

Crown Pastoral Land Tenure Review

Lease name : GLENROY

Lease number : SO 445

Conservation Resources Report - Part 1

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.

March 07

**DOC CONSERVATION RESOURCES
REPORT ON TENURE REVIEW OF
GLENROY SPECIAL LEASE (PAL 14-12-03)
UNDER PART 2
CROWN PASTORAL LAND ACT**



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PART 1: INTRODUCTION

The lessee of Glenroy Special Lease have applied to the Commissioner of Crown Lands for a review of the property's special lease tenure. The area is leased by Glenroy Station Limited.

The 584 ha lease, located some 40 km by road from Cromwell, lies on an eastern extension of The Remarkables and comprises the flanks of the Right Branch of Doolans Creek. The area is mostly easily accessed from Coal Pit Road where it meets SH6 at Gibbston. The lease comprises several minor sub catchments to Doolans Creek and lies between 720 m in the valley floor and 1411 m at the highest point on the range crest.

The lease lies within the Lakes Ecological Region (ER) and Remarkables Ecological District (ED). While no Protected Natural Areas Programme (PNAP) survey has been conducted in this ED, in 1976 the Department of Lands and Survey undertook a comprehensive land use study of The Remarkables and Hector Mountains.

The lease bounds "The Remarkables" Conservation Area (Conservation Unit F41 057 ex Glenroy Pastoral Lease) to the west, "The Remarkables" Conservation Area (ex Mt Rosa Pastoral Lease) to the east, freehold land (ex Glenroy Pastoral Lease) to the north and freehold land (ex Wentworth pastoral to the south). The Doolans Creek Right Branch is subject to a movable Section 24 Conservation Act marginal strip (Conservation Unit F42 036). The northern boundary of Coal Pit Saddle Historic Reserve (Conservation Unit F42 16) lies some 100 m to the north of the special lease.

The special lease was originally part of Glenroy Pastoral Lease. Glenroy Pastoral Lease entered the Land Act (1948) tenure review programme in 1995 and completed the process in 1999.

The 1995 conservation resources report for the pastoral lease tenure review identified *Cassinia (Ozothamnus)* shrublands in the south eastern corner of the lease as being of high conservation value and also highlighted the importance of securing public access from Coal Pit Saddle to the proposed Remarkables Conservation area in the vicinity of Mt Salmond. This assessment was completed prior to the introduction of a LENZ (Land Environments of New Zealand) based approach and at a time when grey shrublands in the eastern South Island were deemed to be of less significance than they are under current conservation thinking.

While DOC did not recommend the special lease area to become conservation land, the CCL deemed the area to be unsuitable for freeholding; hence the area was designated a special lease under Section 67(2) Land Act 1948. The lease contains a number of conditions to protect documented conservation and recreation values. The lease runs for 10 years from May 1999 with a right of renewal for a further 10 years subject to the lessee meeting his obligations and vegetation monitoring confirming that vegetation condition is not deteriorating. A vegetation monitoring program was established by Knight Frank NZ Ltd for LINZ in 1996.

Key conditions in the lease document include:

- 10 year lease with one 10 year right of renewal subject to lease conditions being adhered to and vegetation condition being maintained.
- Lessee to keep land free of wild animals and vermin.
- The stock limit may be reduced if vegetation condition thresholds are breached.
- The lessee must allow unrestricted foot and mountain bike access along the Welshmans water race and along the 4WD track which runs to the Mt Rosa boundary.
- DOC officers have a right of access over farm tracks on the land for gaining access for management purposes to adjoining land managed by the Department of Conservation subject to 24 hours notice being given.
- Subject to compensation or a reduction in rental the Lessor may give written notice that areas are to be destocked or stock numbers to be reduced in order to protect nature conservation, recreation or amenity values.
- The lessee will carry out a programme of eradication of wilding conifers over the first three years of the lease term, and will keep the area free of such trees from that period on.

The tenure review inspection of the lease was undertaken on December 6 and 8 2005 by a range of specialists, their reports forming the basis of the Conservation Resources Report.

PART 2: INHERENT VALUES: DESCRIPTION OF CONSERVATION RESOURCES AND ASSESSMENT OF SIGNIFICANCE

2.1 Landscape

Landscape Context

The special lease spans an altitudinal and topographical sequence from point 1411 m on the central ridgeline in the northeast corner of the property down to 700 m near Doolans Creek Right Branch. The main structural components of the property include the long side slopes that are characterized by hummocky terrain and a series of spur lines that project out from the main ridgeline and pitch down towards Doolans Creek Right Branch. The spur lines are separated by deep gullies.

In a wider context, the lease augments the landscape character of the rangelands that stem out from The Remarkables. A special feature of the property is an old water race that threads around the mid slopes. It is now utilized as a mountain biking and walking track linking “The Remarkables” and Mt Rosa Conservation Areas.

Methodology

The property was inspected from the 4WD road which runs down the eastern boundary of the lease between Coal Pit Saddle and the Doolans Creek Right Branch, from the ridgeline on the northern lease boundary and from the water race which bisects the lease.

The lease area was divided into two landscape units based principally on altitude. Each landscape unit's attributes were assessed using the following criteria:

- **Naturalness** is an expression of the degree of indigenous content of the vegetative cover, and the extent of human intervention.
- **Legibility** is an expression of the clarity of the formative processes and how striking these physical processes are.
- **Aesthetic values** include the concepts of memorability and naturalness. Aesthetic factors, which can make a particular landscape vivid, include simplicity in landform, muted colours and fine-textured ground cover.
- **Visual values** are a subset of landscape values and relate to the visibility of a particular landscape or natural feature seen from public vantage points such as along district highways.

Landscape Unit 1

Description

This landscape unit takes in a substantial block of the special lease. The unit's upper limits follow the narrow ridgeline that forms the watershed between the Doolans Creek Right Branch that drains into the Nevis River, and the small watercourses that form Franks Creek, which feeds into the Kawarau River at Gibbston.

The lower boundary to the unit generally follows the 900 m contour at which point there is a distinct change in the gradient of the side slopes. To the east, the unit's boundary is in close proximity to the zigzag track that leads down to the Doolans Creek Right Branch from Coal Pit Saddle. Towards the west, the unit's limits follow a spur line that descends from high point 1411 m directly down to the valley floor. The upper boundary falls in a west-east direction towards Coal Pit Saddle (1079 m).

The physical features that dominate this unit include both a broad band of moderately steep side slopes and planar slopes that surround Mt Edward (1334 m). The band of steep sloping country features hummocky terrain due to the presence of extensive ground slumping. Rounded crested spur lines that descend towards the creek, protrude out from the moderately steep side slopes at regular intervals. These spur lines are separated by gullies, carved out by permanent watercourses that have their origins in finger bogs. There are pockets of erosion commonly located in the heads of the gullies.

The vegetative cover is representative of the wider area. The subalpine zone, immediately below Mt Edward, supports an area of prostrate *Dracophyllum* shrublands interspersed with blue tussock, alpine fescue tussock, mountain cottonwood and various grey lichens. Patches of shattered rock are common. Tall tussocklands grade in below the *Dracophyllum* shrubland belt. These grasslands are mostly in good condition reflecting an absence of stock grazing for some five years. Below the old water race that sidles around the slopes at approximately the 1080 m contour, tall tussocklands gradually yield to fescue tussock. The short tussock cover is generally sparser on drier, sunnier slopes, while corresponding darker slopes have a greater density of short tussock and golden speargrass. The lower reaches of the unit are clad in a sward of more modified grasslands that include a large percentage of adventives such as browntop. Commonly the gully floors gullies support thickets of matagouri-sweet briar shrublands. Disturbance zones such as along the old water race have been colonized by opportunist species, including hawkweed and sheep's sorrel. The occasional small wilding pine studs the mid and lower slopes.

Landscape Values

This unit possesses significant inherent landscape values attributable principally to the intactness and overall naturalness of the ground cover. While the unit does not contain any outstanding natural features it is however representative of the broader landscape type typical of the Doolans Creek Right Branch where, due to extensive pastoral practices, vegetation retains a uniform quality.

Potential Vulnerability to Change

This unit has the potential to be adversely affected by the following changes in land use and activities:

- Further subdivision that would lead to artificial fragmentation of the existing uniform grasslands.
- Further earth disturbances that would allow opportunist species such as flat hawkweed to spread.
- Further spread of wilding pines.
- Damage to the fragile bogs by trail bikes.
- Spread of woody weeds into the grasslands.

Landscape Unit 2

Description

This unit comprises the relatively steep side slopes that overlook the Doolans Creek Right Branch. The upper limits to the unit are defined by the rounded shoulders of the spur lines generally at about 900 m. The lower limits to the unit and property largely follow the creek's true left bank. These lower side slopes are constant in relief and compared with the mid and upper slopes display little solifluction activity or slumping.

The ground cover is influenced by altitude, aspect and previous pastoral farming practices. A large proportion of the side slopes are clothed in mixed exotic grasses, short tussock and some snow tussock remnants. Matagouri shrublands border the creek and often extend into the damper gullies. Much of the riparian matagouri is of "old man" tree stature, while the more juvenile shrubs are progressively colonizing the side gullies. *Olearia* spp. and native broom are widely distributed through the shrublands. A few woody weeds, such as introduced broom and exotic conifer seedlings, occupy the side slopes. The finger bogs are clad in a mixture of sphagnum moss and *Carex* with many of the fragile bog areas being damaged by incisions made by trail bikes. High stable gravel banks generally bound the creek, with the channel featuring long reaches of white riffles and the occasional small plunge pool.

Landscape Values

This unit conveys significant inherent landscape values due to the presence of a substantial waterway enclosed within a deep valley. The creek forms a natural focal point within the high country with its landscape qualities being enhanced by the richness of the mixed shrublands. These shrublands provide Doolans Creek Right Branch with its original character within a wider natural landscape context. This unit is memorable owing to the coarse textural qualities of the vegetation that surrounds the creek, which contrasts markedly with the more "fine grain" attributes of the expansive grasslands that dominate the catchment of the Doolans Creek Right Branch.

Potential Vulnerability To Change

This unit has the potential to be adversely affected by the following changes in land use and activities:

- Further loss and depletion of the existing high natural character that borders the creek.
- Further infestation of sweet briar, especially into the "old man" matagouri shrublands.
- Further damage to fragile bogs by uncontrolled trail bikes.
- Spread of wilding pines.

