

Crown Pastoral Land Tenure Review

Lease name: Lowburn Valley

Lease number: Po 256

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 October 2003

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**DOC CONSERVATION RESOURCES REPORT ON
TENURE REVIEW OF LOWBURN VALLEY
PASTORAL LEASE (P 256) UNDER PART 2 OF THE
CROWN PASTORAL LAND ACT 1998**

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PART 1

INTRODUCTION

1.1 Background

The lessee of the Lowburn Valley Pastoral Lease (the lease) has applied to the Commissioner of Crown Lands for a review of the property's pastoral lease tenure.

Lowburn Valley is a medium sized (5814 ha) pastoral lease on the southern end of the Pisa Range, located at the eastern end of the Kawarau Gorge with the homestead on Swann Road, 7 km north of Cromwell. The pastoral lease is made up of relatively steep faces on the east side of the Pisa Range which have been historically AOSTD up to 1000m, the relatively steep faces on the eastern side of Roaring Meg Stream and the Kawarau Gorge and the rolling dissected country of the summit plateau.

Altitude ranges between 340 metres near the homestead in the Lowburn Valley to 1480 metres north of the Mitre Rocks on the summit plateau.

1.2 Ecological Setting

The property is in the south-east part of Pisa Ecological District (ED). The Pisa ED is an 84,750 ha land area, bounded in the north and east by the Clutha River, in the west by Lake Wanaka and the Cardrona River and in the south by the Kawarau River.

The property was surveyed as part of the Protected Natural Areas Programme in the summer of 1984/85. Two areas on the property were identified as recommended areas for protection (RAPS). The first, Pisa RAP A6 Skeleton Stream (RAP A6), is 330 ha of predominantly shrubland with associated narrow leaved *Chionocholea rigida* (snowtussock) grassland and the second, Pisa A8 Lower Meg (RAP A8), is a 20 ha area selected for the c.30 remnant *Nothofagus menziesii* (silver beech) trees plus a small area of manuka.

No parts of the lease are currently subject to protection for conservation purposes.

The tenure review inspection of the lease was undertaken on the 18th and 19th of January 1996 and was conducted by a multi-disciplinary team of 8 people. The property was again inspected in January 2002 to reconfirm the botanical values.

PART 2

**INHERENT VALUES: DESCRIPTION OF CONSERVATION RESOURCES AND
ASSESSMENT OF SIGNIFICANCE**

2.1 Landscape

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The property logically divides into the following landscape units (LU) described below, being the:

- a) Lowburn Faces (LU1);
- b) Summit Plateau (LU2); and
- c) The Roaring Meg and Kawarau Faces (LU3).

2.1.1 Lowburn Face (LU1)

The Lowburn Face runs from the crest of the summit plateau (between the 1000m and 1200m contour) from the Mitre Rocks and Mt Michael to the valley floor and encompasses the Low Burn, Tongue Spur Creek, Packspur Gully, the Cardrona- Cromwell pack track and the Cardrona- Cromwell pack track legal road.

The base of the slope from the Lowburn Valley floor is characterised by a series of low rounded hills and small gullies peppered with rock outcrops. Above this the main ridge and gully system extends up to the summit crest. Between the Lowburn Valley floor and the summit crest the landform is undulating slump topography with extensive rocky outcrops.

Large rock outcrops and bluffs occur along the ridge crest, the most distinctive being the large and impressive Mitre rocks. These outcrops and bluffs represent a significant landscape feature. The Lowburn Faces, being part of the Pisa Range eastern face, form part of the distinctive Central Otago block range backdrop view from the Cromwell-Lake Dunstan area.

Photos of the Lowburn Face are included in section 4.3.

2.1.2 Summit Plateau (LU2)

The summit plateau crest (from between the 1000m and 1200m contour) runs from the Mitre Rocks to Mt Michael and from Mt Michael onto the true right of Mitre Creek and marks the contrast between the steep Lowburn, Kawarau and Roaring Meg Faces and the smooth rounded profiles of the summit plateau.

The summit plateau consists of broad, gently undulating ridges with rock tors protruding above the rounded and weather-worn surface. The rock tors, some of which are of immense proportions are a dominant and very impressive feature. Tributaries of the Roaring Meg form alluvial valleys entrenched into the plateau surface. The valleys become more deeply entrenched towards the south-west end of the summit. Old water races follow around the contour at the head of Skeleton Creek and fit neatly into the landscape with stone revetments supporting the race in some sections. The water races plus the occasional fence and access track are the only obvious cultural intrusion.

Towards Mt. Michael the plateau slopes to the south, with short alpine tussockland, *Actiphylloa* (spear grass), rock and bare ground dominating. There are also small remnants of *Chionochoa rigida* and some large rock tors. This end of the summit plateau has sustained a higher level of modification from grazing and burning than the remainder of the plateau.

Other characteristics of the summit plateau include its broad, expansive nature, the obvious harshness of the environment, its remoteness, and views out to surrounding ranges and valleys. It has high visual resource values derived from its sheer scale, impressive landform and the diversity and relative intactness of the vegetation. In landscape terms, the whole of the summit represents a single landscape entity.

2.1.3 Roaring Meg and Kawarau Faces (LU3)

These faces are bounded to the east by the section of the summit crest between Mt Michael and Mitre Creek, to the north by the lease's northern boundary on true right of Mitre Creek, to the west by the Kawarau River/Roaring Meg and to the south by the lease's southern boundary. The Kawarau and Roaring Meg Faces are typical block range slopes of slump and landslide topography. Adjoining the true left side of Skeleton Creek is a distinctive area of extensive rock outcrops, boulders and lumpy topography within the short tussock zone. The faces form part of Kawarau Gorge's visual and scenic corridor and as such are an entrance to the Queenstown Lakes District.

