



## **Crown Pastoral Land Tenure Review**

**Lease name : Silverbirch Station**

**Lease number : Po 290**

### **Conservation resources report**

As part of the process of tenure review, advice on significant inherent values within the pastoral lease is provided by Department of Conservation officials in the form of a conservation resources report. This report is the result of outdoor survey and inspection. It is a key piece of information for the development of a preliminary consultation document.

The report attached is released under the Official Information Act 1982.

**Copied November 2002**

# SILVERBIRCH PASTORAL LEASE CONSERVATION RESOURCES REPORT

## PART I

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### 1.1 INTRODUCTION

The lessees of Silverbirch pastoral lease have applied to the Commissioner of Crown Lands for a review of tenure. The property was inspected in November 1996 by DOC staff to update an assessment made in November 1988 for Protected Natural Areas Programme (PNAP) implementation. The 1988 assessment was a follow-up to the Protected Natural Areas Programme survey of the property as part of the 1986 survey of the Umbrella Ecological District. The PNAP survey had identified a recommended area for protection (RAP Umbrella 5 - Timber Creek Headwaters) of 355 ha, the majority of which is located within the pastoral lease. PNAP implementation did not result in formal protection of the RAP. A conservation covenant protects the balance of the Timber Creek beech forest which is located downstream on adjoining freehold land in separate ownership.

Silverbirch is located on the headwaters of Timber Creek, a tributary of the Pomahaka River and includes the summit and eastern face of Mt Bengier. It is approximately 8 km from Ettrick. The property is a small one of 1011 ha, used as a summer runoff in conjunction with other developed freehold land.

The Timber Creek headwaters is the catchment for the Clutha District Council Moa Flat rural water scheme. Interest by the council in securing catchment protection to maintain the rural water supply has prompted assessment for tenure review. The intake of the scheme is located on the beech forested creek near the southern boundary of the lease.

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## PART II

### CONSERVATION RESOURCE DESCRIPTION AND ASSESSMENT OF SIGNIFICANCE

#### 2.1 LANDSCAPE

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##### CONTEXT

The Silverbirch pastoral lease is located on Mt Benger which is a distinctive landmark that can be viewed from many parts of the Clutha Valley, particularly between Etrick and Dumbarton. Mt Benger, with its rounded appearance, contrasts markedly with the adjacent long block mountain ranges. Furthermore, the overall appearance of being covered in tussock grasslands also contrasts sharply with the more intensive landuse patterns along the Clutha.

The Mt Benger road provides the public with an opportunity to travel to the summit (1184 m) from which point various backcountry recreational pursuits can be undertaken.

##### LANDSCAPE TYPES

The study area has been subdivided into the following four sub-units:

- 1 The headwaters of Timber Creek: This is characterised by a well defined stream as well as an incised and straight drainage pattern. Visually there is a strong contrast between the snow tussocks and the remnant beech forest. This well defined gully system conveys a strong sense of enclosure which extends for the entire length of Timber Creek.
- 2 Mt Benger Dome: This alpine plateau is characterised by the uniformity of the tussock grasslands and the general feeling of no boundaries, due to the convex nature of the landform. The skyline on the eastern side is interrupted by rocky tors, eg, Passage Rock. The most prominent "built" elements on the summit are the Mt Benger Road and a farm track. Both of these vehicle access points reduce this sub-unit's overall wilderness qualities to a small degree.

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North facing depression: This shallow depression forms the headwaters of Bullock Creek, which flows into the <sup>Pemahaka then</sup> Clutha. This sub-unit is different to Timber Creek as it is less well defined, being surrounded by a series of low, rounded hills. The stream also has more of a meandering pattern. The intact grasslands convey a smooth textured pattern which is strikingly different to the south faces.

- 4 The eastern faces: This sub-unit is different to the other sub-units due to the large eastern facing snow banks. The mosaic of different vegetation, with the lower shrublands grading-in with the snow tussock near the summit of Mt Bengier being dissimilar in character with the other sub-units. In addition, a small Y-shaped remnant of silver beech forest is a reminder of former tree lines. Such evidence is now extremely uncommon in Central Otago. This example is one of very few visible from major highways crossing the region.

