

## **Crown Pastoral Land Tenure Review**

**Lease name : DEEP CREEK**

**Lease number : PO 036**

### **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.

Note: Plans which form part of the Conservation Resources Report are published separately.

These documents are all released under the Official information Act 1982.

**January**

**06**

**DOC CONSERVATION RESOURCES REPORT ON  
TENURE REVIEW OF**

**DEEP CREEK PASTORAL LEASE (P36)**

**UNDER PART 2 OF THE CROWN PASTORAL LAND  
ACT 1998**

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DEEP CREEK PASTORAL LEASE (P36)  
UNDER PART 2 OF THE PASTORAL LAND ACT 1998**

**PART 1**

**INTRODUCTION**

The Lessees of the Deep Creek Pastoral Lease (PL) have applied to the Commissioner of Crown Lands for a review of the property's pastoral lease tenure.

The 2700 ha PL lies at the south eastern end of the Grandview Range. This range forms part of the eastern enclosing range of the Upper Clutha Valley and the north-west enclosing range of the Lindis River. Deep Creek is a long rectangular shaped property located between the Clutha/Mata-au River and the Lindis River. The PL extends eastward from Long Gully and the eastern ridge of West Coast Gully across the Grandview Range. The homestead is located on Deep Creek Rd approximately 8km north of Tarras.

The PL is at relatively low altitude extending from c. 380m on the flats adjacent to Deep Creek Road to 1230m on the central summit ridge. Deep Creek PL is bounded to the west by Sandy Point PL and Long Gully PL, to the north by Glenfoyle PL and Bargour PL and to the east by Lindis Peak freehold.

Deep Creek PL lies within the Breast Landsystem in the Lindis Ecological District (ED). The Lindis ED is part of the Central Otago Ecological Region (ER). A Protected Natural Areas Programme survey report was completed for this ecological district in 1995. No Recommended Areas for Protection (RAP) were identified on the Deep Creek PL.

Deep Creek PL was inspected by a team of specialists between 31 March and 2 April 2003. Good coverage of the property was achieved through use of the extensive tracking systems on the property. Their findings have been incorporated into this report.

## **PART 2**

### **INHERENT VALUES: DESCRIPTION OF CONSERVATION RESOURCES AND ASSESSMENT OF IMPORTANCE**

#### **2.1 Landscape**

Deep Creek PL lies at the southern end of the Grandview range. The property rises from river flats in the SE corner, to a central ridge and minor peak (1230m) toward the middle of the property. To the north of the central ridge the land falls from rounded hill crests to a series of moderately steep rocky valleys. These form the Camp Creek catchment.

#### **Methodology**

For this assessment the Deep Creek Pastoral Lease is broken into three landscape units (Refer Map 1). The boundaries of each unit are defined principally by changes in topography, aspect and ground cover. The units are:

- LU1 – Deep Creek Flats
- LU2 – Tarras Faces
- LU3 – Camp Creek Mountain Lands

Each landscape unit is defined and a description of landscape character in terms of landform, land cover and land use is given. An assessment of landscape values is made using the following criteria.

- Naturalness – an expression of the degree of indigenous content of the vegetative cover, and the extent of human intervention.
- Legibility – an expression of the clarity of the formative processes and how striking these physical processes are.
- Aesthetic values – includes the concepts of memorability and naturalness. Aesthetic factors that can make a particular landscape vivid include simplicity in landform, muted colours and fine textured ground cover.
- Historical values – areas containing high heritage importance.

Visual values or “visual amenity” is described and an assessment of each landscape unit’s vulnerability to change made.

### 2.1.1 Deep Creek Flats (LU1)

#### Description

The Deep Creek Flats landscape unit lies to the south east of the PL. The unit comprises part of the former river flats and terraces associated with the Lindis River and lower slopes of the southern part of the Grandview Range. The Deep Creek homestead and farm buildings are situated within the unit. Open pasture and exotic vegetation form the dominant vegetation patterns. Poplars, willows and conifers are a feature along the Deep Creek watercourse and are used as windbreaks. The overall impression is of a highly modified landscape.

#### Visual & Scenic Values

The low lying and relatively flat nature of this unit means visibility is low and localised. The Deep Creek Road skirts the southern boundary of the site and the Lindis Pass – Tarras Road, SH8, runs a short distance south of the PL. The landscape unit reads as an integral part of the broader river flats and terraces landscape associated with the Upper Clutha/ Mata-au and Lindis Rivers. As such the unit has some scenic values, albeit culturally modified.

**Table 1: Evaluation Summary**

Criteria	Value	Comment
Intactness	Low	Highly modified
Legibility	High	Reads as a contiguous part of the flats and terrace landscape
Aesthetic Factors	Medium	
Historic Factors		Not significant
Visibility	Medium	Confined to the localised viewpoints including SH8.
Significance	Medium	Typical of the Upper Clutha/ Mata-au Valley floor landscape.
Vulnerability	Low	Already highly modified.

### 2.1.2 Tarras Faces (LU2)

#### Description

LU2 comprises the faces and valleys south of the central dividing ridgeline, and extends to the lower mountain slopes above the flats. The unit is characterised by deep, steep V-shaped valleys and gullies with narrow rounded ridges. Open expansive views to the south are possible from the higher areas in the unit. Views incorporate the Lindis and Upper Clutha flats and terraces, and surrounding mountain ranges.

Rocky outcrops are a feature of the Tarras Faces and occur throughout the unit. Of particular note is a large rocky bluff on the north-facing slope above the main easterly flowing tributary to Deep Creek<sup>1</sup> (referred to later as Deep Creek Rocky Bluff).

Characteristic vegetation patterns are often linked to these rocky outcrops with dense mixed shrub vegetation, including both exotic and native species, establishing amongst them. Vegetation on the faces has been strongly modified. Depleted short tussock is present but a ground tier of exotic species is dominant. Scattered scrub, mainly grey shrubland and matagouri, is present on lower slopes and in gullies but becomes less widespread at higher elevations. The vegetation has been significantly reduced by sheep and rabbit grazing. Sunny faces are more denuded than shady faces and pedestalling is common in some areas where vegetation is particularly sparse.

Recent track upgrade work has been performed within this unit with a new track formed along the western ridge extending down to Deep Creek.

### **Visual & Scenic Values**

The front faces, situated adjacent to the open Lindis and Clutha valley flats and terraces, are visible over a large areas to the south and east. The faces are important in that they form part of the northern enclosure to the Lindis River valley and constitute part of the southern end of the Grandview Mountain Range.

Much of this unit is hidden from view due to the undulating nature of the topography and intervening landform. The undulating topography also reduces the impact of the recent rack upgrades.

### **Potential vulnerability to change**

The Deep Creek Rocky Bluff area is vulnerable to change from activities which include:

- burning or removal of vegetation
- oversowing and top dressing

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<sup>1</sup> Approximately centered at Grid reference 355 971

**Table 2: Evaluation Summary**

<b>Criteria</b>	<b>Value</b>	<b>Comment</b>
Intactness	Low	Natural vegetation patterns are still evident along watercourses and rocky outcrops albeit depleted.
Legibility	Medium	
Aesthetic Factors	Medium	Typical range face landscape
Historic Factors	Not known	
Visibility	High Low	Exposed valley faces In the valleys and gullies
Significance	Medium	As part of the Lindis Valley enclosure
Vulnerability	Low	Highly modified

### **2.1.3 Camp Creek Mountain Lands (LU3)**

#### **Description**

The Camp Creek Mountain Lands comprise the more remote area of the lease, north of the main central ridge. The LU3 is characterised by steep mountain slopes, broad ridges and steep, rocky gullies. Rock outcrops are a significant feature, particularly around the narrow winding Camp Creek valleys to the north and northeast. Here they take the form of large, shattered, rocky bluffs and large craggy knolls. The outcrops generally become less widespread with elevation, leading to smoother mountain slopes.

Recent track upgrades have had a significant impact on this unit, particularly on the steep mountain slopes near the central ridge. The scale of the earthworks on the steep slopes has resulted in large exposed schist batters and side slopes that dominated the landscape. The light-reflective quality of the schist has resulted in it contrasting markedly with the muted mountain vegetation. A lack of soil on the recently exposed rocky slopes will result in very little regeneration, which might have softened the impact.

Vegetation patterns over the unit vary. Higher mountain slopes are strongly modified with a ground tier dominated by exotic species. These slopes comprise mainly grasses and low tussock and are relatively free of shrub vegetation. Shrub vegetation is largely confined to the valleys, rocky areas and watercourses. Briar is the dominant species in many areas together with the matagouri and grey shrubland. In particular, briar scrubland dominates the lower valleys and gorges.

#### **Visual & Scenic Values**

The LU3 is situated within the Grandview Mountain Range. Visibility of the unit is generally confined to the immediate area. Parts of the lease will be visible from elevated locations in the surrounding mountains.



The natural rocky landform dominates this area. The Camp Creek rocky valleys with their shrubland, rocky bluffs and knolls have significant landscape values.

The mountain slopes are important, reading as a contiguous unit with the surrounding mountains. Recent track upgrades have had a significant impact on the natural landscape pattern of the mountain slopes, introducing unnatural elements onto otherwise clean mountain slopes.

The highly modified vegetation patterns on the mountain slopes, together with the visual degradation caused by the recent track upgrades has resulted in a low overall landscape value.

### Potential Vulnerability to Change

The Camp Creek rocky valleys are moderately vulnerable to change. Threats include:

- burning
- significant earth works such as additional tracking

**Table 3: Evaluation Summary**

Criteria	Values	Comment
Intactness	Low	Highly improved with naturalised exotic species. Extensive track earthworks
Legibility	Medium	
Aesthetic Factors	Low High	Visual coherence severely disrupted by recent track upgrades Within Camp Creek rocky valleys
Historic Factors	Not known	
Visibility	Low	Confined to localised viewpoints
Significance	Low	
Vulnerability	Low Medium	Already extensively improved In Camp Creek rocky valleys

#### 2.1.4 Importance of the Landscape

Three areas on Deep Creek PL were identified as having important landscape values. These are the Camp Creek rocky valleys, the Tarras Faces and Deep Creek rocky bluff.

The Camp Creek rocky valleys have an enclosed, isolated remote feel. A combination of shattered rocky outcrops and knolls together with the scattered shrub pattern gives them a rugged, natural character. The impressive natural landform and rock formations dominate, although the vegetation has a high exotic content.

The Tarras Faces, although highly modified, have important values in terms of the wider landscape. The faces form the northern enclosure of the Lindis River and are visible over a wide

area of the Lindis and Upper Clutha Valleys. The faces read as an integral part of the enclosing mountain range.

The Deep Creek Rocky Bluff is similar in character to the Camp Creek Rocky Valleys. Again this feature has an enclosed isolated feel within the valley. The combination of rocky outcrop and vegetation patterning give it a memorable character. Natural landform and rock formations dominate. Shrub vegetation in this area generally has a higher native component than that found around the Camp Creek rocky valleys.

## **2.2 Landforms & Geology**

The Lindis Ecological District expresses the dislocation of the mid tertiary peneplain, responsible for Central Otago's large scale basin and range topography, on a smaller scale and in a different style from the standard pattern. The old erosion surface is warped into a set of north-east trending folds, with traces of the overlying Manuherikia group sediments. The district merges into the main uplift area of the Southern Alps to the north-west.

The glaciers which excavated Lakes Wanaka and Hawea penetrated well down the Clutha/Mata-au in the past and had a strong influence on the landform of the western part of the Lindis Ecological District. Steepened valley walls and extensive moraines and outwash gravels modified by younger alluvial fans resulted from the glaciation. Except for the effects of this externally derived glacier, the mountains of the Lindis district have been essentially unglaciated and retain characteristically smooth, rounded ridges and summits (Grove 1995).

Major topographical features visible on the PL include steeply dissected faces of the Grandview Range, lower fans and recent alluvial flats. Glacial outwash gravels and fan talus make up the flats. Three different fan surfaces are recognised – the oldest is the contemporaneous with the Albert Town advance of the last glaciation and the youngest with the early period of the last glaciation. Between these lies the fan surface contemporaneous with the Hawea advance of the last glaciation.

### **2.2.2 Soils**

Soils in the Lindis ED are derived mainly from Haast schist, loess and alluvial gravels. Typically the soils are light and prone to erosion, and windblown loessial deposits cover many of the foothill slopes. Underlying soil patterns in this ecological district are dominated by an altitudinal and rainfall sequence. Brown-grey earths have formed in the driest zone (>500mm rainfall). Yellow grey earths occupy the lower mountain slopes such as the lower slopes of Camp Creek catchment, and grade into high country yellow/brown earths above 700-1000m. This sequence reflects increasing leaching and acidity with decreasing fertility. The valley floors are dominated by terrace gravels and include limited areas of recent soils on alluvium of flood plains and fans. Many have been intensively modified by agriculture and gold dredging. These soils may contain pockets of soluble salts, an ecologically important characteristic of the Central Otago basins. These soils are now much reduced in characteristic of the Central Otago basins. These soils are now much reduced in number and extent and many have been modified by agricultural development.

Soil patterns on Deep Creek PL appear to mirror the general soil patterns in the Lindis ED. No features of special importance with regard to soils have yet been noted on the Deep Creek PL.

### **2.3 Land Environments of New Zealand (LENZ)**

The environmental distinctiveness of this area has been assessed through the Land Environments of New Zealand (LENZ). This is a classification of New Zealand landscapes using a comprehensive set of climate, landform and soil variables chosen for their roles in driving geographic variation in biological patterns (Leathwick et al 2003). It is presented at four levels of detail containing 20, 100, 200 or 500 environments nationally. At level IV analysis (500 Environments), land within this PL falls predominantly within Environment Q2.2a with smaller parts of Environments N4.1d, Q1.1c, N5.1c and Q1.1b respectively.

Nationally 15% of Environment Q1.1c is protected for conservation purposes. Only 7.6% of Q1.1b, 2.4% of environment Q2.2a, 1.6% of Environment N4.1d and 0.8% of Environment N5.1c are protected for conservation purposes. This is well below the 20% suggested for the protection of native biodiversity.

### **2.4 Climate**

The PL is subject to warm, dry summers and cold, frosty winters. Summer temperatures are high. Winters are cold with severe frosts. Snow rarely lies for more than a few days and generally only on shady faces at higher altitude.

The average rainfall at the homestead is 450mm rising to 760mm at the tops. There is a slight tendency for early summer concentration. Soil moisture deficits exist for much of the summer especially on sunny aspects. Prevailing winds are from the north-west and south-west and can be severe.