2.1.4 Significance of the Landscape

The section of the Lowburn Faces above 1000m contains distinctive large rock outcrops and bluffs that represent a significant landscape feature.

The entire summit plateau is a single landscape entity with high visual resource values and is therefore highly significant. Although the southern end of the plateau has been modified it contains rock tors and diverse native vegetation and is highly visible. Given time and the appropriate management this area would slowly recover.

The section above 1000m of both the Kawarau and Meg Faces contain distinctive large rock outcrops and bluffs and form part of the Kawarau Gorge visual and scenic corridor. On the true left of Skeleton Stream, between 800 and 1000m there is a distinctive area of extensive rock outcrops, boulders and lumpy topography.

2.2 Landforms & Geology

2.2.1 Background

The property forms part of the Pisa Range massif, the highest of Central Otago's characteristic fault-block ranges. Along with other South Island mountain ranges the Pisa Range was formed as part of the Kaikoura Orogeny during the Pliocene 5-2 million years ago. Tectonic movement during the Kaikoura Orogeny formed the characteristic basin and range topography of Central Otago as some blocks of the country were pushed up faster than others. The underlying bedrock comprises of Haast schist.

Periglacial phenomena (features formed in close proximity to glaciers) are widespread. In particular soil hummocks (stripes/mounds of closely packed soil) are very extensive on the smooth upland surfaces except on the most exposed sites where lag gravels have developed.

Above the Kawarau Gorge and Roaring Meg is a large land slide mass. Parts of the slide contain large floating block rock outcrops or extensive boulder fields with active slumping and blockslides. The moderate (25 degree) southwest dip of the Haast schist is responsible for the instability. This feature is identified as Geopreservation Inventory site LAN 183, which is described below.

Landform:	Rock block slide
District:	Clutha
Importance:	B (National Importance)
Locality:	Alongside Kawarau River extending 4 km between Roaring Meg and Scrubby Stream
Significance:	An extremely good example of a large-scale movement
Vulnerability:	3 (unlikely)

Hazards: No known realistic hazards
Morphogenic: Map reference F41012713.

2.2.2 Soils

The main soil types are Carrick Hill soils (upland yellow brown earths) on the plateau, Dunstan steepland yellow brown earth on the higher altitude faces and Arrow steepland yellow grey earths on the lower faces. These soils are not particularly prone to erosion under normal circumstances, however, if denuded wind erosion can be severe at all altitudes while water erosion is a problem at higher altitude if the soil is disturbed by tracks, fence lines and races etc.

2.2.3 Significance

The Geopreservation Inventory site is of national importance but is deemed not to be under any significant threat. The PNAP survey did not assess the landforms of the two RAP's as being significant.

2.3 Climate

The climate of the Pisa Range is generally typical of Central Otago's climate with hot dry summers and cold winters. Rainfall varies from 400 mm at the homestead to over 1000 mm on the higher country, which is under snow for 3-4 months most years.

2.4 Vegetation

For the purpose of describing botanical values the property has been split into four parts being:

- a) the Lowburn Faces;
- b) the Summit Plateau;
- c) the Kawarau Faces; and
- d) the Roaring Meg Face.

2.4.1 Lowburn Face

The Lowburn Face spans between c.340m and c.1100m asl, with the area below c.1000m being the most modified, having been AOSTD. In this zone there is a strong exotic component, with the vegetation being dominated by exotic grasses, herbs, clover and short tussock.

Festuca novae-zelandiae (fescue tussock) is the major tussock species below 900m, occupying the zone from c.500m to c.1100m. This community has been induced from former widespread *Chionochloa rigida* which once extended down to a treeline/shrubland zone.

Discaria toumatou (matagouri)-*Coprosma propinqua* (mingimingi) -briar shrubland, which has been modified by fire and grazing, is common in low to mid altitude gullies. Briar is common up c.800m but has disappeared by c.1000m. *Coprosma* and *Olearia* spp. are scattered across the slopes. Shady gullies contain quite dense shrubland remnants. *Ozothamnus* is notable in the Lowburn and Tongue Spur Creek basins. Bracken is also present in scattered patches.

Alpine tussockland, being a mixture of *Festuca novae-zelandiae*, *Poa colensoi* (blue tussock), *Festuca matthewsii* (alpine fescue) and a highly variable amount of *Chionochloa rigida* becomes dominant above 1000m. Few exotic species are present and none are a major component. *Aciphylla aurea* (golden speargrass) is a major and visually prominent component and in some areas is often co-dominant or dominant. Associated species include many of the species found in the fescue tussockland e.g. *Rytidosperma setifolium*, *Bulbinella angustifolia* (maori onion), which is locally common, the sub-shrub *Leucopogon fraseri*, *Raoullia subsericea*, *Celmisia gracilentia*, *Wahlenbergia albomarginata* (harebell), *Gentiana bellidifolia*, and *Brachyglottis bellidioides*, with additional higher altitude species remaining from the original snow tussocklands.

2.4.2 Summit Plateau

A variety of vegetation types are represented on the plateau. *Chionochloa rigida* is dominant, although there are large areas of induced short alpine tussockland, *Aciphylla* and cushionfield. Wetlands occur in the hollows and eroded bare patches are apparent on dry ridges and steeper slopes. Overall the communities are highly natural with a low presence of exotic species.

The general trend is denser *Chionochloa rigida* on the south-westerly aspects or shady slopes with good regeneration in places while the sunny slopes and ridges are vegetated with short tussock grassland, amongst which is depleted *Chionochloa rigida*. The density of *Chionochloa rigida* is therefore highly variable and where its density decreases the cover of *Festuca novae-zelandiae* and *Poa colensoi* increases correspondingly.