Visual Values

The Glenroy Special Lease possesses limited visual resource value owing to the property being located on the opposite side of the high ridgeline that separates the Doolans Creek Right Branch catchment from the populated Gibbston district, which includes SH6 as a part of an important tourist route.

Within the property the long lateral views of The Remarkables are impressive, especially the view towards the serrated peaks such as Double Cone. In the opposite direction, there are commanding views towards The Horn Range and the Carrick Range.

Being accessible from the end of Coal Pit Road makes this property a popular destination for back-country recreational pursuits with the overall sense of isolation of the area being a natural attraction.

Significance of Landscape

The Glenroy Special Lease makes a significant contribution to the recognizable character of the block of high country that extends out from the eastern flanks of The Remarkables. This complex of rangelands and high hills is generally typified by dissected topography clothed by uniform tussock grasslands.

Within this wider landscape framework the property should not be viewed as an isolated parcel of land but as an area that interlocks with the wider high country that conveys similar attributes.

In more localized terms, the special lease possesses an uninterrupted sequence of grasslands and landform characteristics that coalesce with adjoining land that has already been designated as public conservation land through the tenure review process.

2.2 Geology, Landforms and Soils

Geology

Basement geology is coarsely foliated chloritic schist of the Haast Schist Group (Wood 1962) with rare outcropping.

Landforms

Some recent alluvial flats are present along the Left Branch of Doolans Creek and an older outwash fan is present at the base of the unnamed eastern tributary. The rest of the face is slumped with occasional large eroding slips.

Soils

Most of the special lease comprises Dunstan Steepland soils. These soils are of moderate fertility and are derived from schist and loess. Drainage ranges between moderate and poor.

Significance of Landforms, Geology and Soils

There are no geologically significant sites requiring protection listed in Kenny and Hayward (1993). There are no significant soils recorded on the lease.

2.3 Land Environments of New Zealand (LENZ)

There are two databases that have been used to assess biodiversity protection (Walker *et al* 2005):

- The environmental distinctiveness of an area can be assessed through the Land Environments of New Zealand (LENZ). This is a classification of New Zealand lands 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). LENZ is a useful tool for measuring conservation initiatives against the New Zealand Biodiversity Strategy (see Section 3.6). It is presented at four levels of detail containing twenty, 100, 200 or 500 environments nationally. The most detailed is called LENZ Level IV.

- The area of unprotected indigenous cover in threatened land environments has been identified in the national land cover database (LCDB).

From the above databases, spatial data depicting indigenous vegetation cover and legal protection were overlaid on LENZ Level IV environments to identify biodiversity that is most vulnerable (i.e. most likely to be lost). This provides a measure for: a) percentages legally protected and b) percentages of remaining indigenous vegetation cover.

Based on these two criteria, five categories of threatened environments have been used to identify environments containing indigenous biodiversity at most risk of loss. They are classified as follows:

<i>Acutely threatened:</i>	<10% indigenous vegetation cover remaining
<i>Chronically threatened:</i>	10-20% indigenous vegetation cover remaining
<i>At risk:</i>	20-30% indigenous vegetation cover remaining
<i>Critically underprotected:</i>	>30% indigenous vegetation cover remaining and <10% protected
<i>Underprotected:</i>	>30% indigenous vegetation cover remaining and 10-20% protected
<i>No threat:</i>	>30% indigenous vegetation cover remaining and >20% protected.

At the level IV (500 environments nationally) the areas present in the lease fall within Environments Q1.1a, Q1.1b, Q1.1c, Q2.2a and Q3.3c. See Appendix 2 for descriptions of these LENZ units and Appendix 3 for their distribution on the property). The extent to which Level IV environments are protected nationally for conservation purposes is shown in Table 1 below. A map depicting the distribution of LENZ units on the lease is presented in Appendix 3.

Table 1: Land Environments of New Zealand Units on Glenroy Special Lease.

Threat Category	LENZ Level IV Environments on the lease	Area of LENZ unit on Glenroy Special Lease (ha)	Percent protected nationally for conservation purposes	% of Indigenous vegetation cover remaining	Change in Indigenous Vegetation Cover between 1997 and 2002
Critically Under-protected	Q2.2a	202	4	40	Decrease
	Q1.1.b	165	8	77	Decrease
Under-protected	Q1.1c	153	18	91	No change
	Q3.3.c	.3	17	90	Decrease
No Threat	Q1.1.a	68	25	98	No change

Significance of Land Environments of New Zealand

Attributing significance to LENZ units, while a useful exercise must be treated with caution. Work is currently underway to improve the accuracy of underlying spatial data. For example, soils data is being upgraded, as median patch size for polygons sourced from the Land Resource Inventory is currently between 10,000 and 100,000 hectares, while at Level IV resolution, LENZ units cover areas as small as 10 hectares. Also underway, albeit as lesser priority, is ongoing work relating to continuous improvement of the underlying classification process which generates LENZ units.

The lease has four Level IV land environments that are significant because, on a national scale the indigenous vegetation has largely been removed, and/or little of the environment is represented in lands protected primarily for conservation purposes:

- 63% of property comprises two “Critically Underprotected” Level IV LENZ units (i.e. Q2.1a and Q2.2b) that nationally have >30% of their land area still in indigenous cover and less than 10% of the unit is protected.
- 26 % of property comprises two “under protected” Level IV LENZ units (ie Q.1.1.c and Q.3.3.c) that have 20-30% of their land area still in indigenous cover and 10-20% of the unit protected.

2.4 Climate

The lease is subject to a semi-continental climate with warm summers (tempered by altitude) and cold winters. Winters usually bring intermittent snow to lower altitudes whilst at higher elevations snow can lie for several months on shady leeward aspects. Annual rainfall probably exceeds 1000 mm over the entire lease area.

2.5 Vegetation

Survey method

This report is based on information gathered during a walk-through field inspection of the special lease on 6th December 2005 and information held in the Department of Conservation BOWEB database.

Vegetation Description

The vegetation is described for the following areas:

- Ridge top
- Faces
- Unnamed Western tributary and Doolans Creek Right Branch
- Outwash Fan

Ridge top

Dracophyllum prunum shrubland/short grassland/fellfield occupies the main ridge, and is a distinctive community of Central Otago. Other characteristic species present include blue tussock (*Poa colensoi*), hard tussock (*Festuca novae-zealandiae*), speargrass (*Aciphylla aurea*),

Lycopodium fastigiatum, *Scleranthus uniflorus*, *Leucopogon fraseri*, *Ourisia glandulosa*, *Gaultheria depressa*, and *Raoulia subsericea*... Rocky outcrops harbour alpine matipo (*Myrsine nummularia*), *Coprosma cheesemanii*, and porcupine shrub (*Melicactus alpinus*). Exotic species are rare and consist of occasional occurrences of sweet vernal and hawkweeds. Overall, vegetation is in a natural state.

Faces

This area primarily consists of *Chionochloa* tall tussockland. Slim-leaved snow tussocks (*Chionochloa macra*) dominate above 1200 m, while narrow-leaved snow tussocks (*C. rigida*) are common below 1200 m. Diverse intermixed native herbs and grasses are present. Extensive areas of turpentine shrub (*Dracophyllum uniflorum*) and tauhinau (*Ozothamnus leptophyllus*) occupy the dark faces and spurs. Upper fingers of the tributaries (above 1100 m) are often boggy, and have a characteristic suite of species including comb sedge (*Oreobolus pectinatus*), buttercup (*Ranunculus gracilipes*) bog rush (*Schoenus pauciflorus*), *Carex coriacea*, *Colobanthus apetalus*, and the two rarities *Carex berggrenii* and *Ranunculus maculatus*. The actively eroding slips are mainly bare, but do contain *Epilobium melanocaulon*, *Vittadinia australis*, *Elymus solandri*, *Raoulia australis* and *Carex breviculmis*. Exotic species become more prevalent below 850 m, but the vegetation is predominantly natural in character. Scattered Douglas fir (*Pseudotsuga menziesii*), lodgepole pine (*Pinus contorta*) and the occasional European larch (*Larix deciduas*) are scattered below 1200 m and are particularly common along the eastern boundary and in the south west corner of the lease.

Unnamed western tributary and Left Branch Doolans Creek shrublands

This riparian shrubland is dominated by matagouri at its upper limit with frequent mingimingi (*Coprosma propinqua*) and desert broom (*Carmichaelia petriei*). Tree daisy (*Olearia odorata*) and sweet briar (*Rosa rubiginosa*) become common lower down, particularly in the Doolans Creek area. Other shrub species include *Olearia bullata*, the threatened *Olearia lineata*, *Olearia avicenniifolia*, *Hebe rakaiensis* and elder (*Sambucus nigra*). Under this canopy is a variety of native and exotic herbs. Inter-shrub areas along the Doolans are dominated by exotic grasses, with native colonising species such as *Raoulia* along the flood-prone gravel margins.

Outwash fans (southwest and south east corners of lease area)

These dry gentle alluvial outwash fans are dominated by dryland herbfields-short tussocklands. Exotic grasses and herbs dominate with interspersed native species such as *Leucopogon fraseri*, *Raoulia subsericea*, *Luzula rufa*, hard tussock, porcupine scrub, and numerous blue tussocks.

There is no readily apparent boundary between degraded exotic-dominated country and areas with more natural vegetation.

Significance of Vegetation Values

Most of Glenroy Special Lease has been identified as having significant vegetation values (refer Map 4.2.3). See Appendix 4 for a full list of plant species recorded during current survey.

The vegetation of Glenroy Special Lease has, to some degree, been altered by grazing and probably fire. Near natural communities dominate at higher elevations (above c. 700 m) while at lower altitudes intact or semi intact communities persist in gullies and rocky sites.

A diverse native flora is present with 165 species recorded during this survey. Twenty nine exotic species were recorded during the survey, a relatively low number. This is 15% of the total number of species recorded during the survey and it is estimated that this gives primary character to 16% of the vegetated area of the site.

Rare and threatened plant species

Of the native vascular plant species present, at least three species are listed as threatened and a further two as Data Deficient in the most recent threat classification system (Hitchmough 2002 as amended by de Lange 2004). A list of these species with their threat of extinction status and distribution within the lease is provided below in Table 2 and in Appendix 4.