This sub-unit is visually sensitive, as it can be viewed from many parts of the Clutha Valley, therefore its skyline should be protected from communication installations.

## CONCLUSION

Collectively these four sub-units are large enough to ensure the integrity of the high country landscape pattern is protected as well as ensuring the protection of other inherent values such as diversity of ecosystems. Due to the high natural qualities contained within Silverbirch, this landscape is vulnerable to change, particularly through a different management regime.

## 2.2 LANDFORMS AND GEOLOGY

The plateau landscape of the block-faulted erosion surface which typifies the Mt Bengier area grades southwards into the rolling foothill country typical of much of the southern portions of the Umbrella District. Timber Creek has carved a deeply incised valley, now flanked mostly by stable slopes. Rock outcrop on ridges as well as on valley slopes, which in places are steep.

Lowland yellow-brown earths with related steepland soils (Tuapeka) are associated with the margins of Timber Creek. The majority of the property is covered by high country yellow-brown earths of the Teviot group, which vary texturally from silt loams to stony loams and are derived mainly from schist with a thin cover of schist loess in places.

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Imber Creek has its source on the southern slopes of Mt Bengar. It is a tributary of the Pomahaka River. There are no landform features listed in the Geopreservation Inventory. The altitude range of the property varies between 615 m and 1183 m.

## SIGNIFICANCE OF THE LANDFORMS AND GEOLOGY

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The rock bluffs within and to the east of the RAP are a significant landform feature. The eastern bluffs provide a species rich habitat for flora.

## 2.3 CLIMATE

The property is of mid to high altitude for the location. Its predominantly southerly aspect renders the property as cold country. It is exposed to southerly weather influences and snow frequently covers the upper half of the property in winter. Frosts are common in winter. Winds from the southern and western quarters prevail and are often strong. Rainfall is well spread through the year generally and persistent drought conditions are infrequent.

## 2.4 VEGETATION

### RAP DESCRIPTION (RAP Umbrella 5 - Timber Creek Headwaters)

Major communities include the following:

rock bluffs	on ridge and valley slopes
silver beech forest	on creek margins
moss cushionfield	on plateau margins
cushion-mossfield	on plateau
modified tussockland	on colluvial slopes, plateau, ridge
tussockland	on ridge
tussock shrubland	on colluvial slopes

### Silver Beech Forest

The forest consists of one c. 20 ha stand (altitude c. 700-800 m) dominated by silver beech (*Nothofagus menziesii*) with a >75% cover in the tallest stratum (>12 m) and an average height of c. 18 m. Regeneration of silver beech is abundant in the tiers recorded between 2-12 m with cover in the category 5-25%. However, regeneration in the lower tiers from 0-2 m appears less abundant. Of the understorey species, prickly shield fern (*Polystichum vestitum*) dominates

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the stratum from 0.4-2 m whereas a hooked sedge *Uncinia clavata* dominates the ground tier. Fifty-one species were recorded. The beech forest appears generally uniform throughout, with a litter cover of 1-5%.

### Tussocklands

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Narrow-leaved snow tussock (*Chionochloa rigida*) dominates through the altitude range from 970-1155 m with the community occupying ridge, plateau and colluvial slopes on a variety of aspects. On the ridges tussock height is generally 0.4 m or less, whereas on southerly aspects its height can reach one metre. Some narrow-leaved x slim snow tussock (*Chionochloa rigida* x *macra*) hybrids were also recorded. The most abundant ground layer species include the grasses browntop (*Agrostis capillaris*), blue tussock (*Poa colensoi*) and sweet vernal (*Anthoxanthum odoratum*) plus the sub-shrubs snowberry (*Gaultheria depressa*) and *Pernettya macrostigma*. In places the shrub component increases, predominantly consisting of mountain tauhina (*Cassinia vauvillierii*), turpentine scrub (*Dracophyllum uniflorum*) and *Hebe* aff. *rakatanensis*.

