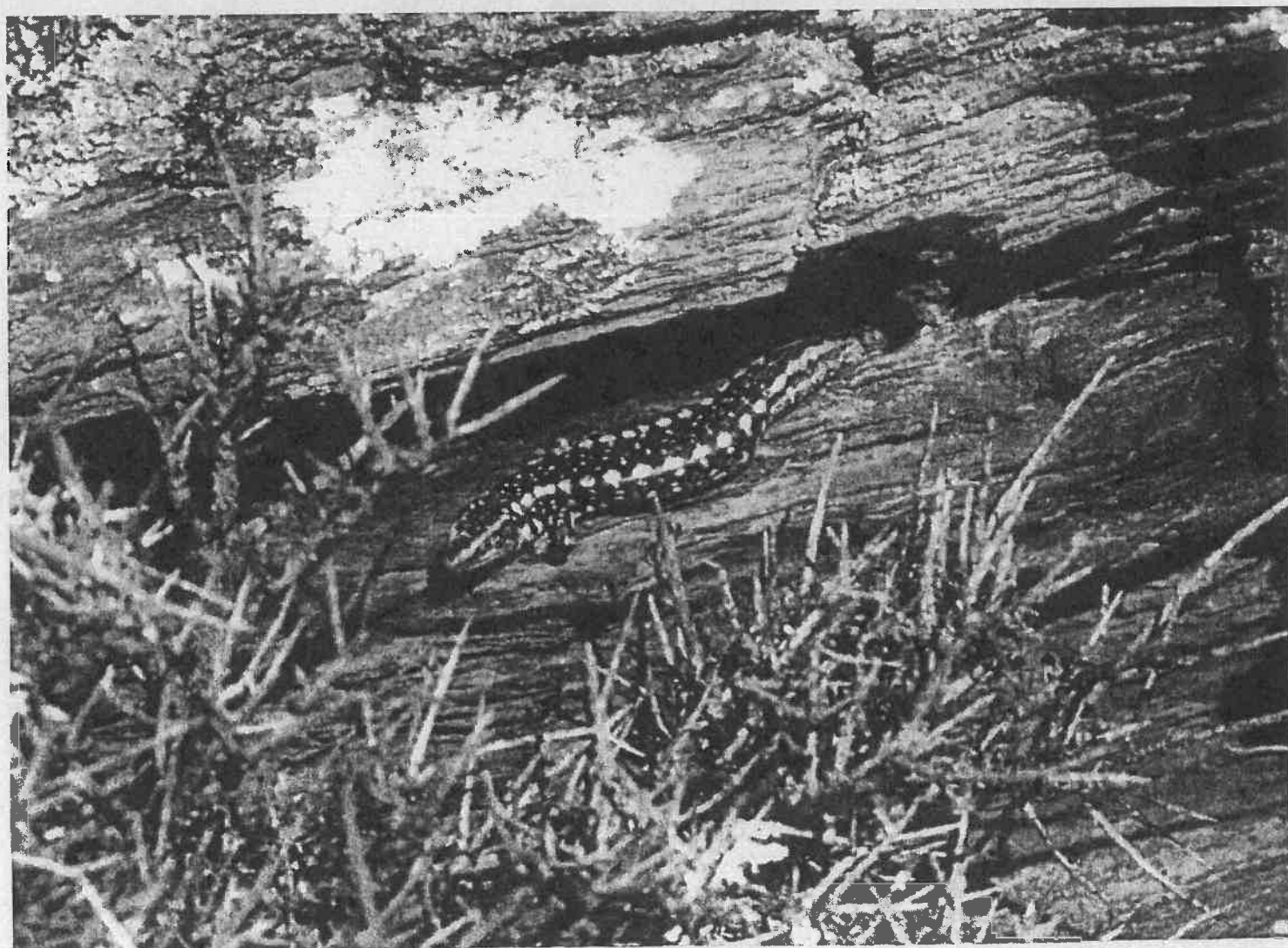




Macraes Ecological District

Survey Report for the Protected Natural
Areas Programme.