Species listed as Sparse fall under the division “At Risk”. Although they are not currently in decline, their population characteristics mean a new threat could rapidly deplete their populations. Sparse taxa have very small, widely scattered populations. Species listed as Data Deficient have insufficient information on which to make an assessment as to their appropriate threat category.

Table 2: Threatened and Data Deficient Plant Species of Glenroy Special Lease

Threat Division	Threat Category	Species	Location on Lease
At Risk	Sparse	<i>Olearia lineata</i>	One tree in unnamed tributary shrubland
		<i>Ranunculus maculatus</i>	This buttercup was recorded from two wetlands at the head fingers of tributaries. Likely to be more widespread
		<i>Carex berggrenii</i>	This sedge was recorded from one wetland at the head fingers of tributaries and is possibly more widespread
	Data Deficient	<i>Neopaxia linearifolia</i>	Recorded from a wetland at the head fingers of one tributary
		<i>Vittadinia australis</i>	This daisy was found on rocky ground near the slip above the eastern unnamed tributary

In addition, two species were found that are of conservation interest:

Myosotis “drucei”. A population of forget-me-not was found on an outcrop near the ridge. This species is uncommon in Otago (i.e. regionally significant).

Myosotis elderi. A population of this forget-me-not was found in a hummock depression at around 1220 m. This species is uncommon in this area but reasonably common in the rest of Otago (i.e. a locally notable species).

Rare plant communities

The dryland herb/short grassland community on the outwash fan is representative of a community increasing being lost from Central Otago.

Ridge Top

This area along the main ridge includes *Dracophyllum prunum* shrubland/short grassland/fellfield, a distinctive community of Central Otago. Exotic species are rare and consist of occasional patches of sweet vernal and hawkweeds. Overall, the vegetation is in a very good state. This area contributes to the overall vegetation altitudinal sequence as the highest elevation component.

Faces

This area of near-intact tussock grassland with diverse intermixed native herbs and grasses, extensive areas of turpentine shrub and tauhinau with intermixed wetlands contributes greatly to the diversity of the area. It also contributes to an altitudinal sequence by linking the lower elevation shrublands with the ridge top vegetation. The presence of two at risk species (*Ranunculus maculatus* and *Carex berggrenii*) and a data deficient species (*Vittadinia australis*) adds to the significance of this area.

Unnamed western tributary and Left Branch Doolans Creek shrublands

This area has a moderately diverse shrubland characteristic of the original vegetation. Some invasion by briar and elder has occurred. This shrubland contributes the altitudinal sequence of *Olearia odorata* and *Coprosma propinqua* shrubland in Doolans Creek through increasing *Carmichaelia petriei* and *Olearia bullata* to tussock grassland. The presence of a threatened *Olearia lineata* tree (ranked At Risk) is significant.

Outwash fan

This area is a modified representative of dryland terrace communities which are increasingly at risk in Central Otago through land development.

Overall, this property's position adjacent to "The Remarkables" Conservation Area also adds to its botanical significance as the existing protected area does not include substantial areas of grey shrublands.

2.5.1 Problem plants

With the exception of wilding lodgepole pine and Douglas fir, problem plants are not widespread. The lease document requires the Lessee to keep the land clear of all noxious plants to the satisfaction of the Lessor. The Lessee is also required to carry out a programme of eradication of wilding conifers over a period of 3 years from lease commencement. This appears to have been undertaken. The Lessee is also required to keep the land free from wilding conifers after completion of the three year eradication programme. This requirement has clearly not been met.

Broom (*Cytisus scoparius*) was recorded at three locations. The largest patch (approximately 20m by 10m) is located at GR 2188491 5562443. Smaller patches are present at 2189750 5562270 and 2190175 5562350. These infestations require urgent control and diligent follow-up to prevent this invasive species spreading into the wider generally weed-free open tussock landscape.

Briar (*Rosa rubiginosa*) is a frequent component of shrublands at lower elevations.

Elder (*Sambucus nigra*) is a rare component of the shrublands at lower elevations.

A single **mountain ash** (*Sorbus aucuparia*) is present at GR 2189492 5562002. This species has the ability to spread along the lower faces.

Buddleia (*Buddleja davidii*) is present on the river bed of the Doolans Creek Right Branch. This weedy species is mostly or entirely within the existing marginal strip. Consideration should be given to control this species as it quickly displaces native herbaceous and woody colonisers.

Hawkweed (*Hieracium pilosella* and *H. lepidulum*) are common in tussock grassland, but do not form extensive patches and do not appear to be having a major impact.

2.6 Fauna

2.6.1 Invertebrates

Introduction

A number of insects of conservation interest are known from the wider ecological area, which includes The Remarkables, Carrick and Old Woman Ranges. Examples include grasshoppers (*Alpinacris tumidicauda*), a speargrass weevil (*Lyperobius hudsoni*) and moths (*Metacrias* and *Notoreas* spp.).

Survey methods

The inspection was conducted on December 8th 2005. Temperatures were mild with persistent rain in the morning and clearing conditions in the afternoon.

Invertebrates were collected by hand searching beneath rocks and logs, aspirating and sweeping vegetation. Collecting effort was targeted towards endemic taxa of the following groups; Arachnids (spiders and harvestmen), beetles, orthopteroids (grasshoppers, weta and cockroaches) and myriapods (millipedes and centipedes). Species within these taxonomic groups often display local endemism and flightlessness.

Invertebrates were collected from spot sites (Appendix 6), chosen to maximise altitudinal range, diversity of native vegetation and access to the least (visually) modified areas of the lease.

Significant species were checked against the national threatened species lists (McGuinness 2001 and Hitchmough 2002). Habitat descriptions follow those of Atkinson (1985).

Description of Invertebrates and Habitats

To aid description, the property was divided into three areas:

- Summit Ridge
- Catchment between Mt Edward and point 1411 m
- Doolans Creek Right Branch

A full list of species collected is presented in Appendix 5. Collection sites for all taxa found on the lease are mapped in Appendix 6.

Summit Ridge (between Coal Pit Saddle and point 1411 m)

Invertebrate habitats throughout this area are dominated by subalpine snow tussock (*Chionochloa macra*) and speargrass (*Aciphylla aurea*). Schist outcrops occur at the heads of spurs and ridges, often surrounded by the low growing *Dracophyllum prunum*, which provides habitat for numerous invertebrate taxa. A diverse range of Carabid beetles was found on slopes immediately below the ridgeline. The beetles were collected from beneath rocks (Carabids are mostly nocturnal) and all are of interest because none can fly and all are endemic. *Mecodema lucidum* and the closely related (possibly con-specific) *Mecodema politanum* are large beetles (up 25 mm), which may be becoming regionally disjunct as a result of roading development, land-use changes (through farming and horticulture) and predators (Johns 2005). These effects are most critical for small populations, which ultimately face local extinction. Two other Carabid beetles found in the area were *Megadromus sandageri*, and the smaller *Holcaspis egregialis* both Otago/Southland endemics.

The native speargrass weevil *Inophloeus sulcifer* was found on *Aciphylla aurea* (the weevil is also hosted by *A. scott-thomsoni*). These large endemic weevils are prone to predation from rats and mice and may be quite abundant on a single plant, particularly if there are few host plants present.

Numerous burrow holes of the ground weta *Zealandosandrus maculifrons* were noted throughout the higher elevations. *Zealandosandrus maculifrons* is known throughout the South Island but is not often seen (probably because of its deep burrowing and nocturnal behaviour), however they are a robust weta and their presence in the area suggests low predation pressure. A specimen of *Z. maculifrons* was collected by Barry Lawrence (DOC Queenstown), using a pitfall trap during the December 2005 lizard survey.

At each rock outcrop inspected, the endemic Otago alpine cockroach *Celatoblatta quinquemaculata* was abundant. This species is found from the proximity of the Old Woman Range through to the western Otago mountains (Barrier and Olivine Ranges). Numerous millipedes (*Icosidesmus olivaceus*), were also found. These millipedes prefer scree, shrubland and forest habitats, and are known from Mackenzie Basin to north Otago. While not threatened, they are potentially at their southern limit in or around The Remarkables.

Catchment between Mt Edward and point 1411 m.

Four distinct habitats were identified during the descent of this catchment. The higher elevations comprise slopes of tall tussock (*Chionochloa macra* and *C. rigida*) with occasional slump scarps supporting wet flushes and seepages. In the creek gully below 800 m, grey scrub (matagouri and *Coprosma propinqua*) occurs on the creek banks and this gives way to grassy terraces and talus fronts.

Invertebrates of note found in the tussock habitat included the native day flying alpine moth *Asaphodes clarata*, an attractive species whose caterpillars feed on *Ranunculus* plants. The endemic Otago wolf spider *Anoteropsis urquharti* was found amongst cushion plants of a wet flush. *A. urquharti* is known from The Remarkables and is not threatened. A similarly localised spider was identified as *Cycloctenus westlandica* (a 'scuttling spider'). These spiders are characterised by their unique eye arrangement and mottled appearance- they blend in with lichen covered boulders and are able to run very quickly. While not listed as threatened, New Zealand Cycloctenidae are endemic, the family shared only with Australia (Forster and Forster 1999).

Within shrubland in the lower catchment creek, beating matagouri and *Coprosma propinqua* produced numerous native crab spiders (*Diaea ambara*), craneflies (Tipulidae: *Leptotarsus* sp.) and hover flies (*Melangyna fasciatum*). The native alpine cicada *Maoricicada campbelli* was periodically heard as was a background chirping of native crickets (*Bobilla* sp.).

A range of invertebrates, characteristic shrublands and grasslands, were present on the creek terrace. Species included a tussock damsel bug *Nabis maoricus*; a common stink bug *Oncacontias vittatus*; the common lowland grasshopper *Phaulacridium marginale* and numerous copper and blue butterflies (*Lycaena salustius* and *Zizina labrus oxleyi*). Rock turning produced numerous prowling spiders (*Clubiona* sp.) along with *Zealanion* centipedes.

True left of Doolans Creek Right Branch.

The riparian strip supports a diverse range of invertebrate habitats, including shrublands, wetlands and talus slopes. The shrublands comprise *Olearia bullata*, *Coprosma* sp. and matagouri and extend throughout the surveyed area. Wetlands occur at a number of locations up to and including the Doolans Creek ford. Talus slopes extend through the shrublands to the riverbed and provide a contrasting habitat to the surrounding wetlands.