### **2.5 Vegetation**

All major vegetation communities were inspected and assessed as part of the tenure review inspection. A species list is given in Appendix One. The survey concentrated on the more natural and intact areas. Two land units, based primarily on catchment groupings and aspect, are identified for the purpose of describing the vegetation. These are the Northern and Southern portions of Deep Creek Station, which are separated by a central east-west oriented ridge.

#### **2.5.1 Northern Deep Creek Station**

The northern Deep Creek Station area contains predominantly north facing country to the north of the central high ridge. Most of this sunny country contains poor quality pasture with a limited native species component. Areas dominated by native vegetation are largely confined to the steeper slopes and rock outcrops usually associated with the valleys and gullies of Camp Creek and its tributaries.

Upper and mid-altitude sunny faces: Most of this area is composed of depleted, poor quality pasture. The vegetation cover includes extensive mouse-ear hawkweed (*Hieracium pilosella*), tussock hawkweed (*H. lepidulum*), king devil (*H. praealtum*) and cats ear (*Hypericum* sp.). There is limited grass (mainly sweet vernal), occasional fescue tussock and a small component of other native species.

Wet areas: Localised wet seepages areas in gullies contain *Schoenus pauciflorus*, several native herbaceous species, tutu sp (*Coriaria plumose* and *C. sarmentosa*) and other species which are otherwise uncommon. Though retaining remnants of native vegetation, the wet areas are generally small scale, localised and without linkage to other areas of high natural value.

### **Camp Creek Faces**

Rock faces/outcrop systems: The Camp Creek faces include large scale rock face and outcrop systems. *The largest rock outcrop system<sup>2</sup> is dominated by Kanuka shrubland, but retains the most diverse vegetation representative of outcrops on the property.* Gullies through the outcrops contain matagouri (*Discaria toumatou*) with some mingimingi (*Coprosma propinqua*) and lawyer (*Rubus schmidelioides*). Occasional *Olearia odorata*, *Corokia cotoneaster* and sweet briar (*Rosa rubiginosa*) are found. The rock faces have *Helichrysum intermedium*, *Pimelea traversii*, *Melicytus* aff. *Alpinus*, *Rytidosperma* sp, *Cheilanthes sieberi*, *Luzula banksiana* var. *migrate* and *Brachyglottis haastii*. Other uncommon, but significant, plants from these rock systems include *Olearia lineate*, *Coprosma intertexta* and *C. brunnea*, while kowhai (*Sophora microphylla*) occurred within shrubland in a nearby tributary.

Dry bluff top herb-cushionfield: The dry outcrop summits have a depleted, dryland vegetation consisting mainly of the mat and cushion forming plants *Raoulia australis*, *R. beauverdii*, *R. parkii*, *Leucopogon muscoides*, with occasional *Luzula ulophylla*, *Colobanthus brevisepalus*, *Stellaria gracielenta*, *Coprosma petriei*, the diminutive grasses *Poa maniototo*, *Rytidosperma pumila*, and exotic species including sweet vernal, *Trifolium arvense*, *Acaena agnipila* and vipers bugloss among other species.

Camp Creek shrubland: Riparian shrubland forms a dense thicket along Camp Creek below the rock outcrop system (described above). The shrubland is dominated by mingimingi and matagouri, with occasional *Olearia odorata*, koromiko (*Hebe salicifolia*) and the lawyer vine *Rubus schmidelioides*. This shrubland was generally similar to that described along West Coast Stream (see below).

West Coast Stream and tributaries: In the West Coast Stream catchment there are localised rock faces with kanuka shrubland similar to those along Camp Creek. The most extensive shrublands are in tributaries. One of these is on the true right, downstream of Big Bully<sup>3</sup>. Another is in the lower portion of a tributary on the true left<sup>4</sup>. This second outcrop system and associated shrubland is more extensive further up-stream on Sandy Point Station.

<sup>2</sup> Centered at Grid Ref. G40 272 052.

<sup>3</sup> At Grid Ref: G40 252 035

<sup>4</sup> At Grid Ref: G40 257 038

West Coast Steam shrubland: Areas of dense shrubland along West Coast Stream extend up the slopes. These shrublands generally comprise grey shrub and are dominated by mingimingi and matagouri, with briar, bracken and *Rubus schmidelioides*. In the best protected areas along West Coast Stream *Olearia odorata*, mountain wineberry (*Aristotelia fruticosa*), koromiko, native jasmine (*Parsonsia sp.*) and *Muehlenbeckia complexa* are found.

Flood Plains: There are occasional, generally small flats along West Coast Steam. Some of these are wet with cutty grass (*Carex coriacea*), toetoe (*Cortaderia richardii*), *Carex secta* and much exotic grass. One flood flat had an open shrubland containing mingimingi, matagouri, *Olearia odorata* and mountain wineberry within a cocksfoot-fescue exotic grassland.

East of West Coast Stream: This area lies above and east of the lower section of West Coast Stream. The area is characterised by a pattern of rock outcrops with kanuka shrubland and colluvial slopes between. The colluvial slopes have poor quality pasture with scattered kanuka (spreading out from the rock outcrops) and some matagouri and fescue tussock (*Festuca novae-zelandiae*).

## **2.5.2 Southern Deep Creek Station**

The southern Deep Creek Station area contains predominantly south facing country to the south of the central dividing ridge.

Grey shrubland in gullies: Grey shrubland is common in Deep Creek and its tributaries, although some areas have been recently sprayed. The grey shrubland is composed primarily of matagouri with much briar and mingimingi, some kanuka and bracken, and other species including occasional *Olearia lineate*. The shrubland extends up to c. 800m. The lower portion near the homestead contains several woody weeds including an abundance of briar along with elderberry (*Sambucus nigra*), rowan (*Sorbus aucuparia*) and pine (*pinus sp.*).

Rock outcrop system: This rock outcrop system is located in the lower altitude section of the Deep Creek catchment<sup>5</sup>. The dominant vegetation is kanuka. Unique on the property were individuals of Halls totara (*Podocarpus hallii*), weeping mapou (*Myrsine divaricata*) and *Helichrysum lanceolatum*. These species would have been a more common component of the pre-pastoral woody vegetation of the area.

Lower altitude fescue tussockland: This tussockland contains moderate density fescue tussock (5-10% cover), with mainly exotic grasses. Maori onion (*Bulbinella angustifolia*) is locally common here.

Upper altitude fescue tussockland: A community sampled at c.1000m contained moderate density fescue tussock (5-10% cover), in association with much mouse-ear hawkweed, tussock hawkweed and sweet vernal. Associated native species include blue tussock, snow tussock, golden Spaniard (mainly young plants), *Leucopogon fraseri*, *Raoulia subulata*, *stackhousia*

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<sup>5</sup> At Grid Ref: G40 263 970

*minima*, some *Carmichaelia vexillata* and occasional narrow leaved-snow tussock (*Chionochloa rigida*).

Narrow-leaved snow tussockland: Narrow leaved-snow tussock descends to c. 800m, but only becomes prominent above c. 900-1000m. The upper blocks retain a moderate though variable cover of snow tussock (average c. 8%, 5-20% cover), with fescue tussock (c. 10%). Extensive *Leucopogon fraseri*, mouse-ear hawkweed, sweet vernal, leaf litter and bare ground were present. The area also contained a small component of several other native plants.

Rock outcrops on summit ridge: A series of outcrops along the summit ridge provide habitat or refuge sites for a number of species uncommon on the property. *Hebe buchananii*, *Pimelea traversii*, *Coprosma ciliate*, *Pentachondra pumila* and *Celmisia densiflora* were among the species found.

### 2.5.3 Problem Plants

Apart from hieracium and sweet briar there are few weeds of conservation concern. At least three species of hieracium are present (*Hieracium pilosella*, *H. lepidulum* and *H. praealtum*); the latter species is the least widespread. Sweet briar is a component of most montane shrublands, being most common at lower altitude. Broom, elderberry, pine trees and crack willow are found along the lower section of Deep Creek and in associated shrubland.

### 2.5.4 Importance of Vegetation

A flora of 120 species was recorded during the survey. The species list is not complete. Regardless, the list indicates that the flora, while not hugely diverse, is highly typical of the Lindis ED.

Species present on Deep Creek PL identified as threatened (Hitchmough, 2002) are listed below.

STATUS	SPECIES	LOCATION
Gradual Decline	<i>Carmichaelia crassicaule</i>	Tussockland, uncommon
	<i>Carmichaelia vexillata</i>	Tussockland, locally frequent
	<i>Acaena buchananii</i>	Tussockland, occasional
	<i>Raoulia parkii</i>	Cushionfield and sunny depleted slopes, common
Sparse	<i>Clematis marata</i>	Shrubland, occasional
	<i>Coprosma intertexta</i>	Rock outcrop, uncommon
	<i>Kirkianella novae-zelandiae</i>	Tussockland, local, occasional
	<i>Olearia lineate</i>	Shrubland, occasional
	<i>Raoulia beauverdii</i>	Cushionfield and sunny depleted slopes, frequent
	<i>Urtica aspera</i>	Shrubland, occasional

Range Restricted	<i>Hebe buchananii</i>	Rock outcrop, occasional
Data Deficient	<i>Colobanthus brevisepalus</i>	Cushionfield and sunny depleted slopes, common

In addition, the following locally uncommon species were found:

<b>SPECIES</b>	<b>LOCATION</b>
<i>Coprosma brunnea</i>	Rock outcrop, uncommon
<i>Hebe buchananii</i>	Rock outcrop, occasional
<i>Myrsine divaricata</i>	Rock outcrop, uncommon
<i>Podocarpus hallii</i>	Rock outcrop, uncommon
<i>Sophora microphylla</i>	Shrubland, uncommon

As a consequence of its modest size, combined with its relatively low altitude and generally gentle terrain, the property has been heavily modified by pastoral farming and previously large rabbit populations. Native vegetation is generally fragmented and confined to the higher south facing slopes or valleys, gullies and rock outcrop systems. The remaining native vegetation consists mainly of moderate quality tussockland and shrubland.

Tussocklands: Tussocklands are the most extensive (semi-) native vegetation on the property. These have been intensively utilised for pastoral purposes and their degraded condition reflects this. Fescue tussock remains widespread on the PL, however fescue tussockland with high natural character is much more restricted, being almost confined to south faces, south of the central high ridge, between c. 750-1000m.

The most significant tussockland on the property are the snow tussocklands. These become prominent on the upper south-facing slopes above 900-1000m. While only moderate density is retained they are relatively extensive (c. 300ha). Snow Tussockland is a highly representative vegetation type within the Lindis ED but is generally fragmented and poorly protected.

Shrublands: The shrublands on the PL are found in the northern land unit in the Camp Creek-West Coast Creek area and in the southern land unit within the Deep Creek catchment. Shrublands are the most widespread native vegetation on the property. Two major types are found; kanuka shrubland and grey scrub. Although these two shrublands do mix, kanuka shrubland was generally confined to rock outcrop systems, and grey scrub found along steams in valleys and gullies. The patterning between these two shrubland types is interesting, although largely a result of past disturbance. Both shrubland types are widespread and highly representative of both the Lindis ED and the Central Otago ER. The high potential for rapid expansions of kanuka shrublands have been exhibited at nearby Bendigo.

Shrublands in the Camp Creek-West Coast Creek area are found on a wide range of land forms, including rock outcrop systems, rock gorge, steep gully/valley slopes, gentler colluvial slopes and alluvial flood plains. This shrubland occupies sunny aspect and is at moderate altitude

(c.500m-900m); little land of these characteristics has been retained by the Crown. With appropriate management these shrublands will expand eventually joining the larger remnants (associated with rock outcrops systems) in both the Camp Creek and West Coast Creek catchments together. The riparian grey shrublands and smaller rock outcrop areas will be instrumental in that linkage and expansion.

Those in the Deep Creek catchment are generally less extensive, less well developed and more identified by weeds and pastoral activity than those in the Camp Creek-West Coast Creek area. However, locally they do contain some additional elements (Halls totara, weeping mapou and *Helichrysum lanceolatum*) not found elsewhere on the property and uncommon elsewhere in the Grandview Range land system and Lindis ED.

The current composition and distribution of shrublands on this property, and elsewhere in Central Otago, is a result of a long history of burning and human modification. Despite past modification, these shrublands retain some species which are either locally, regionally or nationally threatened or uncommon. Future recovery and restoration of the woody vegetation on the property and in the wider region is dependent upon the retention of as wide range of shrublands as possible and on the connectivity and size of hill country reserves to allow for the scale at which ecological processes operate in this environment. The importance of shrubland remnants has recently been given prominence by Walker et. al (2002) who advocate that more land at low elevations should be reserved for the restoration of native woody vegetation and associated fauna. The resilience of dry hill slopes such as these and high potential for rapid expansion of kanuka and/or *Olearia* shrublands is evidenced locally in the shrubland recovery of Bendigo Station.

Other communities: Associated with the Camp Creek bluffs, are herb-cushionfields on the dry bluff tops. These are a characteristic community with a distinctive flora. The rock outcrops along the summit ridge are a refuge site for some species and provide specialised habitat for other plants.

## **2.6 Fauna**

### **2.6.1 Invertebrate Fauna**

Invertebrates were hand collected during the Tenure Review inspection. Weather conditions were mild with little wind and some warm periods. An inventory of 19 invertebrate species that characterise dry-land herb, grass and rocky areas was made (refer Appendix Two).

Invertebrate habitat on the PL is semi-arid and characteristic of the Lindis ED. The fauna commonly copes with water deficit, wind, and contrasting cold winters and hot, dry summers. The rolling hill country encompasses in Deep Creek PL has been susceptible to human induced disturbance with associated vegetation and soil loss. Isolated areas which have retained their natural character occur along the upper slopes of the summit ridge, and along the extensive riparian, schist bluff systems and slopes associated with West Coast Gully and Camp Creek.



### Spur tops and slopes at Camp Creek and lower West Coat Gully

Two grasshoppers, *Sigaus australis* and *Phaulacridium otagoense*, were found in areas of sparse herbs and plant mats along the bluff tops. A third grasshopper species *Coenocephalus semivittatus* was found in adjacent grasses. Other insects widespread in this short tussock grassland included the moths *Orocrambus cyclopicus* and *Glyphipterix cionophora*, and the cicada *Kikihia angusta*. Two species endemic to Otago were found. These were the predatory carabid beetle *Metaglymma tibiale*, which burrows deep into dry stone loams, and the moth *Eurythecta zelaea* which has flightless females and is endemic to dry herbfields of Otago and Canterbury. Two burrowing invertebrates were a surprising find in areas of abundant *Hieracium* and bare soils. These were a tunnel web spider *Hexathele* species, common locally, and a large earthworm of the eastern South Island *Octochaetus multiporus* group.

