <i>E. amygdalina</i> forest
436	4549	54046	06	25	Heathy <i>E. amygdalina</i> woodland
437	4549	54044	20	20	Heathy <i>E. amygdalina</i> woodland
438	4549	54043	40	360	Rockface heathy scrub
439	4553	54043	40	360	Rockface heathy scrub
440	4553	54045	15	20	Heathy <i>E. amygdalina</i> woodland
441	4553	54047	10	20	Heathy <i>E. amygdalina</i> woodland
442	4558	54068	15	330	Grassy <i>E. amygdalina</i> forest
443	4557	54064	10	360	Shrubby <i>E. obliqua</i> forest
444	4553	54067	30	60	<i>E. obliqua</i> OB010
445	4554	54072	12	300	Heathy <i>E. amygdalina</i> forest
446	4575	54056	02	150	Heathy <i>E. amygdalina</i> forest
447	4576	54056	01	150	Riverine scrub
448	4573	54056	20	90	Shrubby <i>E. obliqua</i> forest (2)
449	4570	54053	04	40	Shrubby <i>E. obliqua</i> forest (2)
450	4572	54058	01	30	Shrubby <i>E. obliqua</i> forest

SITE	E	N	SLOPE	ASPECT	TYPE
451	4575	54057	01	150	Riverine scrub
452	4549	54053	04	360	Shrubby <i>E. obliqua</i> forest (2)
453	4549	54058	12	360	Heathy <i>E. amygdalina</i> forest
454	4550	54063	12	310	Heathy <i>E. amygdalina</i> forestWL
455	4551	54066	18	220	Heathy <i>E. amygdalina</i> forestWL
456	4553	54065	05	300	Heathy <i>E. amygdalina</i> forest
457	4552	54058	20	280	Heathy <i>E. amygdalina</i> forest
458	4552	54055	03	330	<i>E. obliqua</i> OB0111
459	4569	54045	18	30	Shrubby <i>E. obliqua</i> forest (2)
460	4571	54040	30	110	Shrubby <i>E. obliqua</i> forest
461	4573	54040	25	45	Shrubby <i>E. obliqua</i> forest
462	4575	54040	05	45	Heathy <i>E. amygdalina</i> forest
463	4576	54040	02	70	Riverine scrub
464	4575	54045	02	65	Riverine scrub
465	4573	54045	05	360	Shrubby <i>E. obliqua</i> forest (2)
466	4521	54056	08	30	<i>E. obliqua</i> OB0111
467	4519	54053	03	340	<i>E. obliqua</i> OB0111
468	4518	54049	08	360	Heathy scrub
469	4518	54047	12	360	Heathy scrub
470	4524	54049	10	360	Heathy scrub
471	4529	54048	40	360	Rockface heathy scrub
472	4529	54050	02	20	Button grass moorland
473	4532	54051	06	360	Musk/Myrtle rainforest
474	4534	54050	14	360	Shrubby <i>E. obliqua</i> forest
475	4534	54046	12	60	Heathy <i>E. amygdalina</i> woodland
476	4525	54053	05	360	<i>E. obliqua</i> OB0111
477	4522	54059	04	240	Heathy <i>E. amygdalina</i> forest
478	4526	54056	04	180	<i>E. obliqua</i> mixed forest

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Figure 1. Opposite. A topographic map of the study area. This map is a portion of the Tasmap 1:25 000 series, GOG 4440. All co-ordinates in this map and all following maps refer to that series.