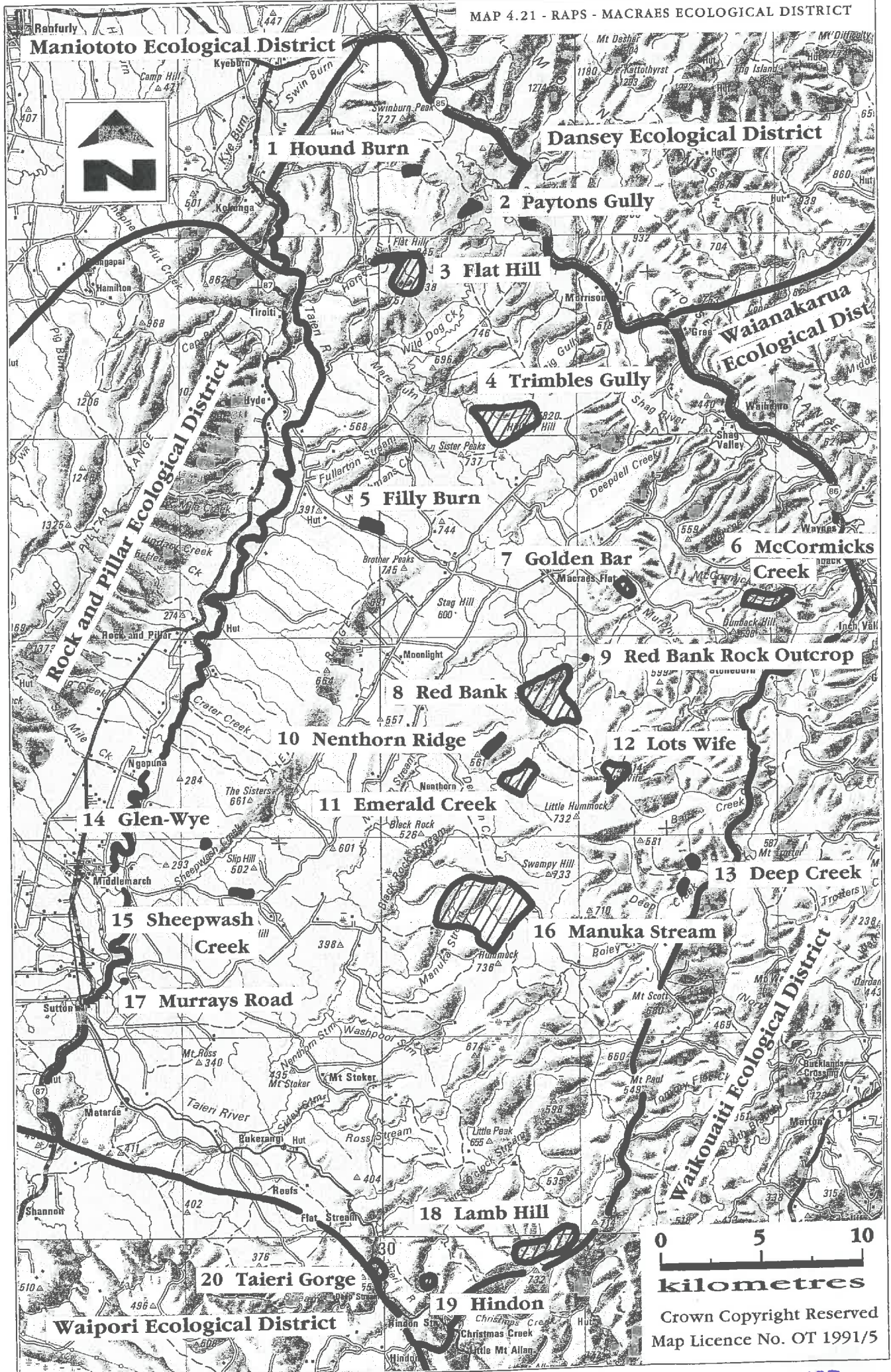
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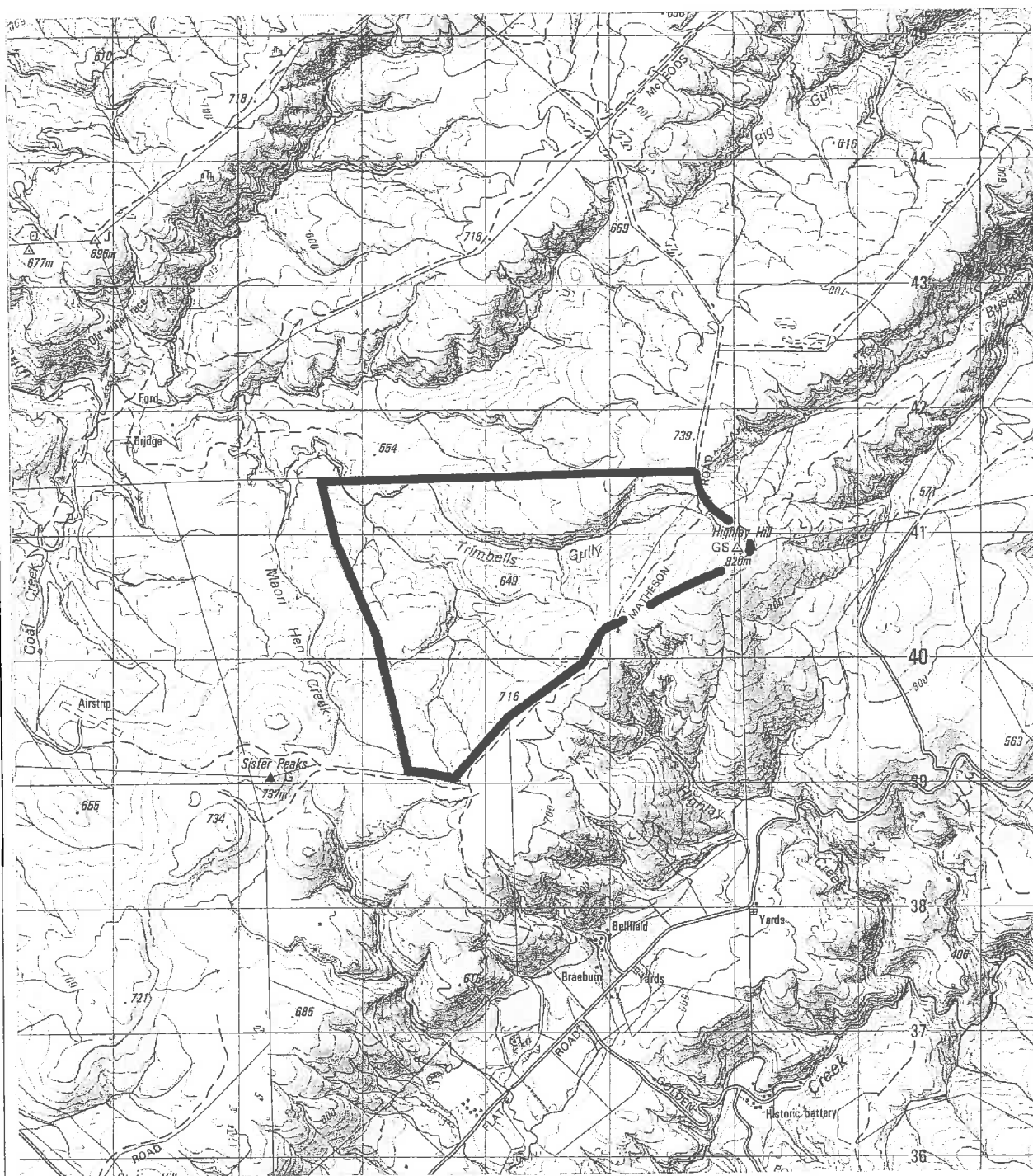