### Camp Creek shrubland

The Camp Creek shrubland vegetation has some significant associations which signal invertebrate diversity and significant inherent values of these ecosystems. Diverse habitat included rock outcrop and talus with refugia and uncommon shrubs. Lianes, particularly *Muehlenbeckia* species, present in this area are rich in insect herbivores and kanuka provides seasonally abundant flowering resources. Riparian and floodway communities where shrubs shelter stream insects, bind soils and provide stream shade and organic material, also provide important invertebrate habitat. The shrubland is buffering stream ecosystems that are otherwise exposed to climate extremes and limited organic resources of a semi-arid region. The 5km of riparian vegetation in the lower West Coast Gully and Camp Creek is at low altitude (500-700m) and provides significant faunal habitat for the Lindis ED. The corridors are linked to similar habitat in neighbouring leases.

### Upper slopes of the summit ridge

The snow tussock and rock feel communities above 900m are representative of range top communities in the district. *Ecosystems of sunny-northern aspect are rarely protected in the Lindis ED and those on the PL* retain some natural character although these are also influenced by a history of fire and grazing. *Of note is the presence of the threatened cushion/prostrate broomC. Vexillata as a natural host for the blue butterfly zizina oxleyi.*

No invertebrates endemic to the Lindis ER were noted.

### **Importance of the invertebrate fauna**

The low altitude (500-700m) semi-arid communities associated with lower West Coast Gully and Camp Creek are significant for Central Otago. Diverse habitat includes natural and disturbed dry herbfield, rock bluff associated habitats and habitat associated with 5km of permanent streams. The regionally endemic carabid beetle *Metaglymma tibiale* and the moth *Eurythecta zelaea*, also characteristic of the region, were found. These endemic invertebrates and the matching assemblage of plants identify ecosystems unique to Central Otago.

The upper slope and summit ridge communities (above 900m) retain some natural character and, being representative of Otago uplands, are locally important. No insects identified on the lease are ranked as threatened with extinction (Hitchmough, 2002).

## 2.6.2 Herpetofauna

**“Site locations of rare and endangered herpetofauna are recorded in the original report. Herpetofauna of this nature is at risk of illegal activities including damage and removal through unlawful interference and disturbance. Accordingly, information regarding the locations of any such herpetofauna has been deleted from this version of the report. The Department of Conservation has out in place mechanisms to ensure that such information can be released for genuine scientific and research purposes. Please contact the Department of Conservation directly to determine whether the information can be released.”**

Weather conditions ranged from marginal to excellent during the lizard survey. At least four species of lizards were found, generally among rock outcrops: These skinks *Oligosoma maccanni* and *O. nigriplantare* were sighted. Scats almost certainly from Otago Skin (*O. otagense*) were found in a new area in Camp Creek. *O. otagense* has also been recorded in West Coast Gully in previous studies. At least one species of gecko belonging to the *Hoplodactylus maculates* species-complex was sighted. Juvenile geckos are noticeably abundant in the low northern portion of the PL.

- *O.maccanni* were essentially found wherever there were creviced rock outcrops up to the highest altitude searched (1180m). They were also found in a few additional locations with only sparse rock cover.
- *O.n.polychroma* was found at one location on the south side of the main alpine ridge at 1100m. Only one specimen was observed under a rock among native grasses/herbs.
- *O. otagense* scats were found in the Camp Creek/West Coast Gully area. At a new site scats were found beside crevices, on rock platforms of a large sprawling north facing rock bluff/outcrop system rising out of a stream gorge<sup>6</sup>. This is typical *O. otagense* basking location and classic *O. otagense* habitat. This site is 3km ENE from a known small population of *O. otagense* previously recorded from West Coast Gully on Deep Creek and ranging into the neighbouring Sandy Point Station<sup>7</sup>.
- *O. otagense* are also known from a site approximately 2km N of the West Coast Gully site (on Glenfoyle PL) and 3.5km NW of the West Coast Gully site (also Glenfoyle).

<sup>6</sup> Site 600m and is situated approximately 3km ENE of the known West Coast Gully location.

<sup>7</sup> Site was not visited during this inspection.

There is no reason why they would not be present between the sites monitored during this inspection.

The geckos belonging to the *H. maculaues* species-complex were difficult to identify. Populations from the middle (alpine) and southern portions of the lease seemed typical of *Hoplodactylus* sp ‘Southern Alps’ whereas those from the northern portions of the lease were wither more typical of *H. sp* ‘Cromwell Gorge’, or had a confusing mix of characteristics. As a group, these geckos were found wherever there were creviced rock outcrops, up to the highest altitude searched (1180m) and were often abundant.

### **Importance of Herpetofauna**

The one or two gecko species found on the lease are each relatively widespread and common. They are broadly allopatric<sup>8</sup> with one another with a boundary extending from Wanaka to the general Dunstan Creek area. *H. sp* ‘Southern Alps’ ranges northwards to Marlborough and *H. sp* ‘Cromwell Gorge’ occurs in Central Otago. Deep Creek PL appears to straddle the distribution limit of one or both species. It is difficult to interpret the importance of these two populations because it is unknown whether they involve two allopatric species, two sympatric<sup>9</sup> species, two hybridising<sup>10</sup> species, or one species with previously unreported variations.

The two small skink species (*O. maccanni* and *O.n. polychroma*) are each relatively common and widespread in the southern South Island, and *O. maccanni* is particularly common in Central Otago.

*O. otagense* have been reduced to small numbers at both recorded locations on Deep Creek Station. They are in serious danger of becoming locally extinct on the lease. The West Coast Gully site was not identified as a priority site in the Otago and Grand Skink Recovery Plan (Whitaker and Loh 1995) and the new population would not qualify as a first priority site for active conservation management under that plan. The 1995 Recovery Plan, which includes definition of priority sites and reserve design, is currently being rewritten (Whitaker & Houston, in prep.). The new plan calls for a review of priority sites and reserve design and will reflect current thought on appropriate recovery strategies and habitat protection priorities for this species.

The *O. otagense* has a threatened ranking of “Nationally critical”. This species is currently subject to much research and management intervention. Deep Creek Station contains very large areas of suitable *O. otagense* habitat, most of which consists of steep rock bluffs and minimal grazing opportunity. These large expanses of habitat on the station offer an important opportunity for population recovery should translocations become a management option.

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<sup>8</sup> Specification occurs when one population becomes geographically isolated from the rest and subsequently evolves

<sup>9</sup> Evolution of a new species in the same geographic region

<sup>10</sup> Interbreeding of two distinct species

### 2.6.3 Avifauna

The following bird species were recorded during the Tenure Review inspection. Falcon “eastern” (*Falco novaeseelandia*)” was sighted in the Camp Creek/West Coast Gully area. Pipits (*Anthus novaeseelandiae*), Harrier Hawk (*Circus approximans*), and Spur winged Plover (*Vanellus miles*) were also sighted.

Of those, only Falcon “eastern” (*Falco novaeseelandiae*) is of conservation interest. This species has a threatened ranking of Gradual Decline (Hitchmough, 2002).

### 2.6.4 Aquatic Fauna

Deep Creek PL consists mainly of rolling hills with deeply incised stream gullies. A large area of the property was surveyed, however many stream marked on the map are ephemeral by nature and others cease to flow in the lower reaches due to water extraction for irrigation purposes. The gullies that contain permanent water are generally covered in thick scrub (e.g. briar, supple jack) which form a nearly impenetrable barrier in many places and made surveying difficult.

No previous freshwater fish records were found for Deep Creek PL on the New Zealand Freshwater Fish Database maintained by the National Institute of Water and Atmospheric Research (NIWA).

Several creeks were surveyed using a electric fishing machine and defined criteria (Allibone, in prep.). Habitat measurements were taken and recorded based on a NIWA freshwater fish data form. In-stream invertebrates were noted when they could be identified, but no specific collection was undertaken.

Native fish were found in only one stream on the property<sup>11</sup>. A large healthy population of the fish *Galaxias* sp D was found in an unnamed creek upstream of a rocky quarry near the homestead (6 fish in a 3m<sup>2</sup> area). The stream bed at this sampling site consisted of mainly coarse gravel and cobbles, with riffle and small pools common. The invertebrate fauna was consistent with those found in healthy waterways with the invertebrates *Deleatidium* spp. (mayflies) and *Aoteapsyche* spp. (net caddis) being common.

The water appeared permanent although it is unlikely to flow all the way to the Clutha/ Mata-au River due to irrigation diversion structures and water extractions. This separation from the Clutha/ Mata-au is likely to protect the species ‘D’ population from larger predatory fish such as koaro (*Galaxias brevipinnis*) and brown trout (*Salmo trutta*).

West Coast Gully Stream, which flows into the Lindis River, was not surveyed during this inspection. This stream was found to contain large numbers of brown trout during a previous tenure review inspection of the adjoining Sandy Point PL. No native fish were found during that survey. The invertebrate fauna is indicative of a healthy waterway and this stream is important for maintaining flows in the Lindis River in times of drought.

### 2.6.5 Importance of Aquatic Fauna

The native fish *Galaxias* sp D is ranked Nationally Vulnerable (Hitchmough, 2002). This non-migratory fish occurs in four population clusters in the Clutha/ Mata-au River catchment and in areas of the Catlins District. Molecular genetic study indicates that the geographic clusters are

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<sup>11</sup> 260 G40 E272 N970

generally distinct. Protection of isolated populations throughout the range of this species is required to preserve this genetic diversity.

### **2.6.6 Problem Animals**

Deep Creek PL has previously been subject to a rabbit and land management plan. Rabbits are likely to be a problem again in the future having already reached very high numbers in places, after being controlled for a number of year with rabbit haemorrhagic disease.

Possoms nest in rocks in the giant skink habitat and may prey on and compete with skinks for food (berries) amongst other interactions. An extensive possum control operation was underway during the Tenure Review inspection. The amount of possum droppings visible suggests numbers were extremely high prior to this control operation.

Occasional feral goats are sighted in the Camp Creek area. These probably travel between neighbouring properties. Cats, ferrets, and stoats are also likely to be a problem.

## **2.7 Historic**

An area of gold tailings is located in the stream bed behind the Deep Creek PL homestead<sup>12</sup>. These are typical 19<sup>th</sup> century ground sluicing remains. This site is not of sufficient importance to merit special protection beyond that which exists under the provisions of the Historic Places Act.

## **2.8 Public Recreation**

### **2.8.1 Physical Characteristics**

The Lindis Ecological Region provides varied hill and mountain terrain, ranging from mountain glaciers and forests to gentle tussock covered hills. Deep Creek PL which lies toward the southern end of the Grandview Range provides moderate-easy hill country. This provides an associated range of walking, bike riding and horse riding opportunities. Tracks on the upper parts of the property link into a wider track network which provides almost continuous access along the tops of the Grandview Range from Lindis River to Lake Hawea. Additional tracks provide potential for trips, with agreement from adjoining freehold owners, from the Upper Clutha valley floor over to the Lindis, potentially linking with the Lindis-Tarras Highway.

The Recreation Opportunity Spectrum (1992) compiled by DOC for the Otago Conservancy mapped this area, regardless of land tenure, according to setting, activity and recreational experience characteristics. Deep Creek lies in an area zoned *Rural*, which *...is characterised by a feeling of being away from urban areas, but in a strongly human-modified setting ... which...encompasses most of the more developed and accessible farmland.* Areas within this

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<sup>12</sup> New Zealand Archeological Association site no. G40/56

zone are identified as generally utilised for trips of short duration. Deep Creek offers opportunities for day length trips but also provides access to the Grandview Range and Lindis areas which offer potential one and multi day trip opportunities.

A Federated Mountain Clubs publication titled “Outdoor recreation in Otago – A Recreation Plan” (Mason 1989) includes Deep Creek and the surrounding area (below 1000m) in an “open space” zone. FMC identified the primary recreational management requirements to be the *...provision of public access ways and the maintenance of tussock-grassland and native forest settings requiring controls of forestry establishment and prevention of wilding tree spread.*

### **2.8.2 Legal Access**

There is legal access to the southern boundary of Deep Creek PL via Deep Creek Road. There is no legal access through the PL.

### **2.8.3 Activities**

The moderate-easy hill terrain of Deep Creek PL, well formed farm tracks, and links within this property to routes which traverse the Grandview range, provide a range of potential single and multi day walking, horse riding and mountain biking opportunities. These include for example.

- Walking, mountain biking and horse riding trips on tracks around the Lake Hawea-Grandivew-Bluenose-Trig Hill-Trig O-Lindis Peak ridge system.
- Trips through to Lindis Road.
- Access along ridge track from boundary with Sandypoint over Trig O to boundary of Lindis Peak in the east.
- Potential future access to Lindis Peak and Nine Mile.

## **PART 3**

### **OTHER RELEVANT MATTERS & PLANS**

#### **3.1 Consultation**

Deep Creek PL was discussed at an NGO early warning meeting held in Alexandra on 22<sup>nd</sup> May 2003. NGO representatives have also inspected the property. The main points raised during the meeting were:

##### **General**

- Potential for access through to Lindis Peak and on to Nine Mile must be retained.
- Kanuka shrublands along boundary with Long Gully are of value.

##### **The Royal Forest and Bird Protections Society of New Zealand Inc.**

Forest and Bird made a written submission. A full copy is attached as Appendix Three. The key findings and recommendations (abbreviated) of that submission are:

- Landscape is a significant inherent value. A covenant to protect the further degradation of tussock and to prevent planting of conifers or any plantation species would be desirable.
- Restoration of a reasonable level of plant cover in the Lindis River catchment should be considered to and retain winter moisture, slow runoff and promote slower release to the Lindis River during summer when it invariably runs dry.
- Remnant woody areas in gully behind woolshed and stands of kanuka in both catchments above where Deep Creek forks have merit in terms of biodiversity and should be protected from burning and spraying.
- Provision should be made for walking, mountain biking and horse riding access along ridges and waterways to meet increasing demand for such opportunities in the Upper Clutha basin.
- Access should be provided in a NE direction from high point 1046m west of Trig O, towards Lindis Peak, to join with access to come out of the Nine Mile tenure review. Access to Lindis Peak, across freehold property, to be negotiated later.
- There are legal roads up to the main north to south ridge through Glenfoyle and up the northern ridge of Sandypoint to high point 1046m.