The associated species diversity and cover is also highly variable. The most densely vegetated areas typically have a heavy leaf litter ground cover allowing for few other species. Generally the range of species is that associated with other *Chionochloa rigida* communities of the Central Otago block mountains. These species include *Festuca novae-zelandiae*, alpine fescue tussock, *Poa colensoi*, *Dracophyllum muscoides*, *Pimelea oreophila*, *Bulbinella angustifolia* and *Raoullia subsericea*.

The following minor communities are present.

- **Rock outcrops:** These form a distinguishing part of the landscape and are characterised by distinctive species including *Helichrysum intermedium*, *Hebe pimelioides*, *Anisotome caudicola*, *A. brevistylis*, *Brachyglottis haastii* and *Epilobium pubens* at low to mid altitudes, *Celmisia lyallii* (woodrush) and a range of herbs at mid to upper altitude.
- **Alpine flushes:** Found in gentle valley floors on the summit plateau and consist of a range of bryophytes, sedges and herbs.
- **Fellfield:** Found on the most exposed parts of the summit plateau and are often associated with quartz gravel pavements.
- Areas of *Dracophyllum pronum* shrubland grow on the summit plateau's shady aspects, which are characteristically of very low diversity but are typical of the situation in the Pisa ED.

Towards Mt Michael the plateau slopes to the south. *Chionochloa rigida* forms only scattered remnants whilst short alpine tussockland, rock and bare ground are dominant. Some large rock tors also occur here. This end of the summit appears to have sustained a

higher level of modification from grazing and burning than the area of summit plateau further north.

2.4.3 Kowarau Face

Above c.900m the band of moderately unmodified short tussock, scattered *Chionochloa rigida* and *Aciphylla* continues from the Lowburn Face. Both the increase in abundance of this community above c.1100m and its species diversity are comparable with the same community in the same altitudinal zone on the Lowburn Face.

With the exception of the gullies and riparian margins below 900m the vegetation diversity is low, being a mixture of *Festuca novae-zelandiae*, introduced grasses and briar and remnant shrubland. This zone has been AOSTD up to c.1000m, generating a strong exotic component.

The *Discaria toumatou* (matagouri)-*Coprosma propinqua* (mingimingi) -briar shrubland is common in low to mid altitude gullies, has been modified by fire and grazing and buffers the diverse riparian shrubland. Briar is common up c.800m but has disappeared by c.1000m. *Coprosma* and *Olearia* spp are scattered across the slopes.

Some shady gullies contain dense shrubland remnants. In particular the two gullies at grid reference F41005725 contain a wide range of shrubs and ferns, including *Hebe salicifolia* (koromiko), *Coprosma propinqua*, *Discaria toumatou*, *Polystichum vestitum*, *Rubus schmidtioides*, *Olearia odorata*, *Melycytus alpinus*, *Aristotella frutiasa*, *Asplenium bulbiferum*, *Helichrysum bellidifolium*, *Parsanisia heterophylla* and *Carmichaelia* spp (native broom species). This dense shrubland is between approximately 500m and 800m.

Diverse riparian shrublands are found along the Roaring Meg Creek. Like the shady gullies these shrublands have generally escaped from regular burning through their association with gorges and rocky riparian areas. The shrubland contains much *Discaria toumatou* and *Coprosma propinqua* with some briar, *Olearia odorata*, *O. avicenniaefolia*, *Hebe subalpina*, *H. saltifolia*, *Hoheria lyallii* (mountain ribbonwood) and *Carmichaelia petriei* (native broom).

An area of relict *Nothofagus menziesii* forest adjoining the true right bank of the Roaring Meg was identified as a RAP, being RAP A8 Lower Meg. This RAP of 20 ha is located approximately one kilometre below the upper Roaring Meg Dam and encompasses 30+ mature *Nothofagus menziesii* trees and a variety of seedlings. The largest beech tree in the grove is 110 cm dbh. This remnant is the most extreme outlier of beech forest in northwest Otago, being the closest to Central Otago's dry interior. It has been suggested that this *Nothofagus menziesii* remnant represents an older, mid-Holocene forest that spread to the limits of its drought tolerance along the Pisa Range and has subsequently become fragmented by fire. Rock bluff vegetation, fescue tussock grassland and *Coprosma* shrubland, along with briar and *Discaria toumatou* dominate the immediate surrounds and surrounding stream margins.

On a terrace above RAP A8 is the property's only significant manuka stand. This stand is approximately 1 ha in area and although blighted is regenerating adequately. It is scattered between the power station road and the true left bank of Roaring Meg.

Photos of the Kowarau Face are in section 4.3.

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2.4.4 Roaring Meg Face

This unit is less modified than the adjoining Kawarau Face, with *Festuca novae-zelandiae* occupying the zone from c.500m to c.1100m and very few exotic species being present.

Extensive *Chionochloa rigida* is found on the shady Roaring Meg Face north of Mitro and Skeleton Creeks and extends down to 800m in Skeleton Stream. This face also contains riparian communities comparable to those at the base of the Kawarau Face along both the Roaring Meg and the lower portion of Skeleton Stream.

Skeleton Stream also contains an area of relict shrubland which was identified as RAP Pisa A8 during the Pisa PNAP survey. This RAP encompasses 330 ha of the lower reaches of Skeleton Stream and the steep slopes of the Roaring Meg upstream from its confluence with Skeleton Stream. The area contains *Podocarpus hallii* (Hall's totara), *Halocarpus bidwillii* (bog pine), *Phyllocladus alpinus* (celery pine) and other regionally uncommon shrub species and is, therefore, an important remnant of past woody vegetation. This community is the only example of its type in the southern Pisa ED. It also contains a diverse shrubland of *Olearia odorata*, *O. avicennifolia*, *Coprosma propinqua*, *C. parviflora*, *Hebe salicifolia*, *H. subalpina* and encompasses *Festuca novae-zelandiae* and *Chionochloa rigida*, the latter occurring mainly on shady faces and the upper slopes of the RAP north of Skeleton Stream. This area of *Chionochloa rigida* is the lowest altitude (being 660 m) remnant of its type found on the Pisa Range.