There are some localised flushes occupied by swards of adventive species of varying abundance notably browntop, white clover (*Trifolium repens*), foxglove (*Digitalis purpurea*), scotch thistle (*Cirsium vulgare*) and woolly mullein (*Verbascum thapsus*). In places *Carex cortacea*, *Schoenus pauciflorus* and the moss *Sphagnum cristatum* dominate.

### Moss cushionfield

The moss-cushionfield community documented at one site (c. 1125 m). It occurs on the plateau margins and is dominated by comb sedge (*Oreobolus pectinatus*) and bryophytes, each having cover in the 25-50% category. Bryophytes consist predominantly of *Sphagnum cristatum* and *Polystrichum juniperinum*. Species of 1-5% cover include the cushions *Phyllachne colensoi* and *Drapetes* "bog", plus the sedge *Rostkovia magellanica*. The sedge, *Carex lachenallii* was also recorded.

### Cushion mossfield

This community forms a mosaic with tussockland vegetation on the plateau at the head of the catchment (c. 1155 m). Bryophyte cover is in the 25-50% category and is dominated by *Racomitrium lanuginosum*. The cushion species *Dracophyllum muscoides* achieved 5-25% cover, whilst narrow-leaved snow tussock is of minor importance with 1-5% cover. Other species include the sub-shrub *Cyatodes pumila*, the cushions *Phyllachne colensoi* and

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*Celmisia sessiliflora*, the herbs *Gentiana bellidiflora* and *Euphrasia zelandica* plus the cushion rush *Luzula pumila*. Lichens are present with a cover of 1-5%.

### Rock Bluffs

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The rock bluffs are relatively species rich (c. 70 species). Notable records include the rare *Aciphylla pinnatis* and the hooked sedge *Uncinia purpurata*. Other species noted include the shrubs *Olearia lineata* and *Asplenium richardii*, *Grammitis poeppigiana*, *Celmisia semicordata* var. *aurigans* and *Astelia nervosa*. Rock bluffs in the western portion of the catchment are species poor compared with those to the east of Timber Creek.

Other parts of the pastoral lease outside of the RAP are described as follows:

### Shrubland-Grassland : Southern Slopes

Southern slopes from 880-960 m are a mixed shrubland-grassland of *Chionochloa rigida*, *Cassinia fulvida*, *Dracophyllum uniflorum*, *Coprosma ciliata* and a large variety of low growing shrubs such as *Gaultheria macrostigma*, *Kelleria dieffenbachii* and an excellent variety of herbs in the genera *Acaena*, *Bulbinella*, *Antisotome* and *Ranunculus*. Wetter slopes, especially riparian zones, contain dense shrubs of *Leonobete odora*, mountain flax and stands of the striking tall speargrass *Asiphylla scott-thomsonii*. Finger-bogs are a mosaic of moss species including *Sphagnum cristatum*, sedges including *Carex* species and *Schoenus pauciflorus*, liverworts and rich herbfield of mostly tiny species.

Rock outcrops, apart from their attendant flora of lichens, mosses and algae, are refugia for some species of shrubs and herbs that have disappeared from the sward. These include the small shrub *Gaultheria antopoda*, the tall daisy *Celmisia semicordata* and carrot *Antisotome brevistylus*. Wet patches within this system are dominated by cushions of comb sedge *Oreobolus pectinatus* and the tiny lily *Herpolirion*.

These shrubland-grasslands are in excellent condition with a consistently high woody component and diverse herbfield.

### Summit Grassland-Herbfield

The broad summit of Mt Benger (960-1184 m) has a largely intact diminutive snowgrass (*C. rigida*) sward only interrupted by the network of roads, tracks and holding paddocks. A feature of this grassland is the large bright green patches of the Central Otago endemic *Celmisia*

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*rorepens* often mixed with similar *C. densiflora*. Large cushions of *Phyllacne colensoi* and small shrubs of *Pimolea oreophila*, *K dieffenbachii* and *Myrsine nummularia* are numerous as is the buttercup *Ranunculus enysii* and pygmy speargrass *Aciphylla bectorii*. Impressive tors rise above this flat landscape, especially on the eastern edge of the plateau. North facing parts of the tops have broad wetlands as a special feature containing extensive areas of *Schoenus pauciflorus*, comb sedge, *Sphagnum* species and a large array of herbs including *Plantago*, *Kelleria paludosa* and *Gnaphalium mackayi*.