## **Federated Mountain Clubs**

FMC made a written submission. A full copy is attached a Appendix Four. The key findings and recommendations (abbreviated) of that submission are:

- The landscape values of the front faces of the Grandview Range are important and should be protected from adverse effects of inappropriate developments such as afforestation, earthworks including roads, or erection of structures. A binding landscape covenant may be appropriate given the landscape provisions and protection of CODC and QLDC District Plans is not sufficiently robust.
- Public use of, and access to, the tracks around the Lake Hawea-Grandview-Bluenose-Trig-Hill-Trig O-Lindis Peak ridge system is the main issue in this tenure review.
- Important to secure access rights for the ridge system to the north and east and access to the ridge at various points. It should be possible to exit the ridge system via Deep Creek or Long Gully. Public access over any 2 of these tracks would make an excellent round trip. Possibilities include:
  - Translator access road on Long Gully;
  - Alternatives on the steep Clutha face of Long Gully;
  - Up the valley of Deep Creek from woolshed across steep south facing slopes to a junction close to Trig O.
- The new track across the upper Clutha face of hill below trig O links the Deep Creek farm track to the translator access road on Long Gully. Public access to this road would facilitate a round trip.
- Access should be provided along river terraces adjacent to river via an expanded marginal strip or easement for public foot use as closes as possible to the river.
- 4WD and trail bike use is largely incompatible with passive recreation. It also damages vegetation and tracks, increasing maintenance requirements and costs. It is legitimate activity however and might be provided for by use of farm tracks or access with runholder consent/charge.
- Areas of scrub including Upper slopes of the Camp Creek Catchment on Deep Creek have potential to revert back to native ecological condition. An easement for management purposes would provide farm access over the formed track which links the north and south facing parts of the property.
- Area of high country between c 1000 and 1250m along ridge eastwards from Trig O should be returned to Crown control as in absence of burning and grazing it will revert to former ecological state.



### **3.2 Regional Policy Statements & Plans**

(a) Regional Policy Statement. The Regional Policy Statement for Otago provides a policy framework for all of Otago's significant regional resource management issues. It does not contain rules. District Plans shall not be inconsistent with the Regional Policy Statement.

In respect of natural values the Regional Policy Statement includes the following policy and method:

*Policy: To maintain and where practicable enhance the diversity of Otago's significant vegetation and significant habitats of indigenous fauna, trout and salmon...*

*Method: Identify and protect Otago's significant indigenous vegetation and significant indigenous habitat of indigenous fauna, trout and salmon, in consultation with relevant agencies and with Otago's communities*

In respect of landscape and natural features it includes the following policy and method:

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

*Method: Prepare in conjunction with relevant agencies and in consultation with the community and affected landowners, an inventory of outstanding features and landscapes that are regionally significant.*

### **3.3 District Plan**

Deep Creek PL is located within the Rural Resource zone of the Central Otago District Plan. 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 planting within specified distances of a water race or irrigation pipeline, and for development work within 10m of any water body.

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**

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

Deep Creek PL lies in the proximity of the Hawea-Lindis Special Place. The CMS objectives for the Hawea-Lindis Special Place relevant to Deep Creek are:

- *To manage and enhance recreational opportunities on lands administered by the department in the Hunter-Hawea area to maintain natural and historic resources of areas while providing for an appropriate range of recreational activity of high quality.*
- *To achieve permanent protection for areas of significant nature conservation importance in the area.*

The key implementation methods relevant to Deep Creek are:

*Negotiation opportunities presented by pastoral lease tenure review or land exchanges on the large pastoral runs in the area will be taken with a view to:*

- *Protecting areas of significant nature conservation value*
- *Improving public access and recreational opportunities*
- *Protecting landscape qualities*
- *Protection for giant skink habitat*

Priorities for the Hawea-Lindis Special Place are:

*Consolidation of protected areas and protection of key habitats through Tenure Review negotiations and improving public access and animal and plant pest control activities.*

### **3.5 New Zealand Biodiversity Strategy**

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.

Hitchmough (1997): A systematic revision of the New Zealand Gekkonidae. Unpublished Theses, Victoria University, Wellington.

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Molloy, J., Bell, B., Clout, M., de Lange, P., Gibbs, G., Given, D., Norton, D., Smith, N. and Stephens, T. (2002): Classifying species according to the threat of extinction: A system for New Zealand. Threatened Species Occasional Publication 22. Department of Conservation, Wellington.

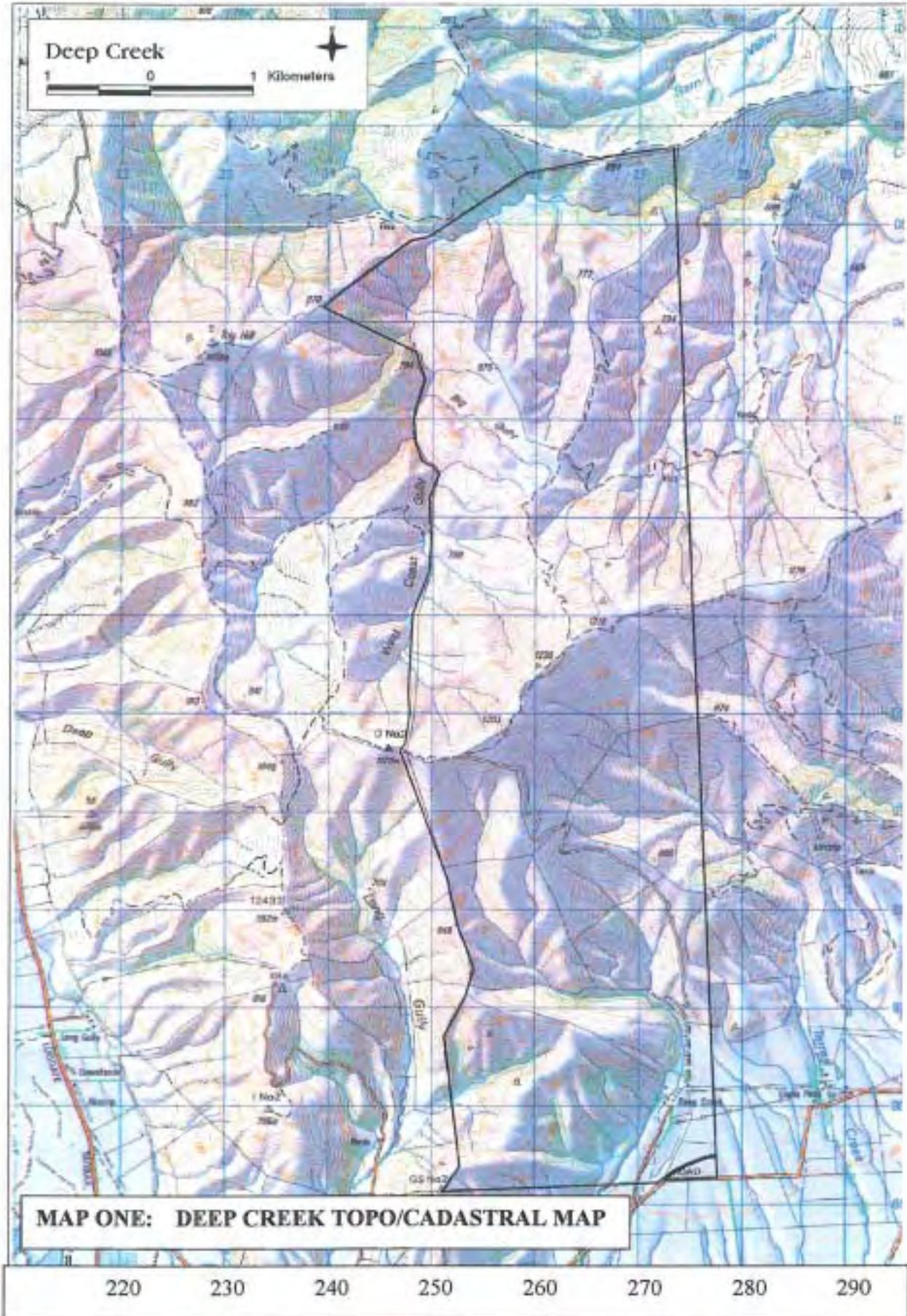
Walker, S., Lee, W.G., Rogers, G.M. (2002): Woody biomes of Central Otago, New Zealand: their present and past distribution and future restoration needs. Landcare Research Contract Report: LC0102/084 prepared for Department of Conservation.

Whitaker, A.H; Loh, G. (1995): Otago and grand Skink Recovery Plan Department of Conservation.

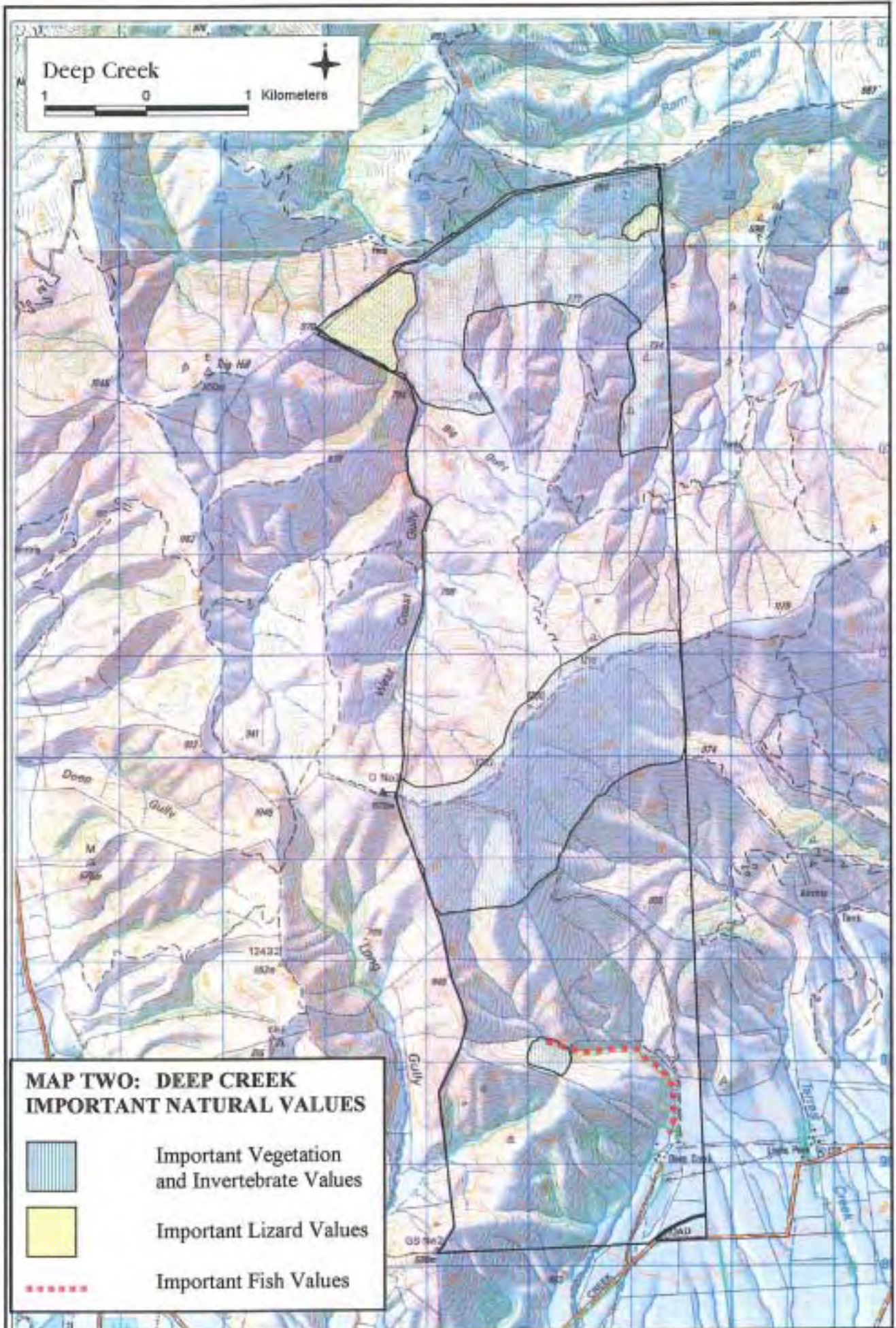
Whitaker, A.H., Houston, D., in prep. Grand and Otago Skink Recovery Plan (Draft). Threatened species recovery plan series. September 2003.