Other shrub species recorded in this area and on the Roaring Meg face are *Hoheria lyallii*, *Carmichaelia petriei*, along with herbs of *Astella nervosa* and *Ischnocarpus novae-zelandiae* which grow on dry rocky ledges.

Photos of the Roaring Meg Face are in section 4.3.

2.4.5 Problem Plants

Pinus contorta is the most problematic plant. The seeder trees around the Meg Hut have recently been removed by the department, who are also monitoring the remaining seedlings and conducting the appropriate remedial action. The Oregon pines surrounding the power station pose a potential threat to RAP A8 Pisa Lower Meg. Willow, briar, broom and gorse, though present are not considered to be a problem yet.

2.4.6 Significance of Vegetation

Lowburn Face

The area of tussockland and associated species above c.1000m is very intact and highly natural. This community therefore has the capacity for the range of plants within it to survive and develop, allowing the regeneration for the pre-human vegetation, being snow tussock/shrubland.

Summit Plateau

The range of very un-modified communities on the plateau makes the area significant. Also, these communities in their total are an evolving sequence which have the capacity, if undisturbed, to regenerate back to the pre-human vegetation.

Kawarau Face

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This face contains four areas of significant vegetation, being;

- a) the area of tussockland above c.1000m;
- b) the two gullies at grid reference F41005725;
- c) the riparian vegetation along the Kawarau and Roaring Meg; and
- d) RAP Pisa A8 Lower Meg and the associated area of mānuka.

The tussockland above c.1000m like that on the Lowburn Face is in a highly natural state, is diverse and has the capacity to regenerate if left undisturbed. The vegetation in the gullies and on the riparian margin are relicts of a previously extensive vegetation type. Several of the species found in these areas are regionally uncommon, including *Hebe subalpina*, mānuka and *Ischnocarpus novae-zelandiae* (status- gradual decline). RAP Pisa A8 Lower Meg contains a remnant of *Nothofagus menziesii*, which is the most extreme outlier of beech forest in northwest Otago, being the closest to Central Otago's dry interior.

Roaring Meg Face

RAP Pisa A6 Skeleton Stream contains *Podocarpus hallii*, *Halocarpus bidwillii*, *Phyllocladus alpinus* and *Hebe subalpina*, all of which are regionally rare forest species. This community is the only example of its type in the southern Pisa ED. The remaining vegetation along the Roaring Meg Face is also noteworthy as the tussock communities are very intact, the extent of *Chionochloa rigida* down to low altitudes and the presence of several uncommon plants, including *Astelia nervosa* (uncommon within the ED) and *Ischnocarpus novae-zelandiae* (status- Gradual decline).

2.5 Fauna

2.5.1 Invertebrate Fauna

These were not surveyed during the tenure review inspection. The newly described flightless chafer beetle *Prodontria regalis* (a local endemic) has been recorded at low altitudes in the Roaring Meg area. Also the RAP A8 Pisa Lower Meg, being an outlier, is important for the small insect fauna it supports. Moth species like *Proteodes carnifex* and *Stigmella lucida* and *Caloptilia selenitis* have been recorded there.

2.5.2 Herpetofauna

These were not surveyed and there is no known interest.

2.5.3 Avifauna

These were not surveyed and there is no known interest. Harrier hawks, the New Zealand Falcon and the pipit are known to occur in the Pisa ED, as are several species of migratory birds, being the banded dotterel, South Island pied oystercatcher, black-backed gulls, black-billed gulls and the black-fronted tern which all breed on the open tops of the Pisa Range in late spring and summer. The paucity of native forest severely limits the population of forest birds and only the smaller common native species are present, being fantail, grey warbler, silvereve and tomtit.

2.5.4 Aquatic Fauna

No indigenous fish were caught during electric fishing surveys on the the lease.

Fish surveys of the lease concentrated on the Roaring Meg catchment and Low Burn. Many of the streams on the Lowburn and Roaring Meg Faces were considered too steep and small to

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retain fish populations. This was confirmed when Tongue Spur Creek was fished at an altitude of 750 m and no fish were found. Low Burn contains brown trout (*Salmo trutta*) in its lower reaches near the homestead. These fish do not occur in steeper gradient streams and can hence be expected to occupy the Low Burn only up to an altitude of 600 m.

In the Roaring Meg brown trout exist downstream of the Plank Creek confluence and brook char (*Salvelinus fontinalis*) from the said confluence upstream. Skeleton Stream neither contains fish in the lower, steep cascade section nor in the higher altitude lower gradient sections. The upper reaches of Mitre Creek are also fishless, although the upstream extent of brook char is undetermined. Both Mitre Creek and Skeleton Stream contain abundant freshwater invertebrates and water quality is high. This, together with the relatively undisturbed nature of these upper reaches means both creeks have good conservation values.

2.5.5 Significance of Aquatic Fauna

Although indigenous fish were not found during the inspection, Mitre Creek and Skeleton Stream have significant value in that they are catchments that currently contain no fish and may have never had any. Such areas are therefore valuable because they contain aquatic invertebrate communities that have evolved in the absence of fish predation, or at least with little fish predation.

2.5.6 Problem Animals

Chamois, goats, pigs, possums and rabbits are present. The department monitors the numbers of these species and conducts the necessary control work in liaison with landowners across the Pisa Range.