Also recorded are species representative of high alpine flora such as *Marsippospermum gracile* and *Aciphylla bectorii* and a community of *Leonobabe pauciramosa* shrubland.

### Modified Grassland - Eastern Slopes

From 615-880 m is a zone of modified tall tussockland with a large intertussock component of introduced grasses, eg, browntop and clover and fescue tussock. The upper parts of a narrow ribbon of silver beech forest extends up the deepest gully system from the adjoining freehold land below.

### PROBLEM PLANTS

The property is unusual insofar as it has no problem plants present other than a solitary gorse bush adjacent to the Mt Bengier Road.

### SIGNIFICANCE OF THE VEGETATION

The Silverbirch pastoral lease has high conservation values on botanical grounds in the Otago context as it has a distinct mix of native species. It is quite different from both the Old Man Range and Umbrella Mountains having more diverse and extensive shrublands than the former, and less diverse than the Umbrella Mountains. A feature of Mt Bengier is its uniform quality on the summit plateau and the extent of good quality shrubland down to a very low altitude (880 m).

Their predominately wet nature, exposed tops have no doubt contributed to both their present condition and extent of alpine vegetation.

The Timber Creek bush remnant constitutes one of the most easterly remaining stands of beech forest within the district. The presence of forest dimples and Hall's totara logs in its vicinity



nply that beech forest was once more widespread and that the current absence of podocarp species in the area was not always the case.

## 2.5 FAUNA

### INVERTEBRATE FAUNA

A rich Lepidoptera fauna was associated with the Timber Creek and Mt Benger areas. Several species were not recorded elsewhere in the ecological district. Those recorded were *Stigmella oriastra*, *Stigmella ilsea*, *Aorata rufivena*, *Aorata macropis*, *Reductodermes* sp., *Elachista thallophora* (Meyrick), *Heterocrossa cryodana* (Meyrick), *Circica barbata* (Philpott), *Tingena lassa* (Philpott), "*Furythecta*" *phaeoxyta* (Meyrick), *Harmologa petrias* (Meyrick), *H. angutnea* (Philpott), *Pyrgotis consentiens* (Philpott), *Eudonia legnota* (Meyrick), *E. altomacha* (Meyrick), *E. sabulosella* (Walker), *E. xysmattas* (Meyrick), *Scoparia* sp., *Chloroclystis nerels* (Meyrick), *Epyaxa rosearia* (Doubleday), *Helastia corcularia* (Guenee), *Helastia christinne*, *Notoreas paradelpa* (Meyrick), *N. perornata* (Walker), *Asaphodes abrogata* (Walker), *Paranotoreas brephosata* (Walker), *Dichromodes gypsotts* (Meyrick) and *Homobadena fortis* (Butler).

Other invertebrate fauna species of note collected include four alpine grasshoppers such as *Sigaus obeltsci*, the diurnal moths *Gymnobathra* n. sp., *Scoparia nomeutis*, *Asaphodes cinnabari*, *Notoreas chtoneres*, *Tingena hastata*, the tigermoth *Metacrias buttoni* and the case moth *Orophora unicolor*. These are new records, collected from the summit plateau generally outside the RAP.

Also recorded for the first time was the large land snail, *Powelliphanta spedeni* at 1000 m in the RAP. This species is a category B threatened species (Molloy and Davis, 1994).

An undescribed black cockroach species known elsewhere from the Blue Mountains and Umbrella Mountains is found on the summit together with the bugs *Rhyphodes chinai*, *R. anceps* and *R. spadix*.

### VERTEBRATE FAUNA

Birds recorded from the beech forest included the common species grey warbler, yellow-breasted tit, rifleman, bellbird, fantail, chaffinch and blackbird.