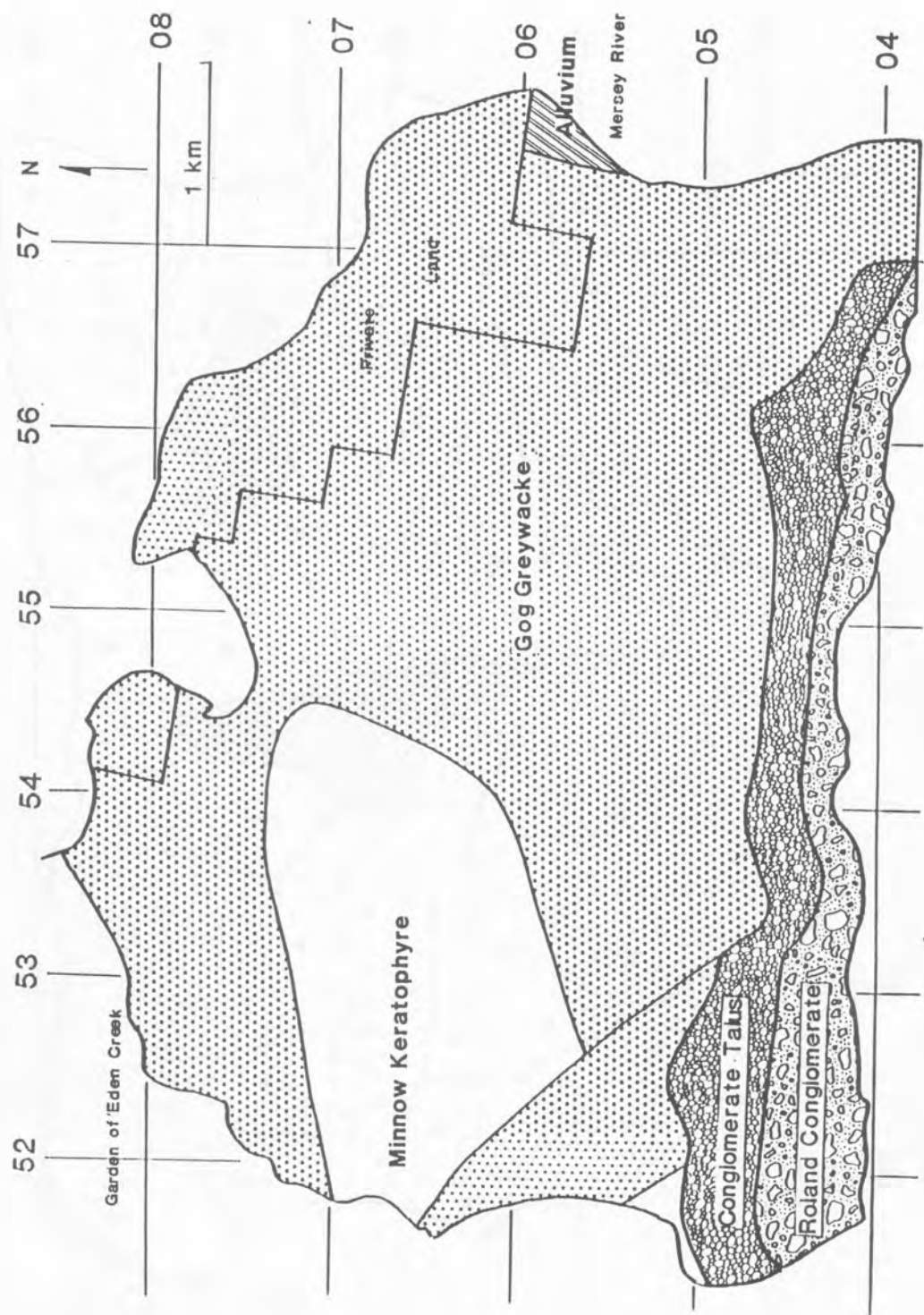


Figure 2. A geological map of the study area, after Jennings 1979.