Goat, rabbit and chamois numbers are currently low while pig numbers are increasing. A high percentage of pigs on the Pisa Range have been found to be infected with bovine TB. The Animal Health Board however focuses on the control of possums in this area to prevent the spread of this disease, as it is believed that possums are the main vector for bovine TB.

2.6 Historic

2.6.1 Background

Lowburn was the significant mining area along the eastern side of the Pisa Range, with most of the activity sited on the true left of the Low Burn Valley and further to the east in Hatters Gully. Mining at Kawarau Gorge and Lowburn began at the time of the Dunstan rush in 1863 and by 1866 all the side gullies had been sluiced and numerous water races cut.

The Lowburn, Kawarau and Roaring Meg Faces were used to carry large races, initially for mining the lower Kawarau and subsequently for irrigation. This corner of the range was the take-off point for the direct-route pack tracks from Cromwell to Cardrona and also has a long pastoral history.

2.6.2 Sites

Gold mining sites include massive water races and high altitude alluvial sites. Some races such as the two Lowburn races have been in continuous use since the beginning of gold mining in Otago. There is only one early pastoral site.

Water races

The two Lowburn races were cut in 1863. The sections of Towans Race (race 1922Cr) above 1300m and running down to Mt Michael were probably cut in 1865 and the lower sections

between 1899 and 1906. Of the Kawarau Face races, the 2385/6 pair were cut in 1870-74 and the third race in the complex (1849Cr) was cut in 1881. The earliest date for the lowest race is 1890 but it is likely that it was cut before then.

The alignments of the race's across country provide valuable insights into the surveying skills of the original builders, their concepts of appropriate race gradients and other aspects of water management for mining.

Of the abandoned races, Henderson's race out of Mitre Creek had been constructed some time prior to 1900 and the longer race associated with John Hepburn in the top of Skeleton Stream may have been cut around 1891. All these races can be considered as archaeological sites.

The only raceman's site found on Lowburn Valley Station was Towans Camp in Rose Creek, which probably had platforms for two tents, one of which was supported by a stone chimney and a wooden door frame.

Alluvial workings

The most spectacular are the Boundary workings close to the Cromwell-Cardrona pack track in the head of Mitre Creek. These workings straddle the Lowburn Valley/Mt Pisa Pastoral Lease boundary and consist of an earth-walled reservoir on a ridge at 1350 m asl, with tailings in valleys both north and south. The southern group are heavy tailings running down the creek for 500 m and the northern group are smaller. The main head race and the northern tailings are on Mt Pisa Station in the head of Winters Creek.

There is another important site at Hairpin Bend in the Roaring Meg, which includes sluicings and tailings, hut sites as well as races and workings. Sites are scattered along the line of the Roaring Meg from part of a large set of tailings just below Meg Huts to a set of Chinese workings just below the Plank Creek confluence. There is also a complete set of huts, races, reservoirs and workings in the head of Skeleton Stream which can be assigned to John Hepburn.

Pastoral

The only physical sign of early pastoralism is the boundary rider's hut at the mouth of Pennycook Creek. Though it has no roof and the walls are slowly deteriorating, it is an interesting example of early stonework with a notable design of chimney, built within the wall and with internal buttresses.

2.6.3 Significance of the Historic Sites

The two Lowburn races known to have been constructed in the 1860s are unique, in that the continuity of use enables their documentation with certainty to the first period of race building in Otago. The high altitude sites in the Roaring Meg, Mitre Creek and Skeleton Stream and the integrity of the whole system of the Boundary workings compare well in intactness with the Criffel Diggings. The workings in the Roaring Meg from Hairpin Bend to the Meg Hut, the Chinese workings just below the Plank Creek confluence and the complete set of hut, races, reservoirs and workings at the head of the Skeleton Stream are also noteworthy.

As a group, the races are skilled examples of long races built through rough country at mostly high altitude. The upper part of Towan's Race around 1300m asl is the highest live race in Central Otago, the others being Winters Race out of the Leopold Burn and Colour Burn, Pisa Range, at about 1120 m asl and the Carrick Race, Nevis Valley, at about 1120 m asl. The abandoned Mitre Creek Race at 1300 m asl ranks with these other races for length and difficulty of construction.

2.7 Public Recreation

2.7.1 Physical Characteristics

In 1992 DOC compiled a Recreation Opportunity Spectrum for the entire conservancy whereby all areas regardless of land tenure, were classified and mapped according to setting, activity and recreational experience characteristics.

The recreational opportunities identified within and around the lease were back country walk in and back country Four Wheel drive in. Back Country opportunities are defined in the Otago CMS as being *characterised by a feeling of relative remoteness from populated areas, yet has good recreational facilities. The highly natural setting is a valued part of the experience and may be associated with motivations of "escape from town", education, exercise, and/or a sense of being close to nature.*

2.7.2 Legal Access

There are three unsurveyed legal roads through the property (see attached cadastral map) and a marginal strip along the Roaring Meg. Two of the legal roads, being near the Roaring Meg and over Mt Michael respectively approximate the old pack tracks. The third, near the homestead, is neither close to the present farm track nor the pack track.

The operators of the Roaring Meg generating plant, Pioneer Electric, maintain and administer (via a locked gate) the portion of legal road between the Kawarau Gorge road and the power plant. Pioneer Electric believes that while the road formation is partly on the legal road, as they maintain the road at their cost extra vehicle traffic would add to this cost. They also advised that as the road is only one vehicle width in many places it would be dangerous if there was public vehicle use of the road.

2.7.3 Activities

The Cardrona-Roaring Meg and to a lesser extent the Mt Michael pack tracks provide legal public access through the lease. The most used track, Cardrona-Cromwell (also known as the Pack Spur track and runs on the ridge on the true right of Pack Spur Gully) is not on a legal road through the lease. The public uses the tracks as walking routes from Cardrona to Roaring Meg or to Lowburn. Currently the gate across the formed road beside the Roaring Meg is locked but the public are free to walk it.