Bird species of open habitats include goldfinch, redpoll, yellowhammer and skylark.

## AQUATIC FAUNA

Timber Creek and the Bullock Creek watercourse draining the northern summit plateau were both electric fished. No fish species were recorded from either creek. Aquatic invertebrates, ie, flatworms, caddisfly larvae, stonefly and mayfly nymphs were abundant. These included species of note including the caddis *Psilochorema cheirodes* and *Oeconesus incisus* and stoneflies *Zelandobius patricki*, *Cristaperla waharoa*, *Zelandoperla pennulata* and the scorpionfly *Nannochorista philpotti*.

## PROBLEM ANIMALS

The property is not suitable habitat for rabbits which appear to be absent. Possums are present in all plant communities with numbers higher in the beech forest. Conservation values do not appear to be at risk. A small number of red deer also inhabit the beech forest and a low population of hares occurs in open country. No particular control measures other than periodic monitoring are required.

## SIGNIFICANCE OF THE FAUNA

The property contains a particularly rich Lepidoptera fauna. Five alpine moth species were a notable feature. Also noteworthy was the record of the alpine grasshopper species (present at comparatively low altitude) and several new Lepidoptera records.

The presence of the threatened land snail, *Powelliphanta spodent* is a significant extension of its distribution and eastern limit of a species found west to eastern Hordland.

## 2.6 HISTORIC

There are no known or recorded archaeological or historic features on the property.

## 2.7 PUBLIC RECREATION

### 2.7.1 PHYSICAL CHARACTERISTICS

The property is readily accessible for public recreation due to the formed Mt Benger Road which traverses it. Given the property's small size and moderate altitude in itself it has little to

ffer for recreation. The road, however, extends north along the ridge crest towards the Old Man Range and provides a longer accessway to this more important recreation destination.

The summit of Mt Bengier affords excellent views of the Clutha Valley, Umbrella Mountains and the Garvie Mountains.

### 2.7.2 PUBLIC ACCESS

#### Legal Roads

The formed Mt Bengier Road provides legal access to the property from State Highway 8 near Etrick, and extends up the southeast ridge of Mt Bengier, through the lease to the summit area. At the summit, it branches with one branch running west to access the boundary with Clearburn Station and then southwest along the boundary of the lease. This latter section is unformed. From the summit area, a formed legal road extends northwards across the boundary and along the ridge through Moa Hills pastoral lease towards Coal Creek near Roxburgh.

The unformed Westcott Road provides legal access from Dumbarton to the eastern boundary of Silverbirch.

#### Marginal Strips

There are no existing marginal strips on the property. Timber Creek is the only sizeable watercourse on the property but is unlikely to warrant a marginal strip.

### 2.7.3 ACTIVITIES

The Mt Bengier Road is used by 4WD groups for trips from time to time and may also be used by occasional horse riding parties.

Occasional hunting for deer occurs by locals. There is no commercial recreation activity on the property.

Potential uses include the above activities and the road network extending towards the Old Man Range holds good potential for these uses as well as mountain biking. The high conservation values are likely to attract occasional visits by naturalist groups. In good snow years, the Mt Bengier Road may provide access for cross country skiing access to the Old Man Range.

Offroad vehicle or horse use<sup>s</sup> should not be encouraged on the summit plateau because of the risk of damage to the extensive bogs.

The summit area may be of interest as a destination for day walkers keen to enjoy the natural landscape of rolling tops and changes in vegetation patterns.

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### **PART III**

## **CONSULTATION AND DISTRICT PLANS**

### **3.1 CONSULTATION**

The property was commented on by NGOs at an early warning meeting on 11 February 1997. Key points raised were:

- Generally the NGOs were impressed with the good condition of the snow tussock cover.
- They considered the two top blocks should be reserved.
- A marginal strip was warranted up Timber Creek.
- The Mt Bengier Road should be legalised to protect public access including access for adjoining landholders.
- Protection was required for the rural water supply scheme.