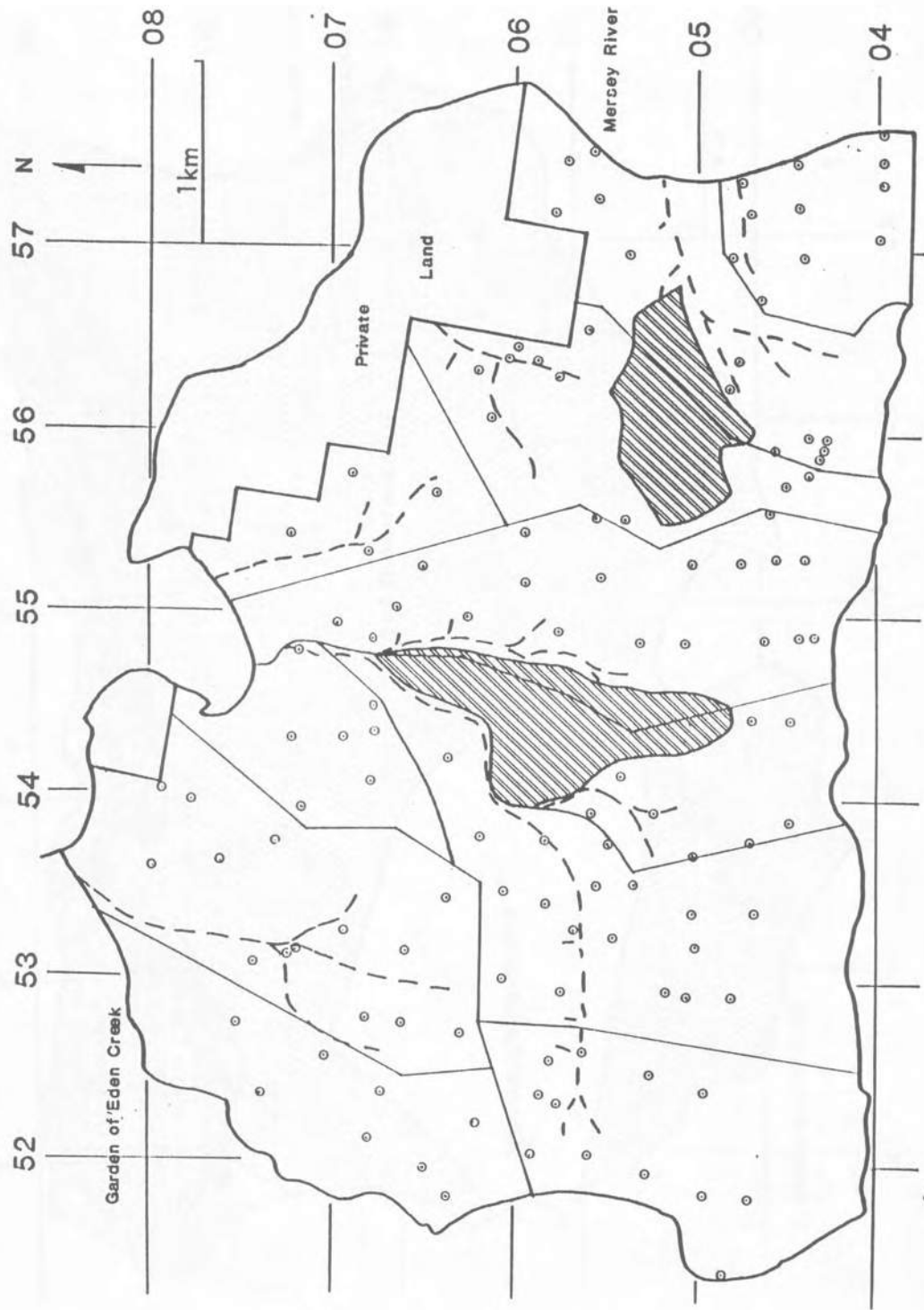