Numerous spider taxa were collected from shrubland and riverbed habitats. The "Data Deficient" water spider *Dolomedes aquaticus* was found under riverbed rocks along with at least three species of nocturnal hunting spider (*Colaranea* sp. *Taieria erebus* and *Miturga* sp.). A common wetland associated orb web spider (*Tetragnatha* sp.) was beaten from shrubs. Beetles found amongst the riverbed boulders included *Mimopeus otagoensis* (darkling beetles) and two species of Carabid; *Holcaspis impigra* and *Mecodema lucidum*. These beetles are representative of habitats with little modification and, in the case of the darkling beetles, relative stability.

Sweep netting at a wetland produced a typical abundance of flying insects, belonging to various trophic guilds. Among those collected were sap-suckers and seed bugs (*Rhyppodes anceps*); parasitic wasps (*Ichneumon promissorius*); flying predators (the dragon fly *Procordulia*

grayi and damselfly *Xanthocnemis zealandica*), and the aphid eating ladybird *Coccinella leonina*. Native hover flies (*Melangyna fasciatum*), which feed on pollen, were numerous as was the attractive green manuka beetle *Pyronota festiva*.

A significant find was made on the left bank of Doolans Creek, where pieces of the threatened giant ground beetle *Mecodema chiltoni* were collected. The habitat is not especially natural, nor high (700 m) and no other individuals were found. During the December 2005 tenure review inspection of Happy Valley Pastoral Lease, a live *Mecodema chiltoni* beetle was collected, the first record since a survey of the Carrick Range in 1979 (Barratt 1993). However, Rowan Emberson and Pauline Syrett also found *M. chiltoni* body parts on the Carrick Range (near Watts Rock), during their tenure review survey of 2004. This present finding at Doolans Creek is therefore a new location record for the species.

Significance of Invertebrates

The majority of taxa found on Glenroy Special Lease are either native or endemic and are represented by four classes, 12 orders, 37 families and 50 species.

The diversity of ground beetles was surprisingly high (eight species) including a threatened species (*Mecodema chiltoni*). Carabid beetles of conservation interest were found within all three areas inspected. This finding is highly significant because beetle populations have been declining on the Old Woman and Carrick Ranges since collections began in 1965 (Emberson and Syrett 2004; pers. comm. 2006). Carabid beetles are useful bio-indicators of ecological function because large endemic beetles tend to become scarce with gross habitat modification from fires, changes to soil horizons, predation and population isolation (Johns 2005; Larochelle and Larivière 2001). The condition of ground beetle habitat noted during this inspection was very good. There is little sign of recent stock grazing or invasive weeds (eg. *Hieracium* spp.), both of which can affect soil horizons.

Area B represents an altitudinal transition from the sub-alpine tussock tops to the Doolans Creek shrublands. This is an ecologically important feature because it provides for invertebrate diversity at different altitudes and spatial environments (eg. tussock, scree/boulder, wet flushes, shrublands and river bed). Within each of these habitats, a range of invertebrate guilds were found, many of which are Otago native or endemic species. Examples include the spiders *Cycloctenus* sp., *Anoteropsis urquharti* and the millipede *Icosidesmus olivaceus*.

The true left bank of Doolans Creek is similarly diverse in the number of invertebrate habitats available. River bed, shrublands, wetlands and talus slopes occur, each supporting either generalist and/or specialist invertebrates. For example, the range of flying insects collected from the wetlands is indicative of a productive small-scale ecosystem. Furthermore, the existence of *Mecodema chiltoni* (a threatened beetle) within the area is highly significant.

Tables 3 and 4 summarize notable species of invertebrate fauna.

Table 3. Threatened Species

Threat Division	Threat Category	Invertebrate species	Distribution on property
At Risk	Sparse	<i>Mecodema chiltoni</i> Giant ground beetle	Doolans Creek. Site 10 GPS: E2189981 N5562028. 720m
	Data Deficient	<i>Dolomedes aquaticus</i> Large water spider	Doolans Creek. Site 8 GPS: E2189981 N5562028. 760m

Table 4. Species of General Conservation Interest

Invertebrate species	Location On Property	Comment
<i>Mecodema lucidum</i> Ground beetle	Summit ridge and Doolans Creek riverbed Sites 1,2, 8. GPS: 2190517 5564079. 1160 m 2189809 5564050. 1260 m 2189221 5561780. 740 m	Most Mecodema beetles are large and susceptible to mammalian predators. These beetles range between 21-25 mm.
<i>Mecodema politanum</i> Ground beetle	Restricted to summit ridge and higher faces Sites 1,3,4 GPS: 2190517 5564079. 1160 m 2188590 5563587. 1292 m 2188565 5563398. 1219 m	Otago / southern Mackenzie endemic species. Sub-alpine to alpine habitats. Conspecific with <i>M. lucidum</i> . Type specimen from Devil's Staircase, Remarkables.
<i>Megadromus sandageri</i> Ground beetle	Higher elevations, northeast corner of Lease.Sites 1,11. GPS: 2190517 5564079. 1160 m 2190575 5563585. 1000 m	Known to have isolated populations (in Southland). <i>Megadromus sandageri</i> forms part of a species complex & is endemic to Otago and Southland
<i>Holcaspis egregialis</i> Ground beetle	Site 11. Gully below Coal Pit Saddle GPS: 219057 5563585. 1000m	Small beetles, probably the most complex genus in the country (Johns 2005). Endemic to Otago and Westland.
<i>Inophloeus sulcifer</i> Speargrass weevil	Sites 1,5&12. Summit ridge and adjacent tussock slopes GPS: 2203092 5553254. 1160 m 2202996 5552244. 912 m 2203503 5548687. 1274 m	Medium sized (15 mm) speargrass weevils. These endemic beetles feed on <i>Aciphylla aurea</i> & <i>A. scott thomsonii</i> , generally found on large mature plants in stable environments. Susceptible to mouse predation.
<i>Zealandosandrus maculifrons</i> Ground weta	Sites 1,2. Summit ridge GPS: 2190517 5564079. 1160 m 2189809 5564050. 1260 m	These boldly banded weta with thin legs are strong diggers. Heavily preyed on by cats and stoats. Throughout the South Island.
<i>Icosidsmes olivaceus</i> Millipede	Summit ridge screes	Remarkable Mountains is its southern distributional limit.

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 put 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.”

Introduction

The lease comprises an extensive variety of habitats along altitudinal, aspect and moisture gradients. The higher area is in the cool southern hill country Q1 LENZ with the lower slopes being in the slightly warmer Q 2 LENZ, with a greater rainfall deficit. Habitats comprise screes, rock fellfields with aggregate of varying average sizes, areas dominated by low shrubs, (typically *Dracophyllum pronum*), patches of *Coprosma propinqua*, *Aciphylla* species and small leaved *Olearia* shrubs. There are numerous seepages. (See photos figures 1-5 Appendix 7)

A search of the herpetofauna database found no records on the site, but

- numerous records of McCanns skink, *Oligosoma maccanni* within 5 km of the site at a range of altitudes below 960 m.
- records of common geckos near the valley floor in the Doolans Creek Left Branch.

Herpetofauna were not surveyed as part of the 1995 tenure review inspection.

Methods

The site was walked in vertical transects on the 6th December 2005. In addition, 25 dry pitfalls were set out at five sites, along 3 km of water race at 1080 m altitude for 3 nights (10th, 11th, and 12th of December). Skinks were photographed when caught for identification purposes. Identification primarily relied on supraorbital scales touching frontoparietal scales and chin speckling to differentiate between common skink species, *Oligosoma maccanni* and *O.n. polychroma* (Reardon and Tocher 2003).

Results

Numerous skinks were seen on the walking transects from 1100 m to 800 m. Two McCanns skinks were caught. Six skinks were caught in dry pitfalls and identified as *Oligosoma maccanni*. All skinks in pitfalls were associated with fell fields with dense low cover (typically *Dracophyllum pronum*). Pitfalls on open short tussock, and fell field without much vegetative cover did not yield skinks. One sloughed gecko skin was found in the lower valley (M Thorsen *pers ob.*). Locations are given in Table 5 below.

Table 5: Locations of Herpetofauna Recorded

Locations of herpetofauna recorded

“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 put 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.”

Discussion

Oligosoma maccanni is a common skink species that is not classed as threatened. However; Norbury (2001) has raised concerns about the depletion of common sinks in areas of high rabbit/predator numbers, especially where vegetation is depleted and rabbit population is highly variable due to periodic control. Common skinks appear to be more sensitive to predation when they are at low densities, leading to localised extinction.

Norbury suggests that predation is most severe where there is a lack of cover (i.e. refuge from predators particularly cats), and that the most efficient way to improve skink survival is to enhance refugia habitat by vegetation improvement or provision of rock.

The apparent trend of vegetation within the lease towards a taller more complex structure will, in the absence of fire and grazing, continue. This will result in an environment less prone to fluctuating rabbit numbers and the resultant predator prey interactions. However as cats range widely, rabbit control within several kilometres will see periodic cat predation pressure continue at this site.

Significance of Herpetofauna

While the special lease contains no threatened lizard species, the quality of the habitat for common skinks and geckos affords the site some significance. In particular the sub-catchment on the western side of the lease contains an assemblage of vegetation structure and rock habitat which forms an environment where common lizard species are likely to maintain their foothold under continuous predation pressure. The range of plants and insects present also assures adequate food supply.

2.6.3 Avifauna

NZ pipits (*Anthus novaeseelandiae novaeseelandiae*), silvereyes (*Zosterops lateralis lateralis*) and a New Zealand Falcon (*Falco novaeseelandiae*) were the only indigenous avifauna observed on the inspection. However, falcon were observed over the low part of this site in Autumn 2004 (B. Lawrence *pers obs*). Kea (*Nestor notabilis*) have been observed on the ridge at the top of the special lease in the late 1980s (B. Lawrence *pers obs*).

Several introduced passerine species are present. Chukor were reported on the tenure review inspection. Californian quail are reported to be present.

Subalpine vegetation on the special lease is diverse and well established. Shrublands at lower altitude are in a recovery phase and in time will likely have a greater carrying capacity for avifauna.

Significance of Avifauna

Eastern falcon (*Falco novaeseelandia*) are classed as in Gradual Decline (Hitchmough 2002). Falcon are a feature in the Wakatipu and the breeding density appears to be related to the amount of shrubbery in the landscape. It is considered that all shrubland and forest edge provides falcon habitat.