**4.1.2 Illustrative Maps**

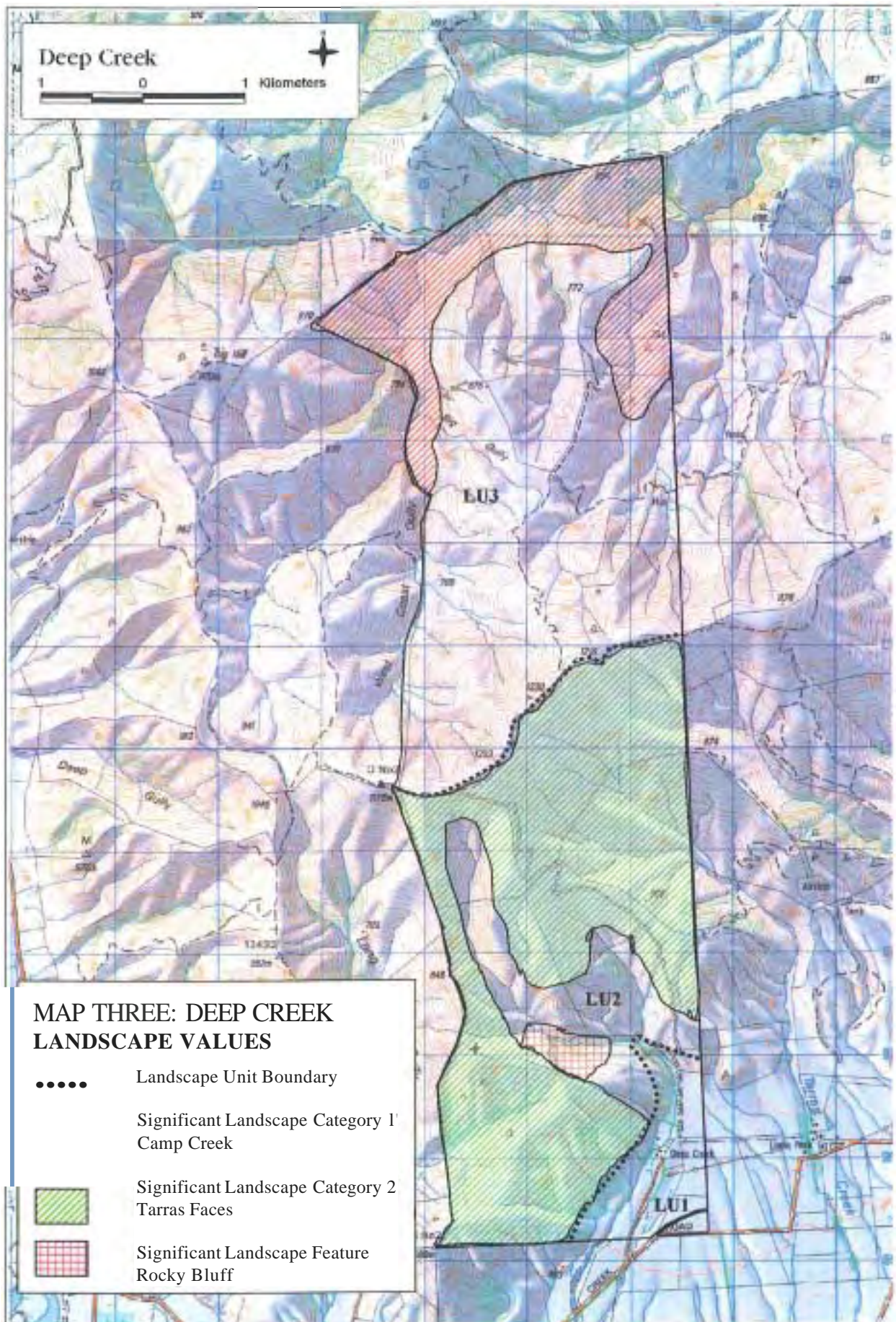
- MAP 1 Topographic and cadastral boundaries
- MAP 2 Important natural values
- MAP 3 Landscape units and significant inherent landscape values











## **4.2            Photographs**





Figure 1 Deep Creek - front of property. Looking toward Clutha River Valley from central dividing ridge. Note shrubland in foreground and Dunstan Range in background



Figure 2 Deep Creek - Rear of property. Deep Creek PL includes ridge top and gully at far left of photo and follows prominent bluffy ridgeline horizontally through middle of photograph





Figure Three Deep Creek - Kanuka shrubland in Camp Creek/West Coast Gully area

**APPENDICES**

**APPENDIX ONE** Deep Creek Station - Native plant species list

Habitat

T	Tussockland
S	Shrubland
R	Rock outcrop
Ri	Riparian stream side
C	Cushionfield and sunny depleted slopes
W	Wet areas

Abundance

A	abundant
F	frequent
C	common
O	occasional
U	uncommon
L	local

\* found within identified area

	Habitat abundance	
<b>Ferns</b>		
Asplenium flabellifolium	R	0*
Asplenium richardii	R	0*
Asplenium trichomanes	S	0*
Blechnum penna-marina	T	0*
Cheilanthes sieberi	R	0*
Hypolepis millefolium	R	0*
Pellaea sp.	R	0*
Polystichum richardii	S	0*
Polystichum vestitum	S	0*
Pteridium esculentum	S,T	c*
<b>Trees and shrubs</b>		
Aristotelia fruticosa	S	0*
Carmichaelia crassicaule	T	u
Carmichaelia petriei	S,T	0*
Carmichaelia vexcellata	T	If
Coprosma brunnea	R	u*
Coprosma cheesemanii	S	0*
Coprosma ciliata	R	0*
Coprosma intertexta	R	u*
Coprosma aft parviflora	S	0*
Coprosma petriei	T,C	0*
Coprosma propinqua	S,R	f *
Coriaria plumosa	W	0
Coriaria sarmentosa	T	0*
Coriaria sarmentosa x plumosa	W	0
Corokia cotoneaster	R	0
Discaria toumatou	S,T,O	a*
Gaultheria antipoda	P	0*
Gaultheria depressa var. novae-zelandiae	T	0*
Gaultheria parvula	T	0
Hebe buchananii	R	0
Hebe pauciramosa	W	u
Hebe salicifolia	S	u*
Helichrysum intermedium	R	c*

Helichrysum lanceolatum	R	u
Kunzea ericoides	S	a*
Leucopogon colensoi	T	O*
Leucopogon fraseri	T,C	f *
Melicytus aff. alpinus	S,T	O*
Muehlenbeckia axillaris	C	O*
Myrsine divaricata	R	u
Olearia lineata	S	O*
Olearia odorata	S	O*
Ozothamnus vauvilliersii	T	O*
Pentachondra pumila	T	u
Pimelea oreophila	T	O*
Pimelea traversii	R	c*
Podocarpus hallii	R	u
Sophora microphylla	S	u

**Climbers & vines**

Clematis quadribacteolatalmarata	S	O*
Muehlenbeckia complexa	S	f *
Parsonsia capsularisheterophylla	S	If*
Rubus schmidelioides	S	c*

**Herbs**

Acaena anserinifolia	S	O*
Acaena buchananii	T	O*
Acaena caesiiglauca	T	c*
Acaena inermis	T	O*
Aciphylla aurea	T	c*
Anaphalioides bellidioides	W	0
Anisotome aromatica	T	c*
Brachyglottis haastii	R	c*
Celmisia densiflora	T	0
Celmisia gracilentia	T	c*
Celmisia lyallii	T	0
Colobanthus brevisepalus	C	c*
Colobanthus strictus	C	0
Crassula sieberiana	R	O*
Epilobium alsinoides	T	0
Epilobium sp. minutiflorum	Ri	0
Epilobium nerteroides	S	O*
Epilobium pubens	R	O*
Epilobium tenuipes	T	0
Euchiton audax	T	O*
Geranium sessiliflorum	C,T	O*
Hydrocotyle novae-zelandiae var. montana	W	0
Kirkianella novae-zelandiae	T	10
Lagenifera petiolata	W	le
Neopaxia sessiliflorum	W	O*
Oreomyrrhis ramosa	S	O*
Oxalis exilis	R	O*
Potentilla anserinoides	W	0
Pseudognaphalium luteo-album	R	0
Ranunculus multiscapus	T	0
Raoulia australis	C	f*
Raoulia beauverdii	C	f*
Raoulia parkii	C	c*
Raoulia subsericea	T	c*
Raoulia tenuicaulis	Ri	O*
Scleranthus uniflorus	T,C	0
Stackhousia minima	T	0

<i>Stellaria gracilentia</i>	R,C	c*
<i>Urtica aspera?</i>	S	u*
<i>Vittadinia australis</i>	C	0
<i>Wahlenbergia albomarginata</i>	T	c
<i>Wahlenbergia gracilis?</i>	R	0
<b>Monocots</b>		
<b>Grasses</b>		
<i>Chionochloa rigida</i>	T	la *
<i>Cortadiera richardii</i>	R	0*
<i>Dichelachne crinita</i>	R	0*
<i>Elymus sp.</i>	T	0
<i>Festuca novae-zelandiae</i>	T	a*
<i>Lachnagrostis sp.</i>	W	0
<i>Poa cita</i>	Ri	0*
<i>Poa colensoi</i>	T	f *
<i>Poa maniototo</i>	C,T	c*
<i>Rytidosperma buchananii</i>	W	u
<i>Rytidosperma corinum?</i>	T	0*
<i>Rytidosperma pumilum</i>	T	c*
<b>Sedges</b>		
<i>Carex buchananii</i>	Ri	0*
<i>Carex breviculmis</i>	T,C	c*
<i>Carex comans</i>	T	0
<i>Carex coriacea</i>	W	la *
<i>Carex flagellifera</i>	Ri	0*
<i>Carex gaudichaudiana</i>	W	If
<i>Carex secta</i>	Ri	0*
<i>Schoenus pauciflorus</i>	W	le
<b>Other monocots</b>		
<i>Bulbinella angustifolia</i>	T	c*
<i>Corybas macranthus</i>	W	0
<i>Luzula banksiana var. migrata</i>	R	c*
<i>Luzula ulophylla</i>	C	0*
<i>Microtis uniflora</i>	T	0
<i>Thelymitra longifolia</i>	T	0*

**Appendix of invertebrate records**

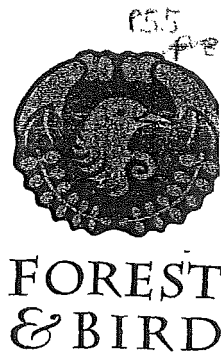
Deep Creek Pastoral Lease tenure review lists 31 March, i-April 2003

Collectors; E. Edwards, B. Patrick and B. Rance

<b>Order/Family</b>	<b>Taxon</b>	<b>Locality</b>	<b>Elevation</b>	<b>Date</b>	<b>comment</b>
<b>Coleoptera beetles</b>					
Carabidae	<i>Holcaspis species</i>	bluffs Camp Ck.	620m	31-Mar-03	
Carabidae	<i>Holcaspis species</i>	CampCk.	510 m	31-Mar-03	
Carabidae	<i>Metaglymma tibiale</i>	bluffs Camp Ck.	620m	31-Mar-03	Burrowing predator in dryland soils
Scarabaeidae	<i>Pyronota</i> sp.	bluffs Camp Ck.	620m	31-Mar-03	
Tenebrionidae	<i>Mimopeus opaculus</i>	Hd Deep Ck.	1180 m	1-Apr-03	
<b>Hemiptera bug and cicada</b>					
Cydnidae	<i>Philapodemis australis</i>	bluffs Camp Ck.	620m	31-Mar-03	Open sandy areas with patchy vegetation
Cicadidae	<i>Kikiha angusta</i>	Hd Deep Ck.	1180 m	1-Apr-03	
<b>Lepidoptera moths</b>					
Crambidae	<i>Orocrambus cyclopicus</i>	bluffs Camp Ck.	620m	31-Mar-03	x4
Crambidae	<i>Orocrambus cyclopicus</i>	CampCk.	510 m	31-Mar-03	
Glyphipterigidae	<i>Glyphipterix cyanophora</i>	CampCk.	510 m	31-Mar-03	
Tortricidae	<i>Eurythecta ze/aea</i>	bluffs Camp Ck.	620m	31-Mar-02	x4, herbs, cushions in open dryland
Yponomeutidae	<i>Plutella antiphona</i>	bluffs Camp Ck.	620m	31-Mar-03	
<b>Orthoptera grasshoppers</b>					
Acrididae	<i>Phaulacridium otagense</i>	bluffs Camp Ck.	620m	31-Mar-03	
Acrididae	<i>Phaulacridium otagense</i>	CampCk.	510 m	31-Mar-03	
Acrididae	<i>Sigaussp.</i>	bluffs Camp Ck.	620m	31-Mar-03	
Acrididae	<i>Sigaussp.</i>	CampCk.	510 m	31-Mar-03	
Tettigoniidae	<i>Conocephalus semivittatus</i>	bluffs Camp Ck.	620m	31-Mar-03	

**APPENDIX THREE** Royal Forest and Bird Protection Society Written Submission

03 APR 2003  
 10:23:11 AM  
 1000000000



Royal Forest and Bird Protection Society of New Zealand Incorporated  
 Upper Clutha Branch  
 PoBox 38  
 Lake Hawea

7 April 2003

Tony Perrett  
 The Manager Tenure Review.  
 Department of Conservation  
 77 Stuart Street  
 POBox 5244  
 DUNEDIN

*Debbie Smith -  
 please send original to Tim  
 col copy for our files.*

CONS	
A.M.	
C.R.M.	
B.S.M.	
T.S.M.	
H.R.A.	
H.C.T.R.M.	<i>[Handwritten initials]</i>
KAM.	
OTHER	

Dear Tony

NGO's report for Early Warning submission'  
 Long Gully and Deep Creek

Following is the Upper Clutha branch's Early Warning submission on the Tenure Review of Long Gully and Deep Creek Pastoral Leases.

**1 General**

- These two properties are adjoining and run as one unit for managerial purposes.
- ii Situated as they are at the junction of the Clutha and Lindis valleys, Deep Creek and Long Gully are very visible from SH8, the Lindis Road and SH6, the Wanaka Road.
- iii The highest point on the properties is 123Qmasl. on Deep Creek about 1.5 kilometres north east of Trig Oat 1178masl. Trig 0 is close to the boundary between the two properties.
- iv Approximately half the area of Deep Creek drains to the north into West Coast Gully, and in turn into Camp Creek which is a tributary of the Lindis River. (See photo # 3)
- v Long Gully is bounded in the north by Sandpoint, which is already in the tenure review process, and Deep Creek is bounded in the east by Lindis Peak, which is a freehold property.
- vi There is considerable tracking on these properties, Some of it still being constructed. A new track is seen coming out of Long Gully at about the 500masl. contour and descends to the Long Gully homestead on SH8. Then heads back up the hill towards trig 952masl. (See photo # 4)
- vii Both Lindis - RAP A13 Long Gully and Lindis RAP A14 Long Gully Terrace are on Long Gully.

ROYAL FOREST AND  
 BIRD PROTECTION  
 SOCIETY OF  
 NEW ZEALAND INC

CENTRAL OFFICE  
 172 TARANAKI ST  
 PO BOX 631  
 WELLINGTON  
 PH 04 385 7374  
 FAX 04 385 7373  
 EMAIL  
 OFFICE@WN.FOREST  
 -BIRD.ORG.NZ

## 2 Method of Survey and Inspection

A site visit and field inspection of both properties was carried out in January 2003. Further information was obtained from the Survey Report for Protected Natural Area Programme 1994.

## 3 Conservation Values

Landscape is a significant inherent conservation value on both these properties. The lower slopes consist of modified tussock grasslands with some woody endemic vegetation throughout. This merges in to taller tussock (in name, not stature) at about 800 – 900masl. This transition from low to taller tussock is seen as a colour change, and is very visible from the main roads - SH8 & SH6. (See photo # 2). A landscape covenant to protect the remaining tussock from further degradation would be beneficial. We would also like to see that planting of conifers or indeed any plantation species on these slopes become a prohibited activity.