Additional written comment was supplied by Mike Floate representing Federated Mountain Clubs and is attached to this report.

### **3.2 DISTRICT PLANS (Matters of National Importance)**

Silverbirch is situated in the Rural A Zone (Agricultural) in the 'Tuapeka section of the Central Otago Transitional District Plan. The zone lists agriculture, horticulture, forestry, parks, scenic reserves, recreation grounds and sports grounds among its permitted activities. There are no policies or provisions related to landscape or natural character and no provisions for the protection of indigenous flora and fauna. The plan recognises no sites as having significant indigenous vegetation or significant habitats of indigenous fauna within the area of the pastoral lease (nowhere else either except for those areas that have been designated).

A new district plan under the Resource Management Act is still being drafted and is not expected to be notified for some time.



**ABOVE :** Head of Bullock Creek looking towards Gem Lake, showing uniformity of tall tussocklands and associated herbfield/low shrubland. Undulating ridges enclose this shallow catchment.

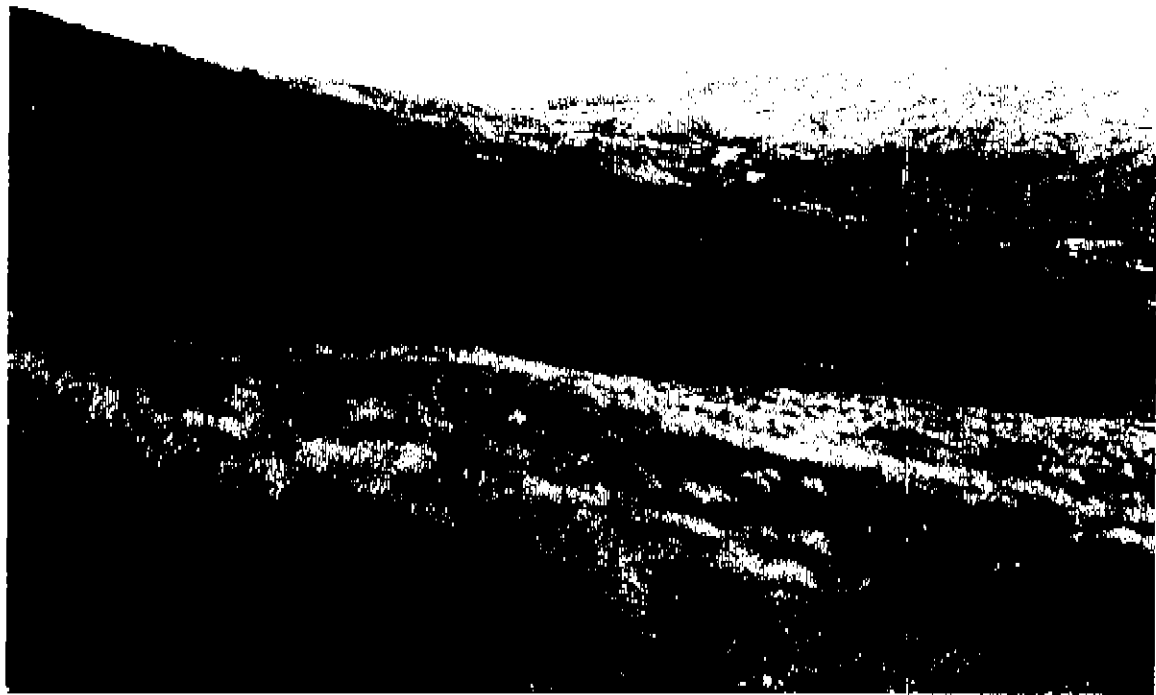
**BELOW :** Southeast summit area 850-1000 metres. Note diversity of grassland/shrubland/herbfield.



## SILVERBIRCH STATION

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Silverbeech forest remnant in gully on lower eastern face.