Kea are classed as Nationally Endangered (Hitchmough 2002). This site is adjacent to the kea stronghold of The Remarkables, and given the ranging nature of these birds, the lease will be part of their territory for The Remarkables population.

The modest sized Glenroy Special Lease represents only a small portion of the 'Remarkables' kea feeding grounds and a small portion of territory for a single falcon. Significance accorded to this area is derived from it being part of a much larger subalpine and alpine environment.

Chukor and quail are both sought after by game hunters.

2.6.4 Aquatic Fauna

Introduction

The NIWA Freshwater Fisheries Database was searched for records prior to the survey taking place. The database contained only one 1991 record, for the Doolans Creek Left Branch (F42 2192900E 5559000N), collected by DOC.

During the tenure review survey no fish were caught but high numbers of aquatic invertebrates were seen (principally mayflies and stoneflies).

Methods

Sampling was undertaken on 6 December 2005. Three sites were sampled, two on the Doolans Creek Right Branch and one on the small tributary nearest to the western boundary of the property. The other tributary contained too little water to enable the use of the fishing machine. Sampling was carried out using a "Kainga" 300 backpack electric fishing machine pursuant to the methods described in "Non-migratory galaxiid survey methods" (DOC unpublished draft). In-stream habitat descriptions (width/depth/substrate composition) and site characteristics (riparian/catchment vegetation, water flow velocity, habitat types) were recorded on NIWA Freshwater Fish Database Record Forms. All fish species captured were identified, measured to the nearest millimetre (mm) and then released. The dominant aquatic invertebrate fauna observed were identified to a genus. Survey sites were selected from the topographical map F41 and chosen due to accessibility and survey ability. Accurate survey site locations were obtained using a hand held Garmin Etrex GPS instrument.

Results

Weather conditions leading up to the survey were fine and settled, and water levels and flows were regarded as normal. A combined total of 230 m² was fished, for the three sites sampled (30 m² on the tributary and 200 m² on Doolans Creek Right Branch). The tributary appeared to be relatively stable in terms of flow conditions, while the Doolans Creek Right Branch showed ample evidence along its banks of widely-fluctuating and “flashy” flow conditions.

Table 6. Summary of data collected

Location	Width/Depth	Fish Species	Invertebrates
F41 GPS 2189387E 5561852N	1.2m/.1m.	Brown trout	Mayflies
F41 GPS 2188952E 5561314N	5m/.14m	Unidentified trout	Mayflies
F41 GPS 2189981E 5562028N	7.6m/.2m	Rainbow trout	<i>Zealandobius</i> (white), <i>Zealandoperla</i> , <i>Nesameletus</i> .

Only introduced: brown (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) were detected. Brown trout (150 mm) were present in the tributary, but were not common, while rainbow trout (up to 120 mm) were present in Doolans Creek Right Branch and were also uncommon. Aquatic invertebrates were moderately abundant in the tributary, where mayflies were dominant. In Doolans Creek Right Branch both mayflies and stoneflies were dominant and abundant. The most common species noted were: *Zealandobius* (white), *Zealandoperla* and *Nesameletus* – all taxa indicative of high water quality, as might be expected in such a location.

Significance of Aquatic Values

The absence of native fish species and the presence of trout accords the water ways limited significance in terms of aquatic biodiversity.

Due to the small size of the tributaries on the property and the “flashy” nature of the Doolans Creek Right Branch, resulting in poor habitat conditions, there is unlikely to be any significant contribution to either the lower Nevis or the Lake Dunstan sports fisheries from these sources.

2.6.5 Problem Animals

There is a persistent population of goats in the Doolans catchment which DOC periodically controls. Red deer inhabit the Hector Mountains and Remarkables; these animals appear to move between catchments in part due to periodic pressure from recreational hunters.

Hare, possum, rat, mice, hedgehog, ferret, stoat, weasel, rabbit, and feral cat will also be present. Cats, ferrets, stoats, weasels, rats and hedgehog are likely to have an impact on

birds, heprpetofauna and invertebrate fauna on the property. Possum, deer, goats, hares and rabbits will impact locally on botanical values.

2.7 Historic

2.7.1 Maori Cultural Values

To the people of Kai Tahu, Kati Mamoe and Waitaha, the peaks and valleys of the region were places of Atua (gods) and where it is traditionally said that supernatural people like the Maeroero lived and roamed over vast areas. The Maeroero were in fact hapu belonging to the Rapuwai tribe who lived very early in the human history of the Te Wai Pounanu but who became absorbed into the Waitaha, their deeds attaining supernatural attributes.

In traditional terms it was thought inappropriate to climb to the summits of the highest peaks as that would be akin to placing yourself higher than the Atua whose domain it was. The tikanga associated with these mountains and valleys were established by the Waitaha, who explored the landscape and resources available from it.

Tapuaenuku and Kawarau are the traditional Maori names of the Hector Range and Remarkables Range respectively. Tapuaenuku is a contraction of Tapuae Uenuku referring to the footsteps of the Rainbow god and is placed on several mountains or mountain ranges throughout the Otago region and elsewhere in Te wai Pounamu. At the northern end of the Kawarau River on the south bank of the Kawarau, at a place called O te rotu (Kawarau Falls) was a kati Maomoe pa named Tititea. In the valley below the Tapuaenuku Range was situated the ancient kaika Takerehaka near Kingston.

There are no known Maori sites located on the property.

2.7.2 European Heritage Values

History of pastoralism

The Glenroy Special Lease was historically part of Glenroy pastoral lease prior to a tenure review of the property in 1995 (see introduction section).

Goldmining

The Welshmans Race is the only recorded European historic site present. This race commences in the upper Right Branch of Doolans Creek within “The Remarkables” Conservation Area and passes through Coal Pit Saddle and continues across the northern face of Mount Rosa before terminating above the Victoria Bridge Flats. The race was dug in the mid 19th Century by a party of Welshmen at a cost of £300 to bring water onto the flats for mining, however no gold was obtained (Cooke 1985: 60). The western section of this race has been transformed into an access way for walkers and mountain bikers.

An additional race was noted during the 2005 inspection running along the face at in the southwestern corner of the special lease area. This race appears to have been used to supply water for mining on the lower faces of Doolans Creek Right Branch. No signs of mining are apparent on the lower faces, although much of the area is clad in shrublands. There are signs of sluicing activity in the small creek which runs directly southwards from Coal Pit Saddle.

Significance of Historic Values

The Welshman's water race is of high significance due to it having a known history.

2.8 Public Recreation

2.8.1 Physical Characteristics

Glenroy Special Lease comprises a small part of mountain valley landscape on the eastern side of The Remarkables. The area is characterized by alpine basins with fell field and boulderfield pavements, extensive tussock slopes of moderate steepness and a series of shrub flanked catchments which drain into the Nevis River. In their mid to lower reaches these waterways provide easy travel on their alluvial beds and adjacent terraces. A series of redundant water races from the mining era traverse many of these faces. On Glenroy there is a minor race in poor condition on the lower flanks and a well formed race in the mid reaches which once moved water from the Doolans Right Branch, over Coal Pit Saddle and into the Kawarau catchment.

In 1989, Federated Mountain Clubs compiled an outdoor recreation plan for Silver Peaks and Otago Alps (Mason 1989) which included the Doolans Creek Right Branch. The Glenroy Special Lease area was zoned 'Open Space' which *"should remain a large-scale, uninterrupted landscape with farming or other influences relatively insignificant within the total mountain setting"*.

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

Glenroy Special Lease lies within an area zoned "Backcountry 4WD Drive-In" which is characterised by a feeling of relative remoteness from populated areas. The highly natural setting is a valued part of the experience and may be associated with motivations of "escape from town", education and nature appreciation. "Four wheel drive vehicles are desirable to give access to high country tussock grasslands and block mountains and more rugged remote areas."

2.8.2 Legal Access

The Glenroy Special Lease provides for as of right public foot and bicycle access along a water race which traverses through the mid reaches of the lease and links with a formed track which provides access to "The Remarkables" Conservation Area.

A legal formed road originating in Gibbston runs along the eastern margin of the property (both inside and outside of the lease).

The Doolans Creek Right Branch is subject to a marginal strip under Section 24A of the Conservation Act 1987.

2.8.3 Activities

- The special lease receives a moderately high level of recreational use.
- **Commercial Mountain Biking.** The most frequent recreational use is associated with a downhill mountain biking operation operated by “Vertigo”. Clients are flown onto nearby 1895 m Ben Cruachan, and then descend via a 4WD track. On Glenroy Special Lease, they bike via a track constructed by DOC which descends from Mt Salmond and then follows a water race to Coal Pit Saddle. Clients then descend to Gibbston via the Coal Pit Saddle Road. This operation involves up to 2 trips a day outside of winter months and appears to be very popular. The operators hold a concession from DOC covering “The Remarkables” Conservation Area.
- **Non-commercial mountain bikers and walkers and backcountry skiers** also use the water race track route to gain access to “The Remarkables” Conservation Area. The water race track periodically holds enough snow to be traversed by ski tourers en route to higher country. Backcountry skiers are known to use the Glenroy water race on foot en route to gain access to the unformed portion of the water race which traverses “The Remarkables” Conservation Area to the north of Glenroy as far as its source near a small raceman’s hut in the upper reaches of the Doolans Creek Right Branch. The water race route provides for both day walks and serves as an entrance point to overnight or multiday trips in The Remarkables/Hector Mountains.
- **Hunters** make periodic use of surrounding country seeking red deer, goats, chukor and quail.
- The legal road from Coal Pit Saddle which lies near the the eastern margin of the lease area receives regular use by four wheel drivers, mountain bikers, horse riders, trail bikers and some walkers. This track continues on to the Nevis Valley via Wentworth and Ben Nevis stations. Locked gates block vehicle use to the road at the Doolans Creek Right Branch on Wentworth Station and near the Nevis Crossing in Ben Nevis Station. The Wentworth gate blocks a legal road, whilst the Glenroy gate blocks a section of the track which appears to lie significantly off the legal road line. The Wentworth gate has been locked in response to irresponsible use of the area and trespassing by trail bikers (see discussion under activities). Much of the section of Coal Pit legal road within the lease boundary has been damaged by water action (see photo in Appendix 1). The road requires work with a digger in order to divert surface flow into the water tables.
- The Doolans Creek Right Branch marginal strip provides reasonably practical public access up this catchment. This area receives some use by walkers. Four

wheel drives and trail bikes use a formed track on the true right side (Wentworth) of this creek which appears to be located within the marginal strip.