- ii The tussock cover is sparse on the sunny faces of Deep Creek as shown on Photo # 3. As this area is part of the Lindis River catchment thought needs to be given to the restoration of a reasonable level of plant cover to slow runoff and to retain winter moisture in the catchment for slower release in the summer into the Lindis River which invariably runs dry during the summer months.
- iii On Deep Creek in the gully behind the woolshed and before climbing the hill there are small stands of kanuka, which are interspersed with kowhai, carmichaelia, coprosma, matagouri, muehlenbeckia and also sweet brier; which has been sprayed in parts (See photos 1 and 5). There are also stands of kanuka in both catchments above where Deep Creek forks. It would have merit in terms of biodiversity to see these remnant woody areas protected in some form from spraying and burning. (See photos 1, 5 and 6)
- iv The two comparatively small but significant RAPs on Long Gully have considerable value situated where they are in the Upper Clutha basin. Although Lindis RAP A13 Long Gully is a relatively small area, lower altitude shrublands are not well represented in the conservation reserve portfolio making it worthwhile to consider the area of this RAP for protection as conservation land by returning to full crown ownership and control. It would be important that this area was fenced to protect the shrubland from grazing and accidental top dressing. Lindis RAP A14 Long Gully Terrace is "the best example of a relatively natural Upper Clutha land system semi-arid terrace flats" according to the RAP Survey Report. It is crucial to take into consideration that land on both sides of this RAP are currently being offered for sale as lifestyle/grape blocks. This manner of activity would destroy any inherent conservation values in this land.



#### 4 Access

- i CPLAct 1998 PART2 Tenure Reviews Sec 24 c (1) has as its aim to “make easier .. The securing of public access and enjoyment of reviewable land...”*
- 11 In the Upper Clutha basin there is an increasing demand for walking access along ridges and beside water bodies. Also for mountain-biking and perhaps to a lesser extent horse riding. Provision must be made for this now. That it is not used now is due to the fact that access to it is not readily available to the public.
- 111 It is essential that walking access be provided from Long Gully up the present route to the V.H.F repeater and beyond through Sandypoint, Glenfoyle to Lake Hawea, all of which are at present under Tenure Review. While there is one property between Glenfoyle and Lake Hawea that is freehold, this must not stop the creation of access on Long Gully and Deep Creek. Negotiations through the freehold can be left for the future. There should also be similar access provided in a north-easterly direction from .1046m just west of Trig 0, towards Lindis Peak itself to join up with access to come out of Nine Mile (also under tenure review). While Lindis Peak is already freehold; again negotiations can be left for the future. (This route is marked in green on the map attached)
- IV There are legal roads up to the main north to south ridge through Glenfoyle and up the northern boundary ridge of Sandypoint to .1046m. (See the Cadastral maps -

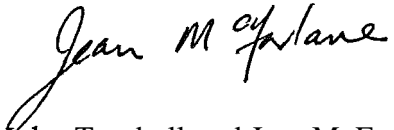
#### 5 Illustrations

Plan or map showing the salient points mentioned.

- 11 Photo # 1 View from behind woolshed and before road makes up hill, looking towards Long Gully boundary showing type of vegetation.
- IV Photo # 2 View taken from the track to trig 0 at about 900masl. looking north east towards boundary with Lindis Peak, this shows the noticeable colour change between the modified pasture below and the taller tussock above. This is the back-drop to the Lindis country as seen from Tarras.
- v Photo # 3. View looking north from ridge which divides Deep Creek into approximately half at point, 1230. This shows depleted nature of tussock.
- VI Photo # 4 View from VHF repeater looking north towards back boundary of Long Gully at Trig 0 .1178masl.
- VIII Photo # 5. Further up north branch of Deep Creek showing thick grove of katiuka in foreground and looking over to another area of kanuka in the south branch.
- IX Photo # 6. Looking down the south branch of Deep Creek from near Trig 0 showing shrublands.

If the points, or issues, we have mentioned in this submission are put into the preliminary proposal there should be a good outcome to the review of tenure. Thank you.

Yours sincerely

A handwritten signature in black ink that reads "Jean McFarlane". The signature is written in a cursive style with a large, sweeping initial 'J'.

John Turnbull and Jean McFarlane  
For Upper Clutha Branch of Royal Forest and Bird Protection Society.



①



②





3



4



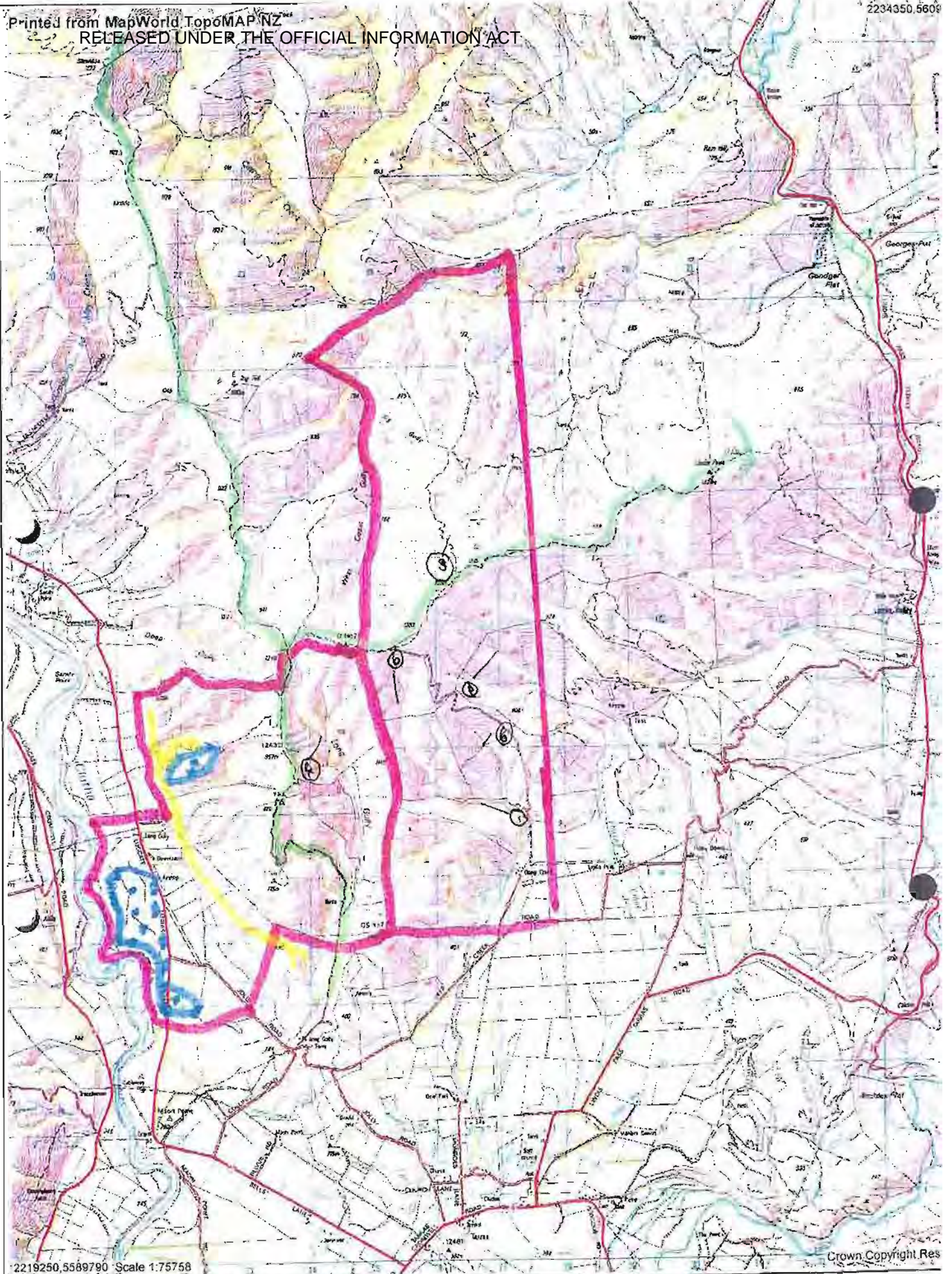


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6





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Deep Creek CRR - Updated Info.doc  
NEW ROAD



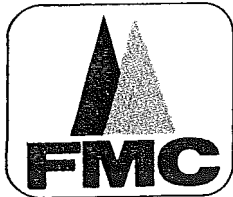
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Photographs



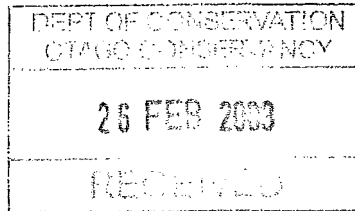
**APPENDIX FOUR** Federated Mountain Clubs - Written Submission



FEDERATED MOUNTAIN CLUBS OF NEW ZEALAND (Inc.)  
P.O. Box 1604, Wellington.

24 February 2003

Tony Perrett  
High Country Tenure Review Manager  
Department of Conservation  
Private Bag 5244  
DUNEDIN



*Debbie  
Please copy for our file  
and send original  
to Tim.*

CONS	
AM.	
C.R.M.	
B.S.M.	
T.S.M.	
H.RA	<i>OB</i>
H.C.T.R.M.	
KAM.	
OTHER	

Dear Tony

FMC Reports on Recreation and Related Significant Inherent Values  
on Pastoral Leases currently under Tenure Review: Long Gully/Deep Creek

FMC has been preparing reports on the recreational and related significant inherent values of the pastoral leases which entered the review process in September 2001 and 2002, and we are now pleased to offer our report on the Long Gully and Deep Creek pastoral leases as part of the statutory consultation process.

The FMC report has been compiled following recent inspections of the property to assess the recreational and related significant inherent values of the property. As you will gather from the content of the Report, we have also made use of various sources of published information.

FMC hopes that this report will be helpful to you and the Crown Agents in developing tenure review proposals for Long Gully and Deep Creek. We look forward to commenting on the Preliminary Proposal in due course.

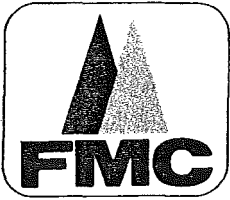
Yours sincerely

Dr Michael J S Floate  
FMC Coordinator, High Country Tenure Review Otago/Southland/Westland

cc Ken Taylor,  
Manager,  
DTZ New Zealand Ltd.  
PO Box 27  
ALEXANDRA

cc John Perriam  
Bendigo Station  
Tarras  
Central Otago





**FEDERATED MOUNTAIN CLUBS OF NEW ZEALAND (Inc.)**  
P.O. Box 1604, Wellington.

**PASTORAL LEASE TENURE REVIEW**

Preliminary Report on  
Recreational and Related Significant Inherent Values

LONG GULLY and DEEP CREEK

February 2003

Compiled for Federated Mountain Clubs of NZ (Inc.)  
By Dr Michael J S Floate, High Country Consultancy.

**RECREATIONAL AND RELATED SIGNIFICANT INHERENT  
VALUES of LONG GULLY and DEEP CREEK**

**A Report for FMC based on field inspections and other research  
to assist in the Crown Pastoral Lease Tenure Review Process**

**February 2003**

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Conclusions	9
Acknowledgements	9
A map showing the important recreational access routes in yellow	10
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## **LIST OF FIGURES**

Fig. 1 This view from Trig 0, on the back boundary of Long Gully, shows the ridge system leading north over Sandy Point and Glenfoyle (both of these leases are currently in the tenure review process). As the track system leads to Grandview and on to Lake Hawea Station (another lease currently under review) it is important that an overall view is taken of the likely outcomes as each lease is reviewed.

Fig. 2 This view is from the summit of Lindis Peak looking west along the ridge system to Trig 0 where it turns north towards Grandview. Long Gully and Deep Creek occupy a pivotal position at the corner where the N-S and E-W sections of the ridge system meet near Tarras. The ridge tracks offer fine views over the whole Upper Clutha including Lake Dunstan (middle distance left) and the Pisa Range (skyline right of centre).

Fig. 3 Long Gully woolshed and stone yards are situated at the foot of the range, beside the Luggate-Tarras Road. Landscape considerations are important because this road links the tourist route between Christchurch and Queenstown with the route to Wanaka and the West Coast, and is heavily used by tourists.

Fig. 4 Long Gully and Deep Creek are situated at the west (left hand) end of the ridge running E-W from Trig 0 (high point, left) to Lindis Peak (high point, right). This ridge dominates the Upper Clutha as seen from the Lindis Pass highway (SH 8) so landscape protection is needed to prevent the adverse effects of inappropriate development.

Fig. 5 The Deep Creek woolshed is situated at the foot of an access track that leads up to Trig 0 at about 1,200m. Much of the lower slopes are classified LUC Class VI and should be capable of being managed in a way that is ecologically sustainable with appropriate development and maintenance. Presently there is much woody scrub, some of which could, alternatively, recover under conservation management.

Fig. 6 A separate property, Long Gully Farm, is in the foreground while an access road climbs out of the valley onto a prominent spur where several translator masts are located. Above these, the track continues up to the Sandy Point boundary in a saddle just below Trig 0. This could be a very important recreational access route if public access was secured through tenure review.

Fig. 7 Public access to the ridge system which extends from Breast Hill and Grandview in the north to Lindis Peak in the east is the main issue in this tenure review. Tracks along the ridges such as this one leading over Bluenose to Grandview (G) and beyond, could become valuable recreational resources if adequate access was secured through tenure review. Access from Tarras via Long Gully and/or Deep Creek is needed.

Fig. 8 The highest part of Deep Creek and Long Gully is LUC Class VIIe, of very limited suitability for pastoral farming. Unless essential nutrients (removed in animal products) are replenished, the land cannot be managed in a way that is ecologically sustainable in the long term, and should not become freehold. The alternative is that it is returned to full Crown ownership and control and is managed for conservation.

Fig. 9 Within the Deep Creek catchment, on the front faces of the property, are some small but significant patches of native manukakanuka shrubland which are remnants of shrublands which were formerly much more extensive. These are situated within an area that has been classified LUC Class VI which should be capable of sustainable pastoral use. The shrublands could be considered for protection under a conservation covenant.

Fig. 10 The ridge track extends eastwards over the neighbouring property to Lindis Peak (in shadow) which is located on Nine Mile Station. The Preliminary Proposal for the tenure review of Nine Mile includes public access to Lindis Peak from the Lindis Pass highway. Progress towards completion of the link from the Grandview part of the ridge system to Lindis Peak would be a very valuable outcome of the current tenure reviews.

Fig. 11 The views from the Glenfoyle - Grandview - Breast Hill part of the ridge system are expansive and with progress along the ridge, the perspectives are continuously changing. In this view across Lake Hawea, the mountains of Mt Aspiring National Park and the main Divide can clearly be seen in the distance.