Department of Conservation
Te Papa Atawhai



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MAP 4.4 : MACRAES RAP 4 - TRIMBLES GULLY



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KILOMETRES

GRID REFERENCE : I42 061405

AREA : 564 ha

ALTITUDE : 520m - 820m

TENURE : Freehold

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MACRAES RAP 4 : TRIMBELLS GULLY

<i>Area</i>	564ha
<i>Grid Reference</i>	I42-061405
<i>Altitudinal Range</i>	520-820m
<i>Land System</i>	Rolling Hills
<i>Quadrat (community) Groups</i>	C, D, E and F
<i>Tenure</i>	Freehold
<i>Ecological Units</i>	Moist tussock-shrubland on basalt boulder slope on mountain top plateau. ($<1\%$) Narrow-leaved snow tussock grassland on broad ridge crest. (15%) Narrow-leaved snow tussock grassland on side-slopes. (65%) Narrow-leaved snow tussock grassland on toe-slope. (5%) Narrow-leaved snow tussock grassland on gully side-slopes. (10%) Copper tussock wetland on gully floor. (5%) Purei wetland on ridge crest. ($<1\%$)

Landform and Soil

A generally gently sloping gully system and broad ridge crests are typical features of the Rolling Hills land system. The mountain top plateau with steep basalt boulder slopes grading down to moderately steep side-slopes is not, however, a typical feature and is found only here in the district. Geologically most of the area is Haast schist chlorite sub-zone IV, except for the summit of Highlay Hill which is sandstone, siltstone and mudstone overlain by a basalt cap from the Waipiata Volcanics (Mutch, 1963).