- The ridgeline forming the northern boundary of the special lease affords an obvious desire line for public access to The Remarkables Conservation Area as it provides a more direct route (especially on foot) than does the water race. Legal access was deliberately excluded from this route when Glenroy Pastoral Lease went through tenure review under the 1948 Land Act as public access along the boundary of Glenroy freehold was seen by the holder as being incompatible with the safari free range hunting operation which operates on the northern flanks of Mount Edward.
- In addition to legitimate use of the Gibbston – Nevis Valley Road trail bikers are known to use the water race track and to ride over other parts of lease causing substantial damage to soil and vegetative cover and detracting from the enjoyment of the area by other recreationists.
- The Doolans Right Branch Flats and terraces provide for pleasant picnicking and would be well suited to overnight camping.

Significance of Recreation

- The Otago Conservation Management Strategy refers to securing a range of recreational opportunities. Glenroy Special Lease lies in an area of strategic recreation importance in terms of gaining access to the Coal Pit Saddle – Nevis Valley track (mostly legal road) and to the upper Right Branch of Doolans Creek via the formed water race route and the valley floor.
- The relative ease of access to the Glenroy Special Lease, proximity to Queenstown, Cromwell and Alexandra and aesthetically pleasing setting makes the Glenroy Special Lease and neighbouring public conservation lands an increasingly popular area for backcountry recreation. Existing legal access through the lease is strategically important in the context of the neighbouring “The Remarkables” Conservation Area and the popular Gibbston to Nevis Crossing four wheel drive road. The Gibbston-Coal Pit Saddle Road is one of two roads which allow visitors to “The Remarkables” Conservation area to gain attitude by vehicle before venturing in the The Remarkables/Hector Mountains.

PART 3: OTHER RELEVANT MATTERS & PLANS

3.1 Consultation

The property was discussed at an NGO “early warning” meeting held in Alexandra on August 23rd, 2005. The main points raised during the meeting were:

- Should seek to enhance non-motorized access opportunities in the area e.g. a loop track up Doolans Creek to the old hut and aback long the water race (Wakatipu Trails Trust).

- Legal Road from Coal Pit Saddle to Stockbridge on Doolans Creek Left Branch noted.
- Maintain existing easement over special lease for foot and mountain bike, - require legal public foot access over balance of race not currently developed as a mountain bike track.
- Limited car parking at Coal Pit Saddle – area needs enlarging.
- *Cassinia (Ozothamnus leptophyllus)* noted in bottom south east corner of property.
- Minimum return to full crown ownership down to easement and water race, but ideal would be the entire lease area.
- Doolans Creek Right Branch is a very pleasant area.

Full written submissions from Wakatipu Trails Trust, FMC, Forest & Bird (Dunedin & Upper Clutha Branches), Otago University Botany Department, Central Otago Deer Stalkers Club and the Central Otago Recreational Users Forum are attached (Appendices 8-14).

3.2 Regional Policy Statements & Plans

(a) Otago 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 landscapes 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, and inventory of outstanding features and landscapes that are regionally significant."

3.3 District Plans

The property is located within the Rural Resource Area of the Central Otago District Plan.

As at 23 February 2005, the proposed Central Otago District Plan (amended to incorporate Council decisions) requires resource consent (with certain exemptions) for

the clearance of areas of indigenous vegetation greater than 0.5 hectares or in the case of snow tussock grassland 10ha, or above 1080masl, or areas containing any threatened plants listed in a schedule. This requirement does not apply to land that has been freeholded under the Crown Pastoral land Act 1998.

Resource consent is required for tree planting using certain tree species with wilding potential, subject to certain criteria. 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.

The protected landscape provisions of the Plan require resource consent for development of land over 900m, with an exclusion for land that has been freeholded under the Crown Pastoral land Act 1998.

The entire property is subject to the Otago Regional Plan: Water rule which requires resource consent for suction dredge mining.

3.4 Conservation Management Strategies & Plans

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

The CMS identifies 41 special places of conservation interest in Otago Conservancy. Glenroy Special Lease lies within "The Remarkables" Special Place.

The CMS objective for the Special Place is:

To protect the very high landscape and ecological values of the area, and its historic value, and the remoteness of parts of it, while allowing appropriate parts of it to be used for a range of recreational opportunities including the existing commercial skifield.

The key implementation methods relevant to Glenroy Special Lease are:

- Through pastoral lease tenure review negotiations, endeavour to add appropriate contiguous areas on The Remarkables, Hectors and in the Nevis catchment to the core The Remarkables Conservation Park proposal.
- Recreation and tourist concessionaires of the area may be allowed where any potential adverse effects on the natural and historic resources and remote experience recreational opportunity can be avoided, remedied or mitigated, and subject to any requirements of the existing ski area lease.
- Pressure will be maintained to control goats using helicopters as necessary in accordance with Otago WAC objectives.
- Liaison with neighbouring landholders will be maintained to facilitate increased recreational opportunities and retention of natural values, and goat and tree control.
- Commercial guiding and other non-skifield commercial operations will be assessed in accordance with the provisions of Part IIIB of the Conservation Act, and subject to consultation with the existing ski area concessionaires.
- Efforts will be made to secure the landscape (both historic and natural) qualities of the Nevis Valley, and examples of its indigenous ecosystems.

Priorities for Remarkables:

Creation and management planning for the conservation park will be a priority, although timing and extensions will be kept under review as tenure review proposals develop on adjoining properties.

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 habitats 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.

PART 4: ATTACHMENTS

4.1. References

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4.2 Maps

4.2.1 Topographical and Cadastral Boundaries

4.2.2 Landscape Units and Significant Landscape Values

4.2.3 Significant Ecological, Historic and Recreation Resources

4.2.4 Recreational and Historic Values

4.3 Appendices

Appendix 1: General Photos

Appendix 2: Characteristics of Land Environments of New Zealand Units on Glenroy Special Lease

Appendix 3: Distribution of LENZ Units on Lease Area

Appendix 4: Plant Species Recorded During Tenure Review Survey

Appendix 5: List of Invertebrate Taxa Found on Lease

Appendix 6: Location of Significant Invertebrate Species & Collection Sites of all taxa found on Lease

Appendix 7: Herpetofauna Habitats

Appendix 8: Written Submission Wakatipu Trails Trust

Appendix 9: Written Submission FMC

Appendix 10: Written Submission Forest & Bird - Dunedin Branch

Appendix 11: Written Submission Forest & Bird – Upper Clutha Branch

Appendix 12: Written Submission From Alan Mark – Botany Department – Otago University.

Appendix 13: Written Submission Central Otago Deerstalkers Club.

Appendix 14: Written Submission Central Otago Recreational users Forum

Appendix 1: General Photos.



Photo One – The Glenroy Water Race



Photo Two. High Altitude Snow tussock



Photo Three. Lower flanks of lease above Doolans Creek Right Branch . Note trail bike damage in centre right of photo.



Photo Four . Wilding Pines are scattered throughout lease area.



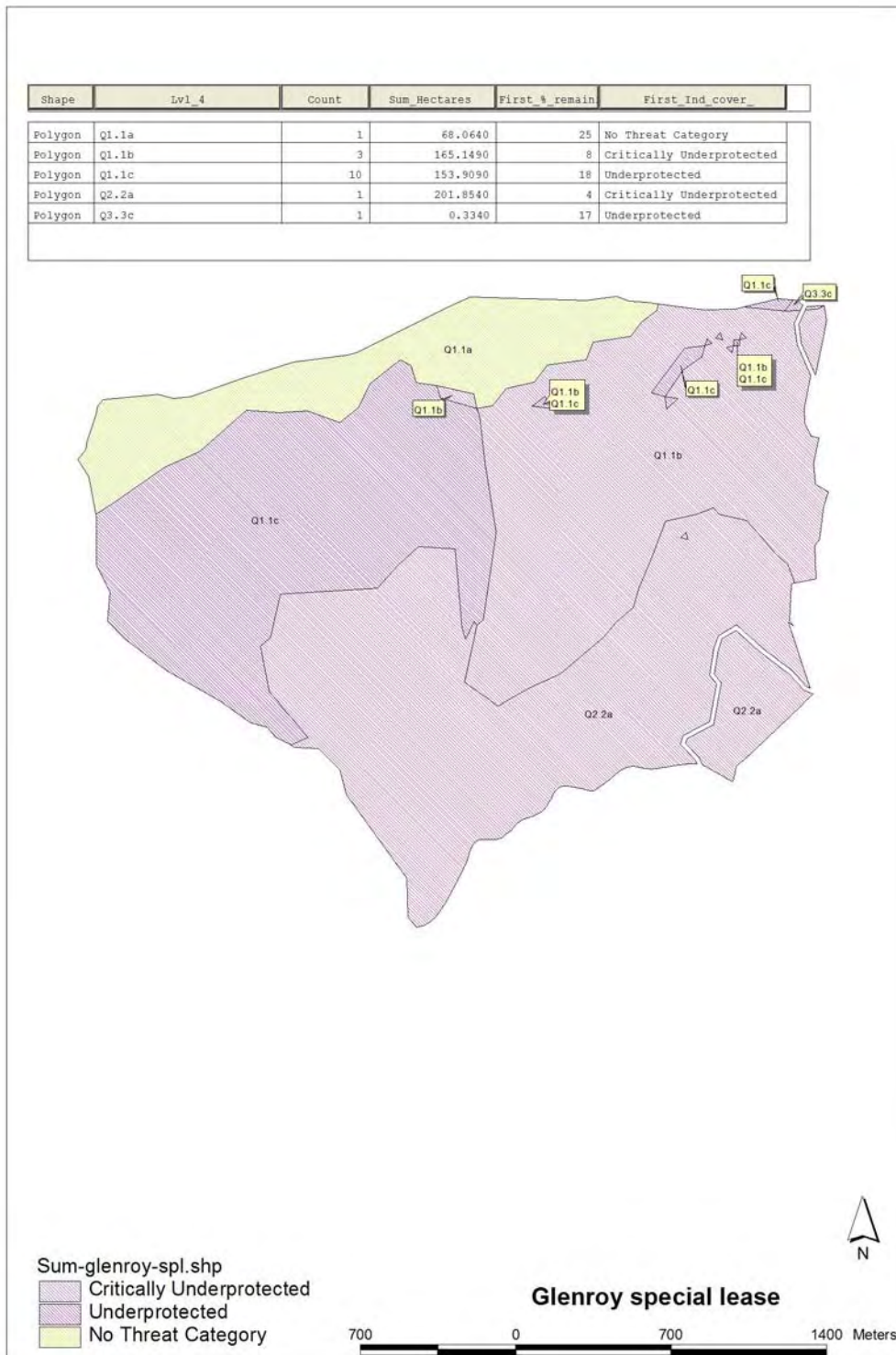
Photo Five. Coal Pit Saddle Road within Glenroy Special lease on adjacent “Remarkables” Conservation Area.