Both the Cardrona- Roaring Meg and the Cardrona-Cromwell pack tracks are signposted and marked along their lengths with stiles over the fences. This development has been in co-operation with the lessees. Usage is currently low but as the tracks traverse a natural tussock grassland landscape with a historical setting their popularity is expected to increase. Both tracks can be treated as either a one day trip or a two day trip camping overnight or staying at the Meg Hut.

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Part of the Cardrona-Cromwell pack track is on the adjoining Mt Pisa Station. It enters the lease at the top of Pack Spur and is the route for both the old pack track and the present farm track. This track is the most popular vehicle access on to the southern Pisa Range.

The old pack tracks and surrounding plateau are also popular with local horse riders and the Otago Goldfields Cavalcade has previously used the tracks and may do so again.

PART 3

OTHER RELEVANT MATTERS & PLANS

3.1 Consultation

An early warning meeting was held with NGOs on 23rd May 1996 covering this and other properties. Most were not familiar with the property, however various issues were raised, some specific, some generic. Further comments were received from NGOs in late 2001 and early 2002. The issues raised at both these times are summarised below.

1. Land to be retained by the Crown and administered by the department.
 - Federated Mountain Club (FMC) stated that all the land above 1000m- 1100m should be retained.
 - Forest and Bird (F&B) stated that the land above 1100m should be retained
 - Professor Allan Mark stated the land above 1200m should be retained.
 - F&B also requested that a totara located at 1200m within some tors be protected.

All three parties stated that both RAP's should be retained by the Crown and FMC stated that Pisa RAP A8 should be classified as a conservation or scenic reserve. An unspecified party also mentioned that there would be some benefit including Te Oma (which is adjacent to Swann Rd) in the tenure review as the wet gully contains some *Olearia*.

2. Access through the property
 - FMC want unrestricted public foot, mountain bike and horse trekking access along the Cardrona/ Cromwell and Roaring Meg pack tracks. They felt the legal roads should be realigned so that they are consistent with the said packs tracks. FMC also wished for an easement for vehicle access to the foot of the Cardrona-Cromwell track and vehicle access to the above the dam at the confluence of Skeleton Stream and Roaring Meg and that space for car parking be created at both the head of the easement and road.
 - Both the Cromwell Riding Club and the Otago Goldfields Heritage Trust requested that horse access through the property to be maintained. The riding club also stated that provisions that allow the passage of horses be made at all fences across the pack tracks.
 - F&B requested that 4WD access on the eastern side of the Pisa Range be secured via the Cardrona-Cromwell track.

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3. All parties stated that DOC/freehold boundary should be consistent with neighbouring and related runs.
4. An unspecified NGO stated that all watercourses greater than 3m to have marginal strips laid off.

The submissions from FMC, F&B, the Cromwell Riding Club, the Otago Goldfields Heritage Trust and Prof. Allan Mark are attached as appendices.

3.2 Regional Policy Statements & Plans

The Regional Policy Statement (RPS) does not specifically refer to the Lowburn Valley or the Pisa Range. However, the importance of Otago's natural heritage is emphasised in Chapter 5 of the RPS (Land), which contains policies outlining how Otago Regional Council shall manage outstanding landscapes. The most pertinent policy (5.5.6) and associated sections state the following.

To recognise and provide for the protection of Otago's outstanding natural features and landscapes which:

- a) Are unique to or characteristic of the region; or*
- b) Are representative of a particular landform in land occurring in the Otago region or of the collective characteristics which give Otago its particular character; or*
- c) Represent areas of cultural or historic significance in Otago; or*
- d) Contain visually or scientifically significant geologic features.*

The means of achieving the protection of these features and landscapes includes voluntary arrangements, covenants, the resource consent process or where necessary and appropriate, purchase. Protection is therefore limited to these methods.

3.3 District Plan

The property is located within the Rural Resource zone of the Central Otago District Plan. The south west part of the property (being the Kawarau Face) is in an Area of Outstanding Landscape. In general, the proposed Central Otago District Plan (amended to incorporate Council decisions) does not act as a trigger for the protection of tussock grasslands and smaller wetlands and forest areas. Resource consent is required for excavations or tree plantings within specified distances of a water race or irrigation pipeline, and for development work within 10m of any water body. Resource consent is also required for tree planting of evergreen species with wilding spread capabilities. Development and tree planting requires resource consent in the area of Outstanding Landscape, but not clearance of vegetation.

There are no registered historic sites, or areas of significant indigenous vegetation and habitats of significant indigenous fauna and wetlands as set out in the schedules of the plan. Protection is limited to the controls set out above.

3.4 Conservation Management Strategy & Plans

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The Otago Conservancy of DOC has prepared a Conservation Management Strategy (CMS) which was approved by the New Zealand Conservation Authority in August 1998.

The CMS identifies 41 special places of conservation interest in Otago Conservancy. Lowburn Valley lies within the Pisa Special Place.

The CMS objective for the Pisa Special Place is:

"To protect representative low altitude lands and high altitude lands on a more extensive basis in the area for their landscape, nature conservation and historical values; the former lands on an extensive basis providing enhanced public recreational opportunities complementary to those already being provided commercially".