McIntosh (1995) found the soils to be uniformly Typic Acid Brown Soils, typical of Rolling Hills schist terrain on which they occur. In assessing the soils values of Trimbells Gully McIntosh (1995) found the RAP to be the least special of the areas he visited. The landform-soils relationships are repeated in the Redbank and Manuka Stream RAP's, and the protection of those two RAP's would provide adequate soil reference sites. However, it should be noted that McIntosh (1995) did not sample the basalt colluvium of Highlay Hill. He says: "Inclusion of basaltic soils and basalt landforms in any proposed protected natural area could be an advantage in that these features would add variety to the reserve". This area has been included within the Trimbells Gully RAP.

Vegetation and Flora

Narrow-leaved snow tussock grassland (F) is the predominant vegetation type, accounting for about 95% of the RAP. Condition of the grassland varies, most notably with aspect. Slopes that are north facing are in the poorest condition, with extensive patches of the exotic herb *Hieracium pilosella* (mouse-ear hawkweed) in the herb layer accounting for up to 50% of the total cover. Scattered individuals of the native grasses *Chionochloa rigida* (narrow-leaved snow tussock) and *Festuca novae-zelandiae* (hard tussock) are still present in the canopy of these areas, with the native woody sub-shrub *Leucopogon fraseri* (dwarf heath) the most abundant native in the herb layer. Grassland in this condition accounts for about 30% of the RAP. The area of grassland immediately below the summit of Highlay Hill is also modified, containing extensive patches of exotic grasses.

The other areas of narrow-leaved snow tussock grassland are dominated by *Chionochloa rigida* with an average cover of 60% and an average height of 1m. Other indigenous species present in the canopy are the native grasses *Festuca novae-zelandiae* and *Poa colensoi* (blue tussock), the shrub *Discaria toumatou* (matagouri), the scrambler *Muehlenbeckia complexa* (pohuehue) and the herb *Aciphylla aurea* (golden spaniard). Exotics are a prominent feature of the herb layer, with the herbs *Hieracium pilosella*, *Hypochoeris radicata* (catsear) and *Trifolium repens* (white clover) plus the grasses *Agrostis capillaris* (brown top), *Anthoxanthum odoratum* (sweet vernal) and *Holcus lanatus* (Yorkshire fog). However, in terms of species diversity, by far the greater proportion are natives, the most common being the herbs *Geranium microphyllum*, *Helichrysum filicaule* (slender everlasting daisy), *Raoulia subsericea* (mat daisy) *Ranunculus multiscapus* (grassland buttercup) and *Wahlenbergia albomarginata* (N. Z. bluebell) together with the woody sub-shrubs *Gaultheria depressa* (snowberry), *G. macrostigma* (pink snowberry) and *Leucopogon fraseri*.

Moist tussock-shrubland (E) occurs on the basalt boulders below the plateau of Highlay Hill. It is a small ecological unit, accounting for less than 1% of the RAP. The canopy is dominated by a mix of the native grasses *Chionochloa rigida* and *Poa colensoi*, the shrubs *Coprosma propinqua* (mingimingi), *Discaria toumatou* and *Hebe rakaiensis*, the scramblers *Muehlenbeckia complexa* and *Rubus schmidelioides* with the herb *Aciphylla aurea*. The two scramblers again dominate the herb layer, with other less abundant natives including the grasses *Dichelachne crinita*, *Elymus solandri* (blue wheat grass) and *P. colensoi*, the shrubs *Discaria toumatou* and *Hebe rakaiensis*, the herbs *Helichrysum filicaule*, *Oxalis exilis* (yellow oxalis), *Pseudognaphalium luteoalbum* and *Wahlenbergia albomarginata* and the fern *Blechnum penna-marina*. The common exotics are the grasses *Anthoxanthum odoratum* and *Holcus lanatus* with the herbs *Trifolium repens* and *Galium aparine* (cleavers). 50% of the sample site consisted of bare rock.

The Purei wetland (C) occurs on the broad ridge crest below and to the south-west of Highlay Hill. It has been highly disturbed by cattle trampling, with the exotic rush *Juncus effusus* (soft rush) dominant over the native grass *Chionochloa rubra cuprea* (copper tussock) in the canopy. Many raised 'lumps' were observed and assumed to be the remains of dead plants of *C. rubra cuprea*. Dominance in the herb layer is shared by the native moss *Sphagnum cristatum*

and the native sedge *Carex gaudichaudiana*, with other common natives in this layer being the rush *Elaeocharis acuta* and the herbs *Myriophyllum propinquum* and *Ranunculus glabrifolius*. Common exotics in the herb layer include grass *Alopecurus geniculatus* (marsh fox tail) and the rushes *Juncus articulatus* (jointed rush) and *J. bufonius* (Toad rush).