Appendix 2: Characteristics of Land Environments of New Zealand Units on Glenroy Special Lease.

From Leathwick, J., F. Morgan, G. Wilson, D. Rutledge, M. McLeod and K. Johnston. 2002: Land Environments of New Zealand. Technical Guide. Ministry for the Environment.

Level IV Environment	Description
Q1.1a	Southeastern Hill Country and Mountains including Harris Mountains; of strongly rolling mountainous terrain. Well drained soils of moderate fertility from greywacke, schist. Cool temperatures, low vapour pressure deficits, low monthly water balance ratios, and slight annual water deficits. 1095m asl.
Q1.1b	As for Q1.1a, but slightly warmer temperatures, higher vapour pressure deficits, and of steep mountains.
Q1.1c	As for Q1.1a, but of very steep mountainous terrain.
Q2.2a	Southeastern Hill Country and Mountains, of steep mountains. Similar to Q2.1a, but with low monthly water balance ratios (instead of very low). Imperfectly drained soils of moderate fertility from schist. 730m asl.
Q3.3c	Southeastern Hill Country and Mountains; of undulating mountains, with imperfectly drained soils of moderate natural fertility from schist. Cold temperatures, moderate solar radiation, very low annual water deficits, low monthly water balance ratios. 990m asl.

Appendix 3: Distribution of LENZ Units on Lease Area.



Appendix 4: Plant Species Recorded During Tenure Review Survey

					Gymnosperms
Gymnosperms	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Pseudotsuga menziesii</i>	Rare	Western area	Exotic	Douglas fir	Pinaceae

					Dicotyledonous trees, shrubs and vines
Dicotyledonous trees, shrubs and vines	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Acrothamnus colensoi</i> (ex. <i>Leucopogon colensoi</i> /L. <i>suaveolens</i>)	Occasional		Not threatened		Ericaceae
<i>Carmichaelia petriei</i>	Occasional	Shrublands	Not threatened		Fabaceae
<i>Chionohebe densiflora</i>	Occasional		Not Threatened		Plantaginaceae (ex. Scrophulariaceae)
<i>Clematis marata</i>	Rare		Not threatened		Ranunculaceae
<i>Coprosma cheesemaniae</i>	Local	Rock piles	Not threatened		Rubiaceae
<i>Coprosma perpusilla</i> subsp. <i>perpusilla</i>	Local		Not threatened	creeping coprosma	Rubiaceae
<i>Coprosma propinqua</i> subsp. "propinqua"	Common	Shrublands	Not threatened		Rubiaceae
<i>Coriaria plumosa</i>	Local	Slip	Not threatened	feathery tutu	Coriariaceae
<i>Cytisus scoparius</i>	Local	Several patches	Exotic	broom	Fabaceae
<i>Discaria toumatou</i>	Common	Shrublands	Not threatened	matagouri	Rhamnaceae
<i>Dracophyllum muscoides</i>	Rare	<i>Dracophyllum pronum</i> dominated debris-mantled mass-slumping sideslope	Not threatened	prostrate inaka	Epacridaceae

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<i>Dracophyllum pronum</i>	Abundant		Not threatened		Epacridaceae
<i>Dracophyllum rosmarinifolium</i> (<i>D. uniflorum</i>)	Occasional		Not threatened		Epacridaceae
<i>Gaultheria crassa</i>	Local	Slip	Not threatened	snowberry	Ericaceae
<i>Gaultheria depressa</i> var. <i>depressa</i>	Common		Not threatened	snowberry	Ericaceae
<i>Gaultheria depressa</i> var. <i>novae-zelandiae</i>	Rare		Not threatened	snowberry	Ericaceae
<i>Gaultheria parvula</i>	Local	Wetlands	Not threatened		Ericaceae
<i>Hebe anomala</i> (<i>H. odora</i>)	Local		Not threatened		Plantaginaceae (ex. Scrophulariaceae)
<i>Hebe propinqua</i>	Rare		Not Threatened		Plantaginaceae (ex. Scrophulariaceae)
<i>Kelleria dieffenbachii</i>	Common		Not threatened		Thymeleaceae
<i>Leucopogon fraseri</i> complex (mountain ecotype)	Common		Not threatened		Ericaceae
<i>Melicytus</i> aff. <i>alpinus</i> (erect)	Occasional		Not threatened	porcupine shrub	Violaceae
<i>Muehlenbeckia axillaris</i>	Occasional		Not threatened		Polygonaceae
<i>Muehlenbeckia complexa</i> agg.	Rare		Not threatened	small-leaved pohuehue	Polygonaceae
<i>Myrsine nummularia</i>	Local	Rock piles	Not threatened		Myrsinaceae
<i>Olearia avicenniifolia</i>	Rare		Not threatened		Asteraceae
<i>Olearia bullata</i>	Occasional	Shrublands	Not threatened		Asteraceae
<i>Olearia lineata</i>	Rare		Sparse		Asteraceae
<i>Olearia nummularifolia</i>	Rare	Slip	Not threatened		Asteraceae
<i>Olearia odorata</i>	Occasional	Shrublands	Not threatened		Asteraceae
<i>Ozothamnus leptophyllus</i> (<i>Cassinia fulvida</i>)	Occasional		Not threatened	tauhinau	Asteraceae
<i>Pentachondra pumila</i>	Rare		Not threatened		Epacridaceae
<i>Pimelea oreophila</i> agg.	Occasional		Not threatened	alpine daphne	Thymeleaceae
<i>Rosa rubiginosa</i>	Occasional		Exotic	sweet briar	Rosaceae

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<i>Rubus schmidelioides</i> var. <i>schmidelioides</i>	Rare		Not threatened	bush lawyer	Rosaceae
<i>Sambucus nigra</i>	Rare		Exotic	elder	Caprifoliaceae

					Dicotyledonous herbs (including composites)
Dicotyledonous herbs (including composites)	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Abrotanella caespitosa</i>	Local	Wetlands	Not threatened		Asteraceae
<i>Acaena anserinifolia</i>	Occasional		Not threatened	bidibid	Rosaceae
<i>Acaena caesiiglauca</i> var.	Common		Not threatened	bidibid	Rosaceae
<i>Acaena inermis</i>	Occasional		Not threatened	bidibid	Rosaceae
<i>Achillea millefolium</i>	Rare		Exotic	yarrow	Asteraceae
<i>Aciphylla</i> "Lomond"	Occasional		Not threatened		Umbelliferae
<i>Aciphylla aurea</i>	Common		Not threatened	spaniard	Umbelliferae
<i>Anaphalioides bellidioides</i> (ex. <i>Helichrysum bellidioides</i> in part)	Occasional		Not threatened		Asteraceae
<i>Anisotome aromatica</i> var. <i>aromatica</i>	Common		Not threatened		Umbelliferae
<i>Anisotome brevistylis</i>	Local	Streamside banks	Not threatened		Umbelliferae
<i>Anthriscus caucalis</i>	Local		Exotic	beaked parsley	Apiaceae
<i>Argyrotegium mackayi</i> (ex <i>Gnaphalium mackayi</i>)	Rare		Not threatened		Asteraceae
<i>Brachyglottis bellidioides</i> var.	Occasional		Not threatened		Asteraceae
<i>Brachyglottis haastii</i>	Occasional		Not threatened		Asteraceae
<i>Celmisia gracilentia</i> agg.	Occasional		Not threatened		Asteraceae
<i>Celmisia haastii</i> var. <i>haastii</i>	Rare	Outcrops	Not threatened		Asteraceae
<i>Celmisia laricifolia</i>	Local	Outcrops	Not threatened		Asteraceae
<i>Cerastium fontanum</i> subsp. <i>vulgare</i>	Occasional		Exotic	mouse-ear chickweed	Caryophyllaceae
<i>Cerastium semidecandrum</i>	Local		Exotic	little mouse-ear chickweed	Caryophyllaceae
<i>Cirsium vulgare</i>	Rare		Exotic	Scotch thistle	Asteraceae

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<i>Colobanthus apetalus</i> var. <i>apetalus</i>	Local	Wetlands	Not Threatened		Caryophyllaceae
<i>Colobanthus strictus</i>	Occasional		Not threatened		Caryophyllaceae
<i>Digitalis purpurea</i>	Rare		Exotic	foxglove	Scrophulariaceae
<i>Dolichoglottis lyallii</i>	Rare		Not threatened	groundsel	Asteraceae
<i>Epilobium glabellum</i> (<i>E. rubromarginatum</i>)	Occasional		Not threatened		Onagraceae
<i>Epilobium komarovianum</i>	Local	Wetlands	Not Threatened		Onagraceae
<i>Epilobium melanocaulon</i>	Local	Slip	Not threatened		Onagraceae
<i>Euchiton audax</i>	Rare		Not Threatened		Asteraceae
<i>Euchiton lateralis</i>	Local	Wetlands	Not threatened		Asteraceae
<i>Euchiton ruahinacus</i> (ex. <i>Gnaphalium ruahinacum</i>)	Rare		Not threatened		Asteraceae
<i>Euphrasia zelandica</i> agg.	Rare		Not threatened		Orobanchaceae
<i>Galium aparine</i>	Rare		Exotic	cleavers	Rubiaceae
<i>Galium propinquum</i>	Rare		Not threatened	mawe	Rubiaceae
<i>Galium</i> sp. aff. <i>perpusillum</i>	Local	Wetlands	Unknown		Rubiaceae
<i>Gentianella</i> sp.	Occasional				Gentianaceae
<i>Geranium microphyllum</i>	Rare		Not threatened		Geraniaceae
<i>Geranium sessiliflorum</i> subsp. <i>novaezelandiae</i> var. <i>novaezelandiae</i>	Occasional		Not threatened		Geraniaceae
<i>Geum leiospermum</i>	Common		Not threatened		Rosaceae
<i>Gonocarpus incanus</i>	Local		Not threatened		Haloragaceae
<i>Helichrysum filicaule</i>	Occasional		Not threatened		Asteraceae
<i>Hieracium lepidulum</i>	Common		Exotic	tussock hawkweed	Asteraceae
<i>Hieracium pilosella</i> subsp.	Common		Exotic	mouse-eared hawkweed	Asteraceae
<i>Hypericum humifusum</i>	Local		Exotic		Clusiaceae
<i>Hypericum perforatum</i>	Rare		Exotic	St John's wort	Clusiaceae
<i>Hypochoeris radicata</i>	Common		Exotic	catsear	Asteraceae
<i>Leptinella pectinata</i> subsp. <i>villosa</i>	Rare	Outcrops	Not threatened		Asteraceae