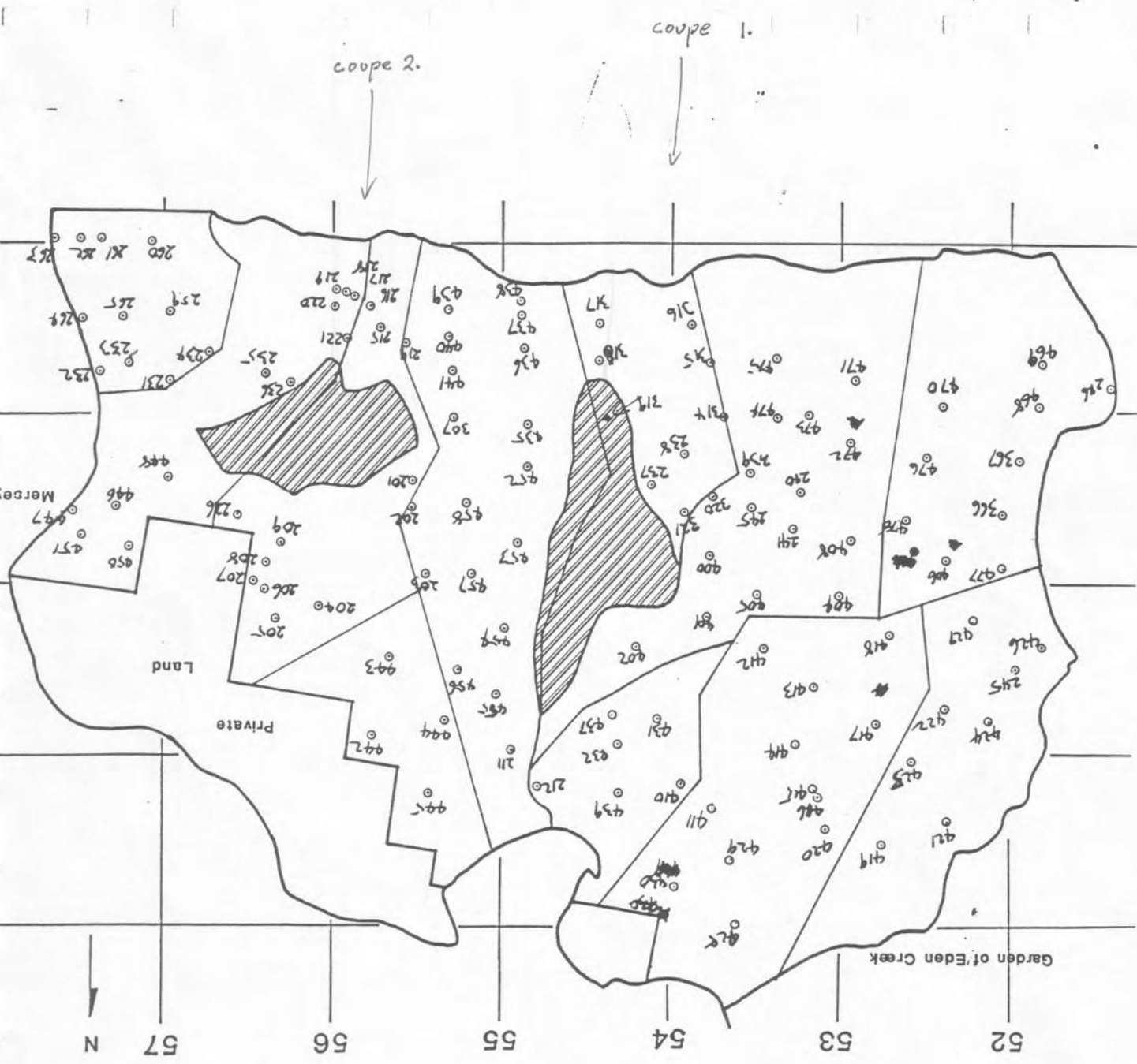