The final type of vegetation present is copper tussock wetland (D), occurring on the gully and valley floors, which contribute c. 5% of the RAP. Copper tussock wetland present on Trimbells Gully floor (the stream with the name 'Trimbells Gully' on the map, grid reference I42: 065409) is highly modified due to the area having been mined for alluvial gold. The canopy layer is dominated by the native sedges *Carex geminata* (cutty grass), *Carex secta* (*purei*) and *Schoenus pauciflorus* (bog rush), the native grass *Chionochloa rubra* ssp. *cuprea* and the exotic rush *Juncus effusus*. Exotic species are the most prominent feature of the herb layer (below 30cm) with the grasses *Agrostis capillaris*, *Anthoxanthum odoratum* and *Holcus lanatus*, the herbs *Hypochoeris radicata*, *Mimulus moschata* (musk), *Stellaria alsine* (bog stitchwort) and *Trifolium repens* plus the rush *Juncus articulatus*. Natives are less abundant, the most common being the herbs *Bulbinella angustifolia* (maori onion) and *Ranunculus glabrifolius*, the rush *Elaeocharis acuta* and the fern *Blechnum penna-marina*.

The threatened species *Carex secta* var. *tenuiculmis* (Cameron et al., 1995) is found in copper tussock wetland on the valley floor, while the local species *Celmisia hookeri* is present in narrow-leaved snow tussock grassland on the steep south facing slope above the Trimbells Gully stream, occurring around rocks scattered throughout the grassland.

Two species of limited distribution within the district, *Rytidosperma racemosum* and *Sophora prostrata* (prostrate kowhai), appear in narrow-leaved snow tussock grassland. *S. prostrata* is particularly relevant, as it is the southern-most known occurrence of the species (Dr. A. Whitaker, pers. comm. 1992).

Fauna

Numerous insects were seen. A common skink (*Oligosoma nigriplantare polychroma*) was observed in the narrow-leaved snow tussock grassland.

Discussion

The modification of the copper tussock wetlands in Trimbells Gully may seem to reduce the area's conservation value, but there is historic value to be considered as well. The pot-holed nature of the alluvial workings have the characteristics of an early gold rush site from the period 1861-63. Only one other site in the district, at Murphy's Flat, shows these signs. The workings have a high conservation value in themselves (Dr G. Hamel, pers. comm. 1997).

The landform-vegetation combination of the Moist tussock-shrubland on the basalt boulder slope is the most important natural feature of conservation value within the RAP. This ecological unit is repeated to some extent in the Flat Hill RAP, however the basalt boulder slope there occurs on a different landform. The plateau nature of the basalt on the summit of Highlay Hill is a unique landform within the ecological district. This combines with the presence of *Sophora prostrata* to increase the conservation value of an otherwise mediocre area of narrow-leaved snow tussock grassland.

With reference to the generally mediocre condition of the snow tussock grassland, as McIntosh (1995) pointed out, the removal of grazing and burning would probably lead to an increase in naturalness over the long term. The south-facing steep slopes contain snow tussock grassland in good condition - as good as anywhere else within the land system. The overall ranking of condition is influenced by the extensive patches of *Hieracium pilosella*-dominated grassland.

The continued grazing of the land without fertilisation and oversowing is likely to lead to further degradation, but such inputs may not be economically viable (McIntosh, 1995)

Selection criteria Macraes RAP 4 : Trimbells Gully

Representativeness	H	Representative vegetation of the Rolling Hills land system.
Diversity	H	A good diversity of vegetation.
Naturalness	L-M	Many exotics present below 30cm; highly degraded areas on north facing slopes.
Special Features	M	The southern-most known occurrence of <i>Sophora prostrata</i> .
Buffering	H	Excellent catchment integrity; surrounding vegetation modified narrow-leaved snow tussock grassland.
Viability	M-H	<i>Hieracium pilosella</i> is prevalent in some areas.
Threat	M-H	Burning and grazing; exotic species are abundant.
Landforms	H	Representative of the Rolling Hills land system with the basalt boulder slope below the plateau of Highlay Hill providing a unique feature.