Fig. 12 One route heads down from a saddle just below Trig O, sidles along a prominent spur and drops off into Long Gully below the translators, which are located near the patch of shadow on the spur in the middle distance. This would provide good foot and mountain bike access from Tarras and would serve as an emergency exit from the ridge system in bad weather.

Fig. 13 This view from Trig O shows the junction of the ridge track leading east (left) across Deep Creek to Lindis Peak, and to the right, the top of the track leading down to Deep Creek woolshed. If both this track on Deep Creek and the translator access road on Long Gully became available for public use this would make an excellent round trip for walkers and mountain bike enthusiasts.

Fig. 14 The banks of the Clutha River offer opportunities for shorter walks but not all of the bank is easily accessible, or practical for relatively easy walking. Only part of the terrain to be traversed on such walks would lie within the normal marginal strip, so either the strip should be widened where necessary to provide practicable access, or an easement should be negotiated through tenure review.

## **INTRODUCTION**

This report has been prepared following the Early Warning Meeting in October 2001 at which the properties entering the tenure review process in 2001 were introduced. Federated Mountain Clubs of NZ (FMC) were unable to attend that meeting. However, it is understood that these pastoral leases have carried over into the 2002 - 2003 review programme. This report is offered as a contribution to the statutory consultation process undertaken by the Department of Conservation.

The report focuses on those features of Deep Creek and Long Gully which are important for public recreational interests. It should be noted that while much of this interest focuses on access, the natural values and landscapes of the areas concerned have a fundamental impact on the recreational value of the property and greatly influence the quality of recreational experience enjoyed. It is for this reason that reference is also made to both natural and landscape values in this report.

These two pastoral leases are situated in a critical position at the corner of ridge system which starts in the north, east of Lake Hawea, climbs over Grandview and runs south through Glenfoyle and Sandy Point pastoral leases (both currently under review, Fig. 1). At Trig O the ridge system turns east towards Lindis Peak which is situated on Nine Mile Station near the Lindis Pass highway (Fig. 2). Nine Mile is also under review so there are currently 6 pastoral leases associated with the ridge system which are involved in the tenure review process. Long Gully and Deep Creek meet at the turning point at Trig O. It is important that a broad view of the overall outcomes be taken as each lease is reviewed, and consideration should be given to the emerging network of recreation opportunities. Recreational use in the future will depend on decisions made now, so it is important that adequate provision is made for public access.

Mason (1989) has described the general area as follows:- *"Between the Upper Clutha and WaUah catchments lies an extensive tract of mountain country bounded by the Hawea Basin to the west and the Ahuriri Valley to the east. The Lindis Valley and Pass forms a southern transition between the high relief main ranges and the gentler block mountains to the south-east. It is also a transition between the strongly foliated Central Otago schists and Canterbury greywackes. Intricately dissected and relatively small scale hill country in the Lindis Pass area is quite dissimilar to the rest of the region. South of Timaru River the country drops to rounded crests at 1,600m on the Grandview Range, which falls almost imperceptibly southwards to only 1,200m north of Tarras. This easier topography is in marked contrast to the contorted forms to the north."*

## **METHODS OF SURVEY AND ASSESSMENT**

A site visit and field inspection was carried out in December 2002. This report is based on the field inspection and in part, on information gathered from other sources. The other sources include studies of topographical and Land Use Capability (LUC) maps, consultation with recreational user groups and a knowledge of the landscapes seen from SH 8 and the Luggate-Tarras Road (SH 8A). A study of "Outdoor Recreation in Otago" was undertaken by Mason (1989) and published by FMC. Reference is made to this Recreation Plan for Otago in the recreation section below. The Conservation Management Strategy for Otago has also been used as a source of reference.

**GENERAL DESCRIPTION OF DEEP CREEK and LONG GULLY**

Deep Creek and Long Gully are two relatively small pastoral leases which are operated under the same management. Long Gully is the smaller of the two, covering about 1,700ha and stretching from the terraces by the Clutha River (at about 250m) to its highest point (Trig O, 1,176m) at the head of Long Gully. Long Gully woolshed and stone yards are situated at the foot of the hill, near the Luggate Tarras Road (Fig. 3). Deep Creek is larger (2,700ha) and straddles the east-west ridge which runs from Trig O to Lindis Peak. The Deep Creek homestead and woolshed are situated just off Deep Creek Road in Tarras at about 400m (Fig. 5). The property rises to just over 1,200m on the ridge and drops to about 500m at the northern boundary which lies in the headwaters of Camp Creek.

Long Gully is a major feature of the property which bears its name, although the lower part of the gully is occupied by the neighbouring property, Long Gully Farm (Fig. 6). A good access road leads from the gully up to a collection of translator masts on a prominent spur overlooking the Upper Clutha. Beyond the translators the track climbs to about 1,000m where it crosses into Sandy Point pastoral lease, just below Trig O.

Public use of, and access to, the tracks around the Lake Bawea - Grandview - Bluenose - Trig Hill - Trig O - Lindis Peak ridge system is the main issue in this tenure review (Fig. 7). This will be discussed more fully in later sections of this report.

A large part of Long Gully is characterised by Yellow Grey Earth Arrow soils with some of the closely related Blackstone Hill soils. These have both been classified in Land Use Capability (LUC) Class VI and should be capable of supporting sustainable pastoral use with appropriate maintenance. Only a small area of this property, above about 1,000m, with High Country Yellow Brown Earth Dunstan Steepland soils has been classified LUC Class VIIe. Although of very limited suitability for pastoral farming, this small area may be capable of being managed in a way that is ecologically sustainable. This would entail the replenishment of essential nutrients that have been removed in animal products, through regular maintenance fertiliser application. This may be feasible at about 1000m on Long Gully, but at higher altitudes this is probably not economically justifiable.

The soils on Deep Creek are similar but there is a larger area of Dunstan Steepland soils of LUC Class VIIe on both north and south sides of the main ridge (Fig. 8). Just as on Long Gully, the Dunstan Steepland soils mainly occur above about 1000m but in this case occupy a larger area of ground which is particularly steep on the north face (Fig. 8). The lower slopes of the Camp Creek catchment are characterised by Yellow Grey Earth Blackstone Hill soils which have been classified LUC Class VI. The front faces of Deep Creek (Fig. 5) are characterised by Arrow soils which here carry more scrub than on Long Gully and would appear to require more development to be capable of supporting ecologically sustainable pastoral use. There are also some small patches of native shrubland in the mid reaches of Deep Creek which may be worthy of protection (Fig. 9). Most of the Camp Creek catchment below about 1,000m appears to be capable of sustainable pastoral use and contains less biodiversity than for example Glenfoyle, parts of which also lie in the same catchment.

Part of the lower country at the foot of the hill on Long Gully has been classified LUC Class III (Fig. 3), capable of supporting relatively intensive pastoral farming, but much of the terrace country is stony and infested with briar. Despite this limitation, much of the property has potential to be managed in a way that is ecologically sustainable. On Deep Creek, it appears that a considerable amount of development and maintenance work will be required. An alternative might be that some of the scrub or at least the best of the remnant native shrublands might (under the protection of a conservation covenant, and in the absence of grazing and burning) be allowed to recover some of their former ecological stature. Under these conditions it should regain some of its former ecological condition typical of the native shrublands which would have been much more extensive in the past.

**RECREATIONAL ACTIVITIES AND POTENTIAL**

The recreational significance of these pastoral leases lies in their position at the corner of ridge systems which extend northwards to Grandview (Fig. 7) and eastwards to Lindis Peak (Fig. 10). There is an extensive network of ridgeline tracks between the Upper Clutha – Lake Hawea area, the Lindis Pass, and the

Upper Clutha at Tarras. This was discussed in a report prepared in 1999 on Glenfoyle. That report stated: *"Glenfoyle is isolated from other pastoral leases which are already in the tenure review process. It should however, be considered in relation to recreational opportunities in the Hawea/Lindis general area."*

The recommendation to consider opportunities for recreation in the broad context of the Hawea/Lindis area is even more appropriate now that there are a number of neighbouring properties undergoing tenure review. Lake Hawea Station, Glenfoyle, Sandy Peak, Long Gully, Deep Creek and Nine Mile are all at various stages of review. FMC has not only reported on Glenfoyle but also on Sandy Point (which adjoins both Long Gully and Deep Creek) and Nine Mile (where Lindis Peak is situated), further east along the ridge system. It should also be noted that Breast Hill and Breast Peak to the north of Grandview Mountain, are situated at the northern end of the ridge system on Lake Hawea Station which entered the tenure review process this year.

The FMC report on Glenfoyle stated:-

*"Glenfoyle occupies an important position from a recreational perspective as it provides access to an extensive ridge system. This ridge system extends south from Breast Hill (overlooking Lake Hawea and the Timaru River valley), over Breast Peak and Grandview Mountain where a branch (Grandview Track) leads east to Bargour and the Lindis Pass Highway. The ridge system continues south over Bluenose and Glenfoyle to Trig Hill and encompasses the entire catchment of Camp Creek and its tributaries. The rim of this catchment carries the ridge system east to Lindis Peak and encloses an attractive mosaic of tussock, kanuka shrubland and rock outcrop landscapes.*

*This ridge system and its associated tracks provide easy travel and excellent views of the surrounding area as far afield as Mount Aspiring National Park, the Remarkables, Lindis Pass, and the St Bathans Range [Fig. 11]. It is ideal for tramping, mountain bike trips, and horse riding and should also be considered for 4WD use with the runholders consent. Through trips to the Lindis area should become available over time through tenure reviews of neighbouring properties. Nine Mile is one of a group of 6 properties currently in the tenure review process in the Lindis Pass area. It is therefore important to make appropriate access provisions at this stage at the Hawea end of the system (eg. Glenfoyle) so that provision for through trips can be completed as other tenure reviews proceed."*

Mason (1989) had earlier reported that:- *"Recreational use of this area is almost entirely confined to the Hawea Flat approaches to the Grandview Range and Timaru River. Grandview Mount (1,397m) is an historic viewpoint, as impressive a panorama today as seen by Surveyor Thompson in 1857. The view extends from the Central Otago ranges, to the Remarkables, Mount Aspiring, the Wilkin peaks, including a striking perspective of Aeolus, and the McKerrow Range. This must rank as one of the most comprehensive views within the Southern Lakes region. A small number of holiday visitors make the 1,000m climb to the summit each summer."*

The FMC report on Sandy Point stated:-

*"The Significance of the track system from Grandview and Bluenose, to Trig Hill (on the northern boundary of Sandy Point) and beyond, is that it allows the recreational visitor to continue enjoying this panorama from changing perspectives along the ridges. It provides a wide range of options for walkers, trampers, mountain bike users and possibly horse riders and 4WD enthusiasts.*

*Sandy Point is important because, like Glenfoyle, it provides a key section in the centre of this ridge system. Access to the central part is important because the distances to the extremities of the system are considerable, and access to the central part of the system opens up a greater number of alternative trips for day or overnight travel.*

*As part of the tenure review agreement for Sandy Point, public access easements for foot, mountain bike and possibly horse riding should be negotiated as indicated on the attached map. The highest priority is to gain legal access rights over the ridge system which crosses Sandy Point land. There are two parts to this system:- (a) the north-south track between the boundaries of Glenfoyle (near Trig Hill) and the boundary with Long Gully (in a saddle below Trig 'O'), and (b) a track from this junction, leading over Trig 'O' east to Lindis Peak. These routes form part of an extensive network of tracks in the Hawea/Lindis general area which collectively offer a wide range of recreational opportunities. These should progressively become available to the public as tenure review proceeds on this and neighbouring pastoral leases.*

*As part of this range of opportunities the routes (a) and (b) above would provide links between Grandview (above Hawea), across Sandy Point, and down via the VHF repeater into Long Gully and Tarras. or over Lindis Peak and thence down to SH 8, the Lindis Pass highway. "*

This need for public access routes across Long Gully and Deep Creek has been foreshadowed in earlier FMC reports dealing with tenure review on neighbouring properties. It is clear that the most important access requirements out of all these tenure reviews are secure public rights of use of the ridge system to the north and east. But access to the ridge at various points is also required.

What is required from the present review is access to the ridge system from the Tarras area. The translator access road on Long Gully (Fig. 12), which joins the ridge just below Trig O is one possible route while there are alternatives on the steep Clutha face of Long Gully, and up the valley of Deep Creek (Fig. 13). The latter leads from Deep Creek woolshed up and across the steep south-facing slopes to a junction close to Trig O (Fig. 13). If public access became available over any two of these tracks, it would make an excellent round trip for walkers and mountain bike enthusiasts. Any of these routes would provide the necessary access to the ridge system leading north to Grandview (Fig. 7) and east to Lindis Peak (Figs. 2 and 10).

Completion of the public right of way along the ridge to Lindis Peak will not be simply achieved through tenure review because one property which straddles the ridge (Lindis Peak) is freehold. The fact that a right of way across Lindis Peak does not yet exist should not be a reason for not making provision for access over Deep Creek. Until such time as a right of way or easement can be negotiated, it should be possible for recreational users to exit the ridge system via Long Gully or Deep Creek depending on the outcome of the current reviews. For this purpose any of the routes described above would be suitable. The argument for the need for an exit from the ridge serves to illustrate the importance of providing public access to the corner of the ridge system at Tarras.

The possible use of the ridge track system for 4WD use was raised in the 1999 report on Glenfoyle. The problems with 4WD and trail bike use are twofold: they are incompatible with more passive forms of recreation and they have potential to do great damage to tracks and wetland vegetation. There is also the question of who should be responsible for track maintenance. Nevertheless, it is a valid form of recreation and consideration needs to be given to what places might be suitable, bearing in mind these problems. Existing farm tracks in drier areas present opportunities where the risks of environmental and track damage are less than elsewhere, and Long Gully and Deep Creek, together with Sandy Point, Glenfoyle and other neighbouring properties may have opportunities which should be considered (Figs. 7 and 10). 4WD use up to, and along the ridge track, with the runholder's consent, and the possible payment of reasonable fees to contribute to track maintenance, might be considered during tenure review.

Since the inspection was carried out in December, a new track has been cut across the Upper Clutha face of the hill below Trig O. This new track links the Deep Creek farm track to the translator access road on Long Gully and obviates the need to cross into Sandy Point land in the vicinity of Trig O. If this new track was made available for public foot and mountain bike use it would facilitate a round trip.