Figure 3. A map indicating the location of 189 survey quadrats and the location of proposed logging coupes 1 (central) and 2 (east). ----- = creek-lines, ——— = approximate boundaries of water catchments.



N

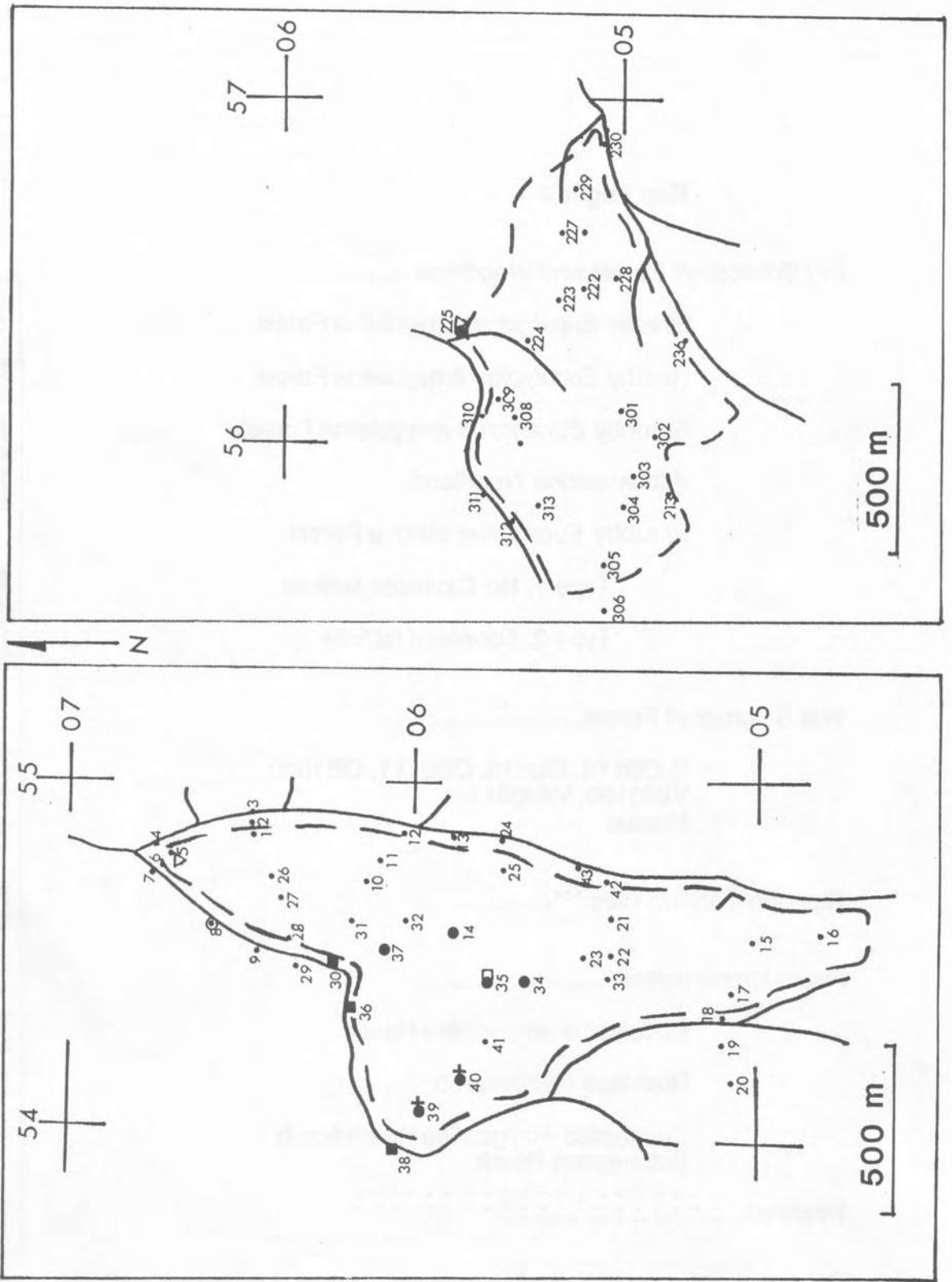


Figure 4. The distribution of survey quadrats and rare species in logging coupes 1 and 2. *Desmodium varians* var. *gunnii* □, *Pimelea curviflora* var. *gracilis* ●, *Blechnum patersonii* ■, *Ajuga australis* +, *Uncinia elegans* ○, *Poa tenera* ▽.

Map Legend

Dry Sclerophyll Forest and Woodland.....

Grassy *Eucalyptus amygdalina* Forest

Heathy *Eucalyptus amygdalina* Forest

Shrubby *Eucalyptus amygdalina* Forest

Allocasuarina Woodland

Shrubby *Eucalyptus obliqua* Forest

Type 1. No *Daviesea latifolia*

Type 2. *Daviesea latifolia*

Wet Sclerophyll Forest.....

** OB110, OB010, OB0111, OB1000

VIM0100, VIM0011

Mosaic

Riparian Communities. ***

Heath Communities.....

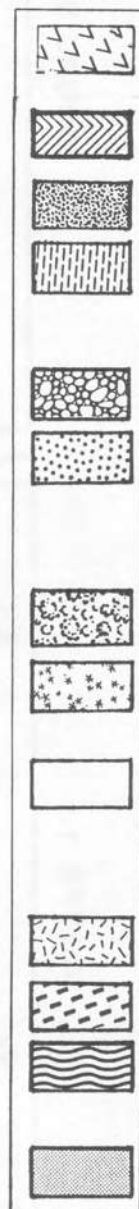
Eucalyptus amygdalina Heath

Rockface Heath/scrub

Eucalyptus amygdalina Heath/scrub

Buttongrass Heath

Modified.....