The key implementation methods relevant to Lowburn Valley are:

- (a) *Seek opportunities arising out of further pastoral lease tenure review negotiations to protect extensive high altitude areas of high landscape, nature conservation, historical, recreational and water and soil conservation significance.*
- (b) *As tenure reviews are concluded, keep under consideration the unifying concept of a high altitude Pisa Range Conservation Park. If the park proposal proceeds, a management plan for the park will be developed.*
- (c) *Ensure appropriate public access, both vehicular where appropriate and on foot, to lands administered by the department.*
- (d) *Continue to gather ecological and historical information that aid management and pastoral lease tenure review negotiations, including surveys for indigenous fish.*
- (e) *Recreation and tourist concessionaire use of the range may be allowed where detrimental effect on the natural, historic and recreational resources and opportunities can be avoided, remedied or mitigated.*
- (f) *Continuing education of summertime recreationists about the fragility of upland wetlands to vehicle traffic, and fire hazards.*
- (h) *Aiming to protect at least one complete mining system.*
- (j) *Foot access to and along the Rouring Meg-Cardrona and Lowburn-Cardrona Pack Tracks will be negotiated/identified, and their natural, cultural and historic resources protected, in relation to demand. Cultural aspects will be interpreted in consultation with Kai Tahu.*

Priorities for the Pisa Special Place

Completion and continuation of protection negotiations at both high and low altitudes, including tenure reviews, will be a priority in this Special Place.

3.5 New Zealand Biodiversity Strategy

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The New Zealand Government is a signatory to the Convention on Biological Diversity. In February 2000, Government released the New Zealand Biodiversity Strategy which is a blueprint for managing the country's diversity of species and habits and sets a number of goals to achieve this aim. Of particular relevance to tenure review, is goal three which states:

-Maintain and restore a full range of remaining natural habitats and ecosystems to a healthy functioning state, enhance critically scarce habitats, and sustain the more modified ecosystems in production and urban environments, and do what is necessary to:-

-Maintain and restore viable populations of all indigenous species across their natural range and maintain their genetic diversity.

The strategy outlines action plans to achieve this goal covering terrestrial and freshwater habitat and ecosystem protection, sympathetic management, pest management, terrestrial and freshwater habitat restoration, threatened terrestrial and freshwater species management, etc.

PART 4

MAPS ETC.

4.1 Additional information

4.1.1 References

Grove P. (1995) Lindis, Pisa and Dunstan Ecological District- A Survey report for the Protected Natural Areas Programme. New Zealand Protected Natural Areas Programme Series No. 36, Department of Conservation, Dunedin.

Hamel, J (1996) Lowburn Valley Station. Unpublished report to the Department of Conservation, Dunedin

4.2 Illustrative Maps

- a) Topographic and cadastral boundaries;
- b) Ecological, historic and recreation resources; and
- c) Landscape units and significant inherent landscape values.

4.3 Photographs

4.4 NGOs Comments

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4.3 Photographs

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Photo 1. The Lowburn faces, from Swann Road. The lower slopes of Mt. Michael are on the extreme left, the Mitre Rocks and the Low Burn are on the extreme right.

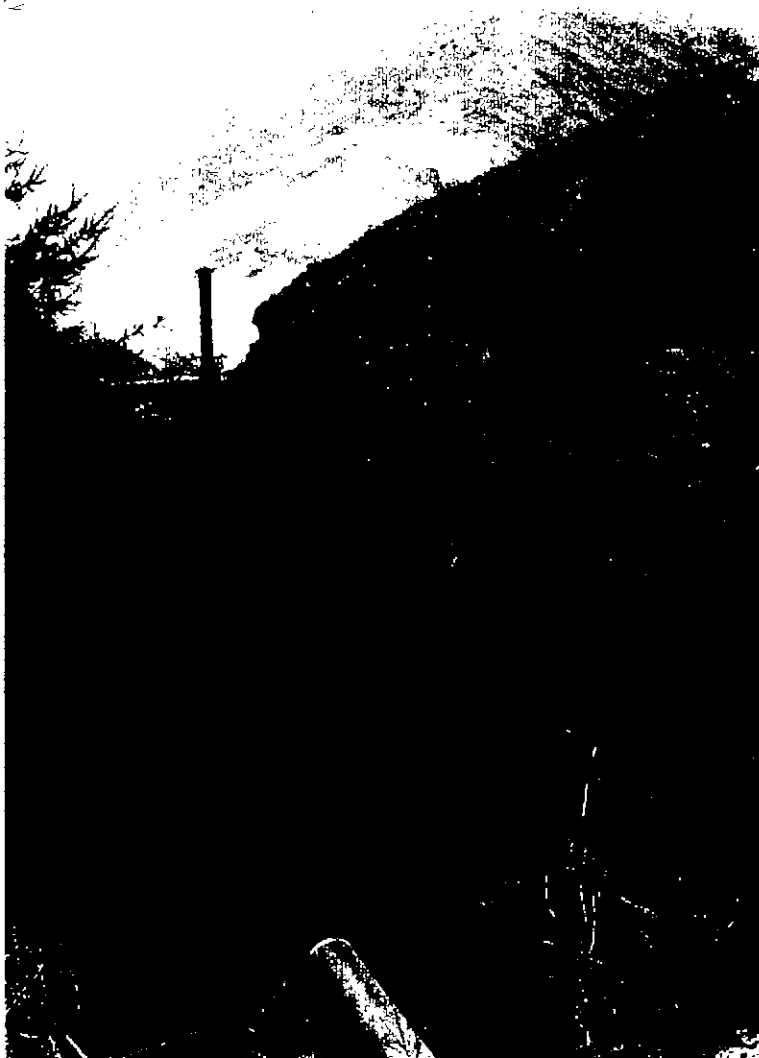


Photo 2. A close up of Mt. Michael and the upper reaches of Duohys or Rose Creek. The leases south eastern boundary runs from the summit of Mt. Michael to the lower (non visible) reaches of Duohys or Rose Creek.



Photo 3. The lower section of the Kawarau faces that border the Kawarau Gorge Road.

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Photo 4. The top section of Pisa RA
A8 Lower Meg. Note the silver beech
and invading douglas fir



Photo 5. The lower section of the Kawarau faces between the generating plant and the Kawarau Gorge Road.
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Photo 6. One of the two gully systems on the lower Kawarau faces that contain significant remnant shrubland.