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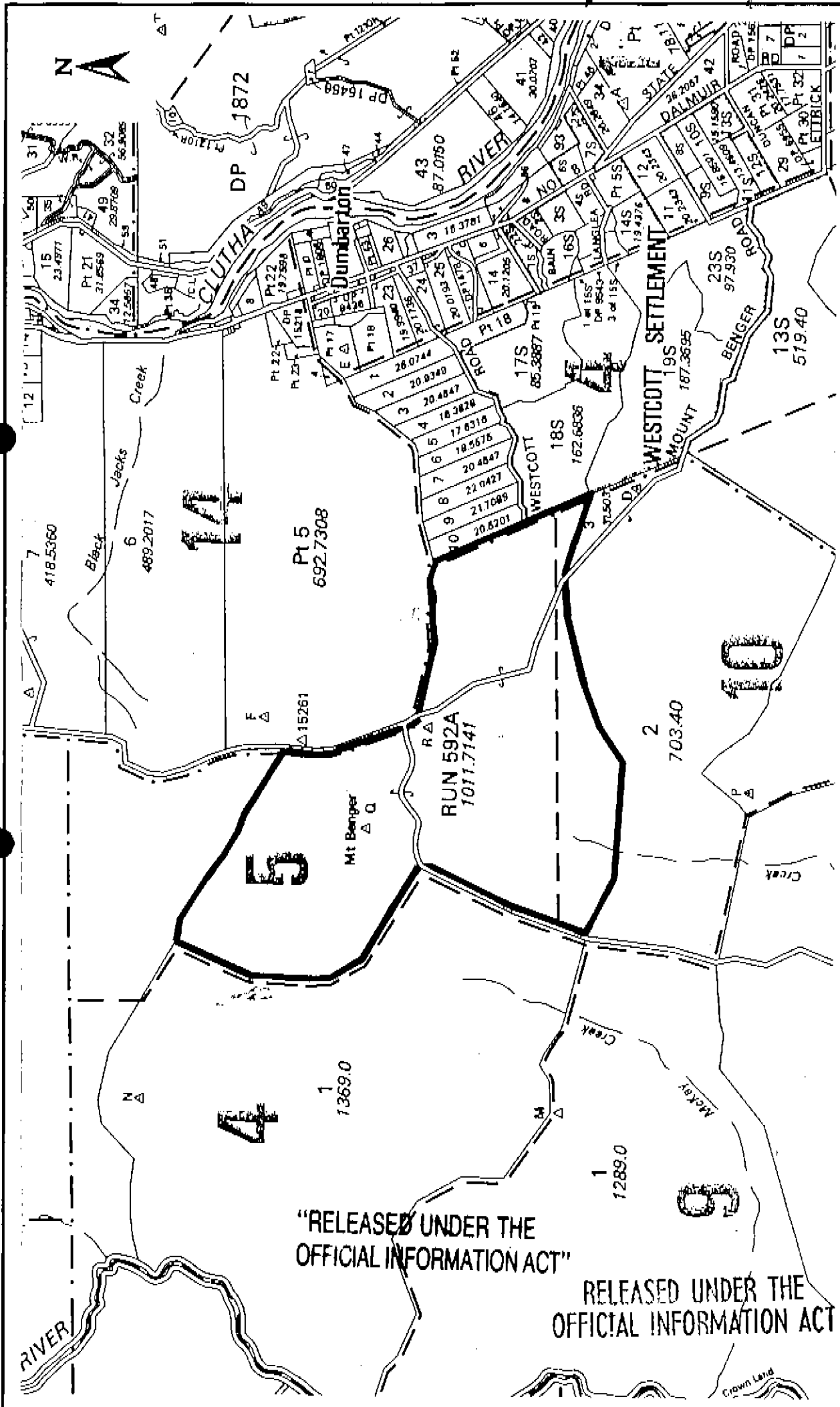
Highest slopes of Timber Creek and summit plateau highlighting diversity of ecosystems including silverbeech forest, rock outcrops, extensive wetlands and rich snow-grass communities.  
Umbrella Mts in background.  
Note deeply incised landform.