** See community descriptions for the generic classification.

*** See community descriptions for the descriptions of subdivisions.

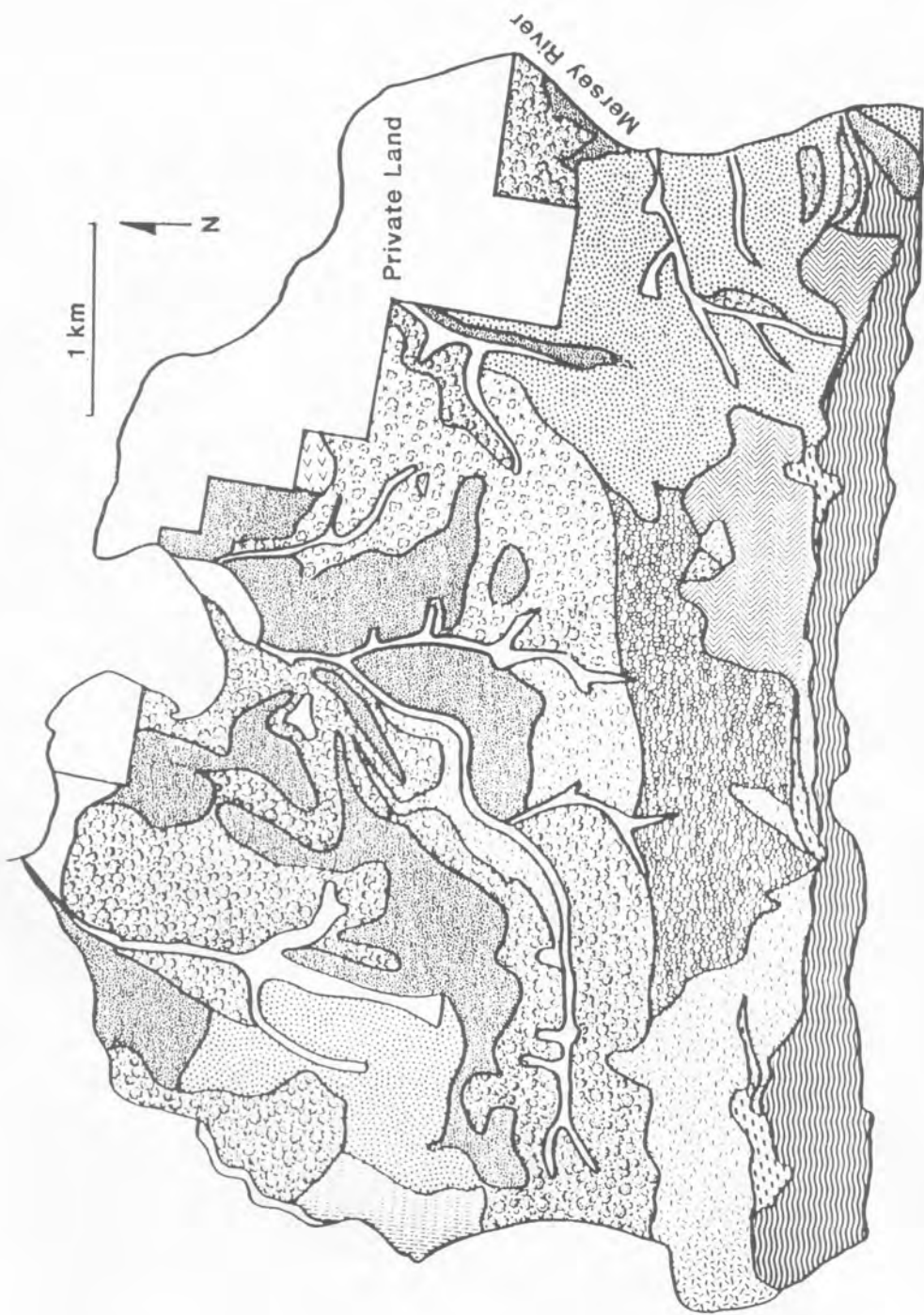


Figure 5. The distribution of communities throughout the study area.



Figure 6. The distribution of quadrats containing rare species outside of coupes 1 and 2. *Desmodium varians* var. *gunnii* ▲, *Pimelea curviflora* var. *gracilis* ●, *Poa tenera* ▽, *Poa sp nova* ■, *Goodia pubescens* ○, *Phyllota diffusa* □, See figure 4 for rare species in coupes.