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Photo 7. The formed road adjacent the Roaring Meg and associated riparian vegetation. The proposed conservation area includes the area between 10 metres from the top of the said road and the Roaring Meg. These boundaries would allow for regeneration of the remaining indigenous riparian vegetation.

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Photo 8. The junction of the pack track and formed road. Skeleton Stream and the Roaring Meg pack track are in background. The proposed public car parking would be provided in the area adjacent the vehicle.

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Photo 9. The section of Skeleton Stream adjacent the Roaring Meg- Cardrona pack track. Note the remnant shrubland, a significant feature of this catchment.

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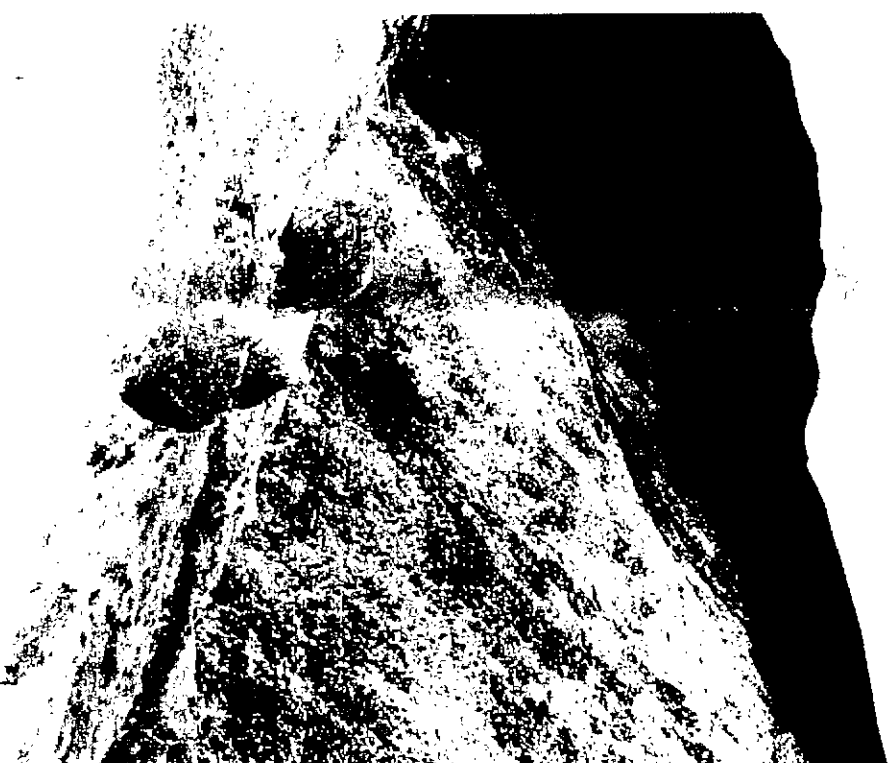


Photo 10. Remnant *Chionochoha rigida* (snow tussock) on the lower Roaring Meg face



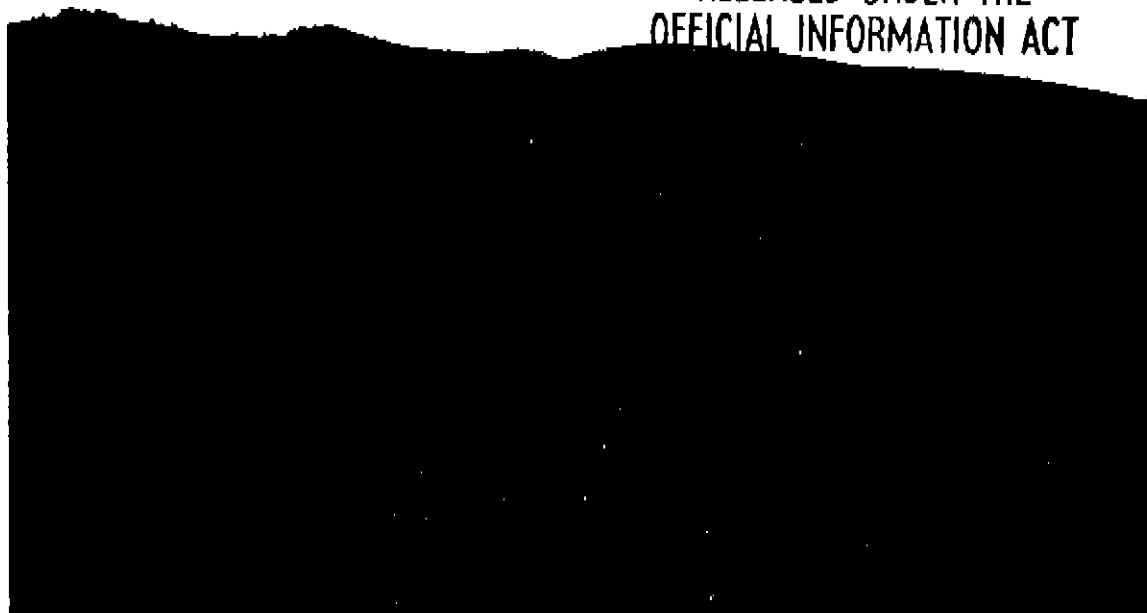
Photo 11. Looking up the Roaring Meg to the river flat containing the Chinese gold workings.



Photo 12. The Roaring Meg and Kawarau faces and Skeleton Stream (centre of photo). The distinctive area of extensive rock outcrops, boulders and lumpy topography are on the far side of Skeleton Stream.

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Photos 13, 14 and
15. Assorted views
of the fescue
tussockland on the
Roaring Meg face



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