Another part of Long Gully which is sometimes used by locals for short walks is along the terraces above the Clutha River (Fig. 14). Some of the terrain to be traversed on such walks would lie within the marginal strip, but not all of the river bank is easily accessible, or practical for relatively easy walking. This means that the marginal strip does not, of itself, provide adequate access for recreational use. It is recommended that either the marginal strip be widened at such points to provide practicable access, or an easement for public foot use, along a route as close as possible to the river, should be negotiated through tenure review (Fig. 14). If the river terrace became conservation land, as discussed below, the public access question would be resolved.

Finally, it is argued that the recreational significance of these properties should be assessed not only on their present usage but also on potential. This is because current usage is much less than its potential for a number of reasons. Because of the current land tenure under pastoral lease, and because access to some parts of the ridge system has not been easy in the past, the recreational use of the ridge system described in this report is less than it might have been if access was freely available. Where there are suitable settings there is significant potential for greater use and it is the full range of possibilities which should be considered during this tenure review.

In summary, this assessment indicates that there is considerable scope along the ridge system for day walks, tramping, mountain bike trips and horse riding. It is recommended that public access to and along the ridge for all these activities should be secured as an outcome of the tenure review of Long Gully and Deep Creek. 4WD access and use with the runholder's consent, and the possible payment of a modest contribution towards track maintenance, might also be considered. The riverside also offers opportunities for more gentle day walks and passive pursuits so consideration should be given to widening the marginal strip or providing an easement to enable public access along a practicable route as close to the river as possible.

## **SIGNIFICANT INHERENT VALUES AND THEIR IMPORTANCE FOR RECREATION**

This report focuses on those features of Deep Creek and Long Gully which are important for public recreational interests. It should be noted that while much of this interest focuses on access, the natural values and landscapes of the areas concerned and views to be had from the many vantage points have a fundamental impact on the recreational value of the back country and greatly influence the quality of recreational experience enjoyed. It is for this reason that reference is also made to both natural and landscape values of this property.

As noted in the general description of Deep Creek and Long Gully, a large part of the property has been classified LUC Class VI, which should be capable of supporting sustainable pastoral use with appropriate development and maintenance. As a result of past grazing and burning, most of the vegetation has been much modified from its natural state. There are however, some areas of scrub on the lower hill slopes which retain natural values and which would eventually recover their former ecological glory if protected from grazing and burning. (Fig. 9).

The Protected Natural Areas (PNA) surveys carried out in the mid 1980s identified two Recommended Areas for Protection (RAPs). The first of these was an area of 40ha in a small catchment on the Clutha valley faces of Long Gully between about 300m and 600m (Lindis RAP AU). This area contains a good range of plant communities representative of lower altitude colluvial slopes, in more natural condition than elsewhere at equivalent altitude, and with an unusually high diversity of native species.

The second RAP identified by the PNA programme was an area of semi-arid river terrace between the Tarras-Luggate Road and the Clutha River (Lindis RAP A14). The PNA report stated that this was important as a remnant example of natural terrace vegetation with distinctive shallow, stony and sandy soils. The report further stated that the landform and soils combined with the representative fauna and flora make this RAP of considerable importance as the best example of a relatively natural Upper Clutha land system - semi-arid terrace flats. If this area becomes conservation land it would provide the riverside access referred to in the recreation section above.

The highest ground along the ridge crest and on the upper slopes of the Camp Creek catchment on Deep Creek has been classified LUC Class VIIe (Fig. 8) and is not capable of being managed in a way that is ecologically sustainable. This area also has potential to revert to its former native ecological condition, and should be returned to full Crown ownership.

It is realised that this could lead to the isolation of the Deep Creek land in the Camp Creek catchment. However, this is not an insurmountable problem because an accessway (easement for management purposes) could be provided over the formed track which links the north and south facing parts of the property (Fig. 13).

The front faces of the Grandview Range, and its continuation eastwards to Lindis Peak, together form the backdrop to important tourist routes (Fig. 4). These include SH 8 from Christchurch to Queenstown and SH 8a linking that route to Wanaka and the West Coast. The same backdrop is also a prominent but rather more distant part of the landscape viewed from another tourist route (SH 6) between Queenstown and Wanaka. As such, the landscape values of these faces are important. Landscape values should be protected from the adverse effects of inappropriate developments (such as afforestation, earthworks including roading, or the erection of structures). FMC does not accept that the landscape provisions in the District Plan (Central Otago District and Queenstown Lakes District) under the Resource Management Act are sufficiently robust



or durable to achieve adequate protection. Instead, FMC believes that a binding Landscape Conservation Covenant would be more appropriate.

## **AREAS TO BE PROTECTED**

Because of the past history of oversowing, topdressing and pasture development and use on Long Gully and Deep Creek, most of the vegetation has been greatly modified and little of significant inherent value remains. However, there are areas of scrub which have potential to revert to native shrublands of significant stature. FMC has argued before that it is not only the current vegetative state which should be considered during tenure review, but also the potential of communities to revert to their native state. In particular there are two discrete areas of manukakanuka shrubland on Deep Creek which should be protected from grazing and burning. A binding covenant would allow these areas to eventually recover their former ecological stature.

The two areas identified by PNA surveys and recorded as Lindis RAP A13 and A14 should be considered for protection because of the significant natural values identified by those surveys. Protection under a binding conservation covenant would be appropriate for the small area on the lower slopes of Long Gully (RAP A 13) while the terrace flats (RAP A14) might be best returned to full Crown ownership and control to be managed as a conservation area which would be easily accessible to the general public.

There is an area of higher country, between about 1,000 and 1,250m along the ridge eastwards from Trig 0 which has been classified LUC Class VIIe and which FMC considers cannot be managed in a way that is ecologically sustainable (Fig. 8). Because this area has potential to revert to its former ecological status in the absence of grazing and burning it is recommended that this area should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

The front faces of the Grandview Range (seen from SH 8A) are considered to be part of an outstanding natural landscape which should be protected from inappropriate subdivision, use, and development, including afforestation and the erection of inappropriate structures. Although the Queenstown Lakes District Plan may afford some degree of protection, FMC does not accept that this is sufficiently robust or durable to provide adequate protection of the outstanding natural landscape values. Similarly, the front faces of the eastern extension of the same ridge system leading along to Lindis Peak (Fig. 4) are not adequately protected under the Central Otago District Plan. A landscape protection covenant should be placed over these important landscapes and registered on the freehold title as part of the tenure review of Long Gully and Deep Creek.

## **ACCESS REQUIREMENTS**

The following access provisions will be required:-

Walking access is required along the banks of the Clutha River. Presumably there is a marginal strip along the true left bank of the Clutha River. If not, this should be laid off as part of the tenure review process. In places, the marginal strip may not be wide enough to provide a practicable walking route along the river, especially when the best route is along the top of a very high and steep gravel bank (Fig. 14). It is proposed that the marginal strip should be widened to permit practicable pedestrian access along a route as close as possible to the river. Alternatively, an easement for a walking route beside the Clutha River should be negotiated through tenure review of Long Gully. Neither of these would be required if the RAP Lindis A14 becomes conservation land.

Public access easements for foot, mountain bike and horse riding will be required over the parts of the extensive ridge track system which are located on the Deep Creek and Long Gully properties. The essential requirement is for public access along the ridge track from the boundary of Sandy Point in the north, over Trig 0 to the boundary of Lindis Peak to the east. Ultimately, it is envisaged that this will connect with related access provisions which have been advocated on Glenfoyle, Sandy Point and Nine Mile pastoral lease tenure reviews (Fig. 7) and a complete network of high level tracks will eventually be established.

It is also important to provide public access to the central part of the extensive ridge system described above. Two, and possibly three alternative (and complementary) routes are possible. The first of these is from a saddle just below Trig 0, down the prominent spur where the translator masts are located, to the valley floor

in Long Gully (Fig. 12). The second is down the steep Clutha face to the Tarras-Luggate Road. This might be preferred as it avoids having to cross Long Gully Farm and it also provides access to RAP Lindis A13. The third is down the fanned track which leads from the ridge track junction near trig 0 to the Deep Creek woolshed (Fig. 13). If any two of these alternatives became available through tenure review it would, form a good round trip for walkers and mountain bike users. It should be noted that the new track across the face below Trig 0 may modify these choices. If the translator access road and the Deep Creek farm track became available for public use, the new track which links these two access roads would facilitate round trips for those on foot or on mountain bike. Public use of this new track should be considered during tenure review.

## **CONSERVATION MANAGEMENT STRATEGY FOR OTAGO**

There are important statements in the Conservation Management Strategy for Otago, in which the Hawea - Lindis area is recognised as a Special Place. The properties currently under review are located close to the southern edge of this area. The objectives for this Special Place include the following:-

- *"To manage and enhance recreational opportunities on lands administered by the department in the Hunter-Hawea area to maintain natural and historic resources of areas while providing for an appropriate range of recreational activity of high quality.*
- *To achieve permanent protection for areas of significant nature conservation importance in the area. "*

Implementation includes:- *"Negotiation opportunities presented by pastoral lease tenure review or land exchanges on the large pastoral runs in the area will be taken with a view to: [inter alia]*

- *Protecting areas of significant nature conservation value*
- *Improving public access and recreational opportunities*
- *Protecting landscape qualities "*

These objectives and implementation statements accord very closely with the recommendations made in the present report. Furthermore, it should be noted that the priority for the Hawea - Lindis Special Place is: *"Consolidation of protected areas and protection of key habitats through tenure review negotiations and improving public access and animal and plant pest control activities. "*

## **CONCLUSIONS**

The tenure reviews of Long Gully and Deep Creek pastoral leases present an important opportunity to enhance the recreational potential and use of the Hawea - Lindis area. There is also an opportunity to increase the quality of recreational experience on those lands by recognising and protecting the significant natural and landscape values described above. These properties occupy a key position at the corner of an extensive system of ridgeline tracks. Most of these pastoral lease lands are likely to become freehold as a result of tenure review. Consequently, secure public access for foot, mountain bike use, and possibly horse riding and 4WD use is the most important recreational issue in the tenure review of Long Gully and Deep Creek.

The outcome of the tenure reviews of these pastoral leases, if it includes the important recreation and conservation recommendations included in this report, could contribute significantly to the achievement of the objectives declared for the Hawea - Lindis Special Place in the Conservation Management Strategy for Otago.

## **ACKNOWLEDGEMENTS**

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Fig. 1 This view from Trig O, on the back boundary of Long Gully, shows the ridge system leading north over Sandy Point and Glenfoyle (both of these leases are currently in the tenure review process). The track system leads to Grandview and on to Lake Hawea Station (another lease currently under review), so it is important that an overall view is taken of the likely outcomes as each lease is reviewed.



Fig. 2 This view is from the summit of Lindis Peak looking west along the ridge system to Trig O, where it turns north towards Grandview. Long Gully and Deep Creek occupy a pivotal position at the corner where the N-S and E-W sections of the ridge system meet near Tarras. The ridge tracks offer fine views over the whole Upper Clutha including Lake Dunstan (middle distance left) and the Pisa Range (skyline right of centre).





Fig. 3 Long Gully woolshed and stone yards are situated at the foot of the range, beside the Luggate Tarras Road. Landscape considerations are important because this road links the tourist route between Christchurch and Queenstown with the route to Wanaka and the West Coast, and is heavily used by tourists.



Fig. 4 Long Gully and Deep Creek are situated at the west (left hand) end of the ridge running E-W from Trig O (high point, left) to Lindis Peak (high point, right). This ridge dominates the Upper Clutha as seen from the Lindis Pass highway (SH 8) so landscape protection is needed to prevent the adverse effects of inappropriate development.





Fig. 5 The Deep Creek woolshed is situated at the foot of an access track that leads up to Trig O at about 1,200m. Much of the lower slopes are classified LUC Class VI and should be capable of being managed in a way that is ecologically sustainable with appropriate development and maintenance. Presently there is much woody scrub, some of which could, alternatively, recover under conservation management.



Fig. 6 A separate property, Long Gully Farm, is in the foreground while an access road climbs out of the valley onto a prominent spur where several translator masts are located. Above these, the track continues up to the Sandy Point boundary in a saddle just below Trig O. This could be a very important recreational access route if public access was secured through tenure review.





Fig. 7 Public access to the ridge system which extends from Breast Hill and Grandview in the north to Lindis Peak in the east is the main issue in this tenure review. Tracks along the ridges, such as this one leading over Bluenose to Grandview (G) and beyond, could become valuable recreational resources if adequate access was secured through tenure review. Access from Tarras via Long Gully and/or Deep Creek is needed.



Fig. 8 The highest part of Deep Creek and Long Gully is LUC Class VIIe, of very limited suitability for pastoral farming. Unless essential nutrients (removed in animal products) are replenished, the land cannot be managed in a way that is ecologically sustainable in the long term, and should not become freehold. The alternative is that it is returned to full Crown ownership and control, and is managed for conservation.





Fig. 9 Within the Deep Creek catchment, on the front faces of the property, are some small but significant patches of native Manuka/Kanuka shrubland which are remnants of shrublands which were formerly much more extensive. These are situated within an area that has been classified LUC Class VI which should be capable of sustainable pastoral use. The shrublands could be considered for protection under a conservation



Fig. 10 The ridge track extends eastwards over the neighbouring property to Lindis Peak (in shadow), which is located on Nine Mile Station. The Preliminary Proposal for the tenure review of Nine Mile includes public access to Lindis Peak from the Lindis Pass highway. Progress towards completion of the link from the Grandview part of the ridge system to Lindis Peak would be a very valuable outcome of the current tenure reviews.



Fig. 11 The views from the Glenfoyle - Grandview - Breast Hill part of the ridge system are expansive and with progress along the ridge, the perspectives are continuously changing. In this view across Lake Hawea, the mountains of Mt Aspiring National Park and the main Divide can clearly be seen in the distance.



Fig. 12 One route heads down from a saddle just below Trig 0, sidles along a prominent spur and drops off into Long Gully below the translators which are located near the patch of shadow on the spur in the middle distance. This would provide good foot and mountain bike access from Tarras, and would serve as an emergency exit from the ridge system in bad weather.





Fig. 13 This view from Trig 0 shows the junction of the ridge track leading east (left) across Deep Creek to Lindis Peak, and to the right the top of the track leading down to Deep Creek woolshed. If both this track on Deep Creek and the translator access road on Long Gully became available for public use this would make an excellent round trip for walkers and mountain bike enthusiasts.



Fig. 14 The banks of the Clutha River offer opportunities for shorter walks but not all of the bank is easily accessible, or practical for relatively easy walking. Only part of the terrain to be traversed on such walks would lie within the normal marginal strip, so either the strip should be widened where necessary to provide practicable access, or an easement should be negotiated through tenure review.