SILVERBIRCH STATION

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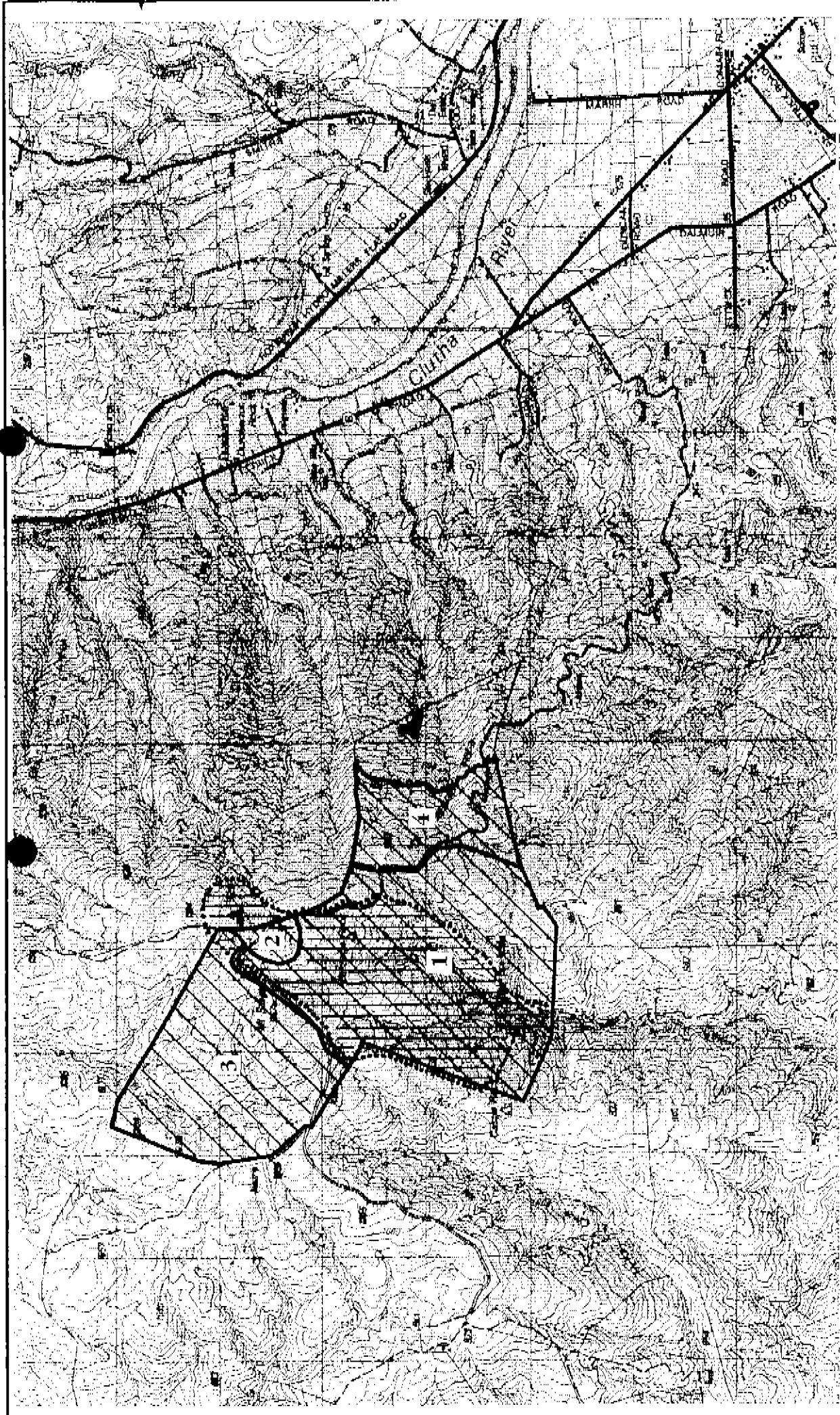
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**UNDER THE SILVERBIRCH PASTORAL LEASE CADASTRAL**

**Map 1**

NEW ZEALAND  
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Vegetation/Fauna  
 Silverbeech Remnant



**SILVERBIRCH PASTORAL LEASE  
 CONSERVATION VALUES**

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