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<i>Leptinella squalida</i> subsp. <i>mediana</i>	Rare	Wetlands	Not threatened		Asteraceae
<i>Leucanthemum</i> <i>vulgare</i>	Rare		Exotic	oxeye daisy	Asteraceae
<i>Linum catharticum</i>	Rare		Exotic	purging flax	Linaceae
<i>Lobelia linnaeoides</i>	Rare		Not Threatened		Lobeliaceae
<i>Mentha cunninghamii</i>	Occasional		Not threatened	NZ mint	Lamiaceae
<i>Mycelis muralis</i>	Local		Exotic	wall lettuce	Asteraceae
<i>Myosotis "drucei"</i> (<i>M.</i> <i>pygmaea</i> var. <i>drucei</i>)	Rare	Rock slopes by outcrop	Regionally Significant	Druce's forget- me-not	Boraginaceae
<i>Myosotis elderi</i>	Rare	Short herb sward in depression s. Style < calyx	Locally Notable		Boraginaceae
<i>Neopaxia lineariifolia</i>	Rare		Data Deficient		Portulacaceae
<i>Oreobolus pectinatus</i>	Local	Wetlands	Not threatened	comb sedge	Cyperaceae
<i>Oreomyrrhis colensoi</i> var. <i>colensoi</i>	Local	Depression s	Not threatened		Umbelliferae
<i>Ourisia caespitosa</i> var. <i>gracilis</i>	Occasional		Not threatened		Scrophulariaceae
<i>Ourisia glandulosa</i>	Occasional		Not threatened		Scrophulariaceae
<i>Plantago novae- zelandiae</i>	Local	Wetlands	Not threatened		Plantaginaceae
<i>Plantago triandra</i> subsp. <i>triandra</i>	Local	Wetlands	Not threatened		Plantaginaceae
<i>Pratia macrodon</i> s.s.	Rare		Not threatened		Campanulaceae
<i>Pseudognaphalium</i> "inland" (ex. <i>P. luteo- album</i> in part)	Local	Rock slopes by outcrop	Not threatened		Asteraceae
<i>Psychrophila obtusa</i> (<i>Caltha obtusifolia</i>)	Local	Wetlands	Not Threatened	White caltha	Ranunculaceae
<i>Ranunculus foliosus</i>	Rare		Not threatened		Ranunculaceae
<i>Ranunculus</i> <i>gracilipes</i>	Local	Wetlands	Not threatened		Ranunculaceae
<i>Ranunculus</i> <i>maculatus</i>	Local	Wetlands	Sparse		Ranunculaceae
<i>Ranunculus</i> <i>multiscapus</i> (ex. <i>R.</i> <i>lappaceus</i>)	Occasional		Not threatened		Ranunculaceae
<i>Raoulia apice-nigra</i>	Local		Not threatened	scabweed	Asteraceae
<i>Raoulia australis</i> s.s.	Local		Not threatened	scabweed	Asteraceae

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<i>Raoulia grandiflora</i>	Occasional		Not threatened		Asteraceae
<i>Raoulia subsericea</i>	Common		Not threatened		Asteraceae
<i>Raoulia tenericaulis</i>	Local	Riverflats	Not threatened	scabweed	Asteraceae
<i>Rumex acetosella</i>	Common		Exotic	sheep's sorrel	Polygonaceae
<i>Scleranthus brockiei</i>	Occasional		Not threatened		Caryophyllaceae
<i>Scleranthus uniflorus</i>	Occasional		Not threatened		Caryophyllaceae
<i>Stellaria gracilentia</i>	Occasional		Not threatened		Caryophyllaceae
<i>Taraxacum officinale</i>	Occasional		Exotic	dandelion	Asteraceae
<i>Trifolium arvense</i>	Occasional		Exotic	haresfoot trefoil	Fabaceae
<i>Trifolium dubium</i>	Occasional		Exotic	suckling clover	Fabaceae
<i>Trifolium repens</i>	Local		Exotic	white clover	Fabaceae
<i>Verbascum virgatum</i>	Local	Slip	Exotic	moth mullein	Scrophulariaceae
<i>Viola cunninghamii</i>	Common		Not threatened		Violaceae
<i>Vittadinia australis</i> agg.	Rare	Slip	Data Deficient	white fuzzweed	Asteraceae
<i>Wahlenbergia albomarginata</i> subsp. <i>albomarginata</i>	Common		Not threatened	harebell	Campanulaceae
					Grasses
Grasses	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Agrostis capillaris</i>	Local		Exotic	browntop	Agrostidinae
<i>Agrostis muscosa</i>	Rare		Not threatened	pincushion grass	Agrostidinae
<i>Agrostis personata</i>	Local	Wetlands	Not threatened		Agrostidinae
<i>Anthoxanthum odoratum</i>	Occasional		Exotic	sweet vernal	Phalaridinae
<i>Chionochloa macra</i>	Common	Above 1200m	Not threatened	slim snow tussock	Danthoniinae
<i>Chionochloa rigida</i> subsp. <i>rigida</i>	Abundant		Not threatened	narrow-leaved snow-tussock	Danthoniinae
<i>Cortaderia richardii</i>	Occasional	Streamside s	Not threatened	South Island toetoe	Cortaderiinae
<i>Dichelachne crinita</i>	Rare	Outcrop	Not threatened	long-hair plume grass	Agrostidinae

<i>Elymus solandri</i>	Rare		Not threatened		Hordeae
<i>Festuca matthewsii</i> <i>subsp. latifundii</i>	Rare		Not threatened		Poeae
<i>Festuca novae-zelandiae</i>	Common		Not threatened	hard tussock	Poeae
<i>Festuca rubra subsp. rubra</i>	Local		Exotic	red fescue	Poeae
<i>Hierochloe novae-zelandiae</i>	Rare		Not threatened		Phalaridinae
<i>Holcus lanatus</i>	Occasional		Exotic	Yorkshire fog	Aveninae
<i>Koeleria novozelandica</i>	Occasional		Not threatened		Aveninae
<i>Poa cita</i> agg.	Local		Not threatened	silver tussock	Poeae
<i>Poa colensoi</i> (small tussock)	Common		Not threatened	blue tussock	Poeae
<i>Poa lindsayi</i>	Rare	Top track	Not threatened		Poeae
<i>Poa maniatoto</i>	Rare	Terrace	Not threatened	desert poa	Poeae
<i>Poa matthewsii/P. imbecilla</i>	Rare	Overhang	Not threatened		Poeae
<i>Poa pratense</i>	Occasional	Exotic grasslands	Not threatened	Kentucky bluegrass	Poeae
<i>Rytidosperma pumilum</i>	Local		Not threatened		Danthoniinae

Rushes and Sedges	Abundance at site	Notes	Threat ranking	Common name	Rushes and Sedges Family
<i>Carex berggrenii</i>	Rare	Bank of streamlet	Sparse		Cyperaceae
<i>Carex breviculmis</i>	Local		Not threatened		Cyperaceae
<i>Carex coriacea</i>	Local	Wetlands	Not threatened		Cyperaceae
<i>Carex flagellifera</i>	Rare		Not threatened		Cyperaceae

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<i>Carex quadrichaudiana</i>	Local	Wetlands	Not threatened		Cyperaceae
<i>Carex wakatipu</i> agg.	Local		Not threatened		Cyperaceae
<i>Juncus edgarae</i> (ex. <i>J. gregiflorus</i>)	Local		Not Threatened		Juncaceae
<i>Luzula banksiana</i> var. <i>rhadina</i>	Local		Not threatened		Juncaceae
<i>Luzula leptophylla</i>	Occasional		Not threatened	woodrush	Juncaceae
<i>Luzula rufa</i> var. <i>rufa</i>	Common		Not threatened	woodrush	Juncaceae
<i>Schoenus pauciflorus</i> "short"	Local	Wetlands	Not threatened	bog-rush	Cyperaceae

					Monocotyledons (other)
Monocotyledons (other)	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Bulbinella angustifolia</i>	Local		Not threatened	maori onion	Liliaceae
<i>Microtis unifolia</i> agg.	Occasional		Not threatened	onion orchid	Orchidaceae
<i>Prasophyllum colensoi</i> s.s.	Occasional		Not threatened		Orchidaceae
<i>Thelymitra longifolia</i> agg.	Occasional		Not threatened	sun orchid	Orchidaceae

					Ferns and Allies
Ferns and Allies	Abundance at site	Notes	Threat ranking	Common name	Family
<i>Asplenium richardii</i>	Local		Not threatened		Aspleniaceae
<i>Blechnum penna-marina</i>	Common		Not threatened		Blechnaceae
<i>Huperzia australiana</i> (ex. <i>Lycopodium australianum</i>)	Local		Not Threatened		Lycopodiaceae
<i>Hypolepis millefolium</i>	Occasional		Not threatened	thousand-leaved fern	Dennstaedtiaceae
<i>Lycopodium fastigiatum</i>	Common		Not threatened	mountain clubmoss	Lycopodiaceae
<i>Polystichum cytotegia</i>	Rare	Outcrops	Not threatened	alpine shield fern	Dryopteridaceae
<i>Polystichum vestitum</i>	Occasional		Not threatened	prickly shield fern	Dryopteridaceae
<i>Pteridium esculentum</i>	Local		Not threatened	bracken	Dennstaedtiaceae

Appendix 5: List of invertebrate taxa found on Glenroy Special Lease, December 2005. *Conservation status derived from Hitchmough 2002; McGuinness 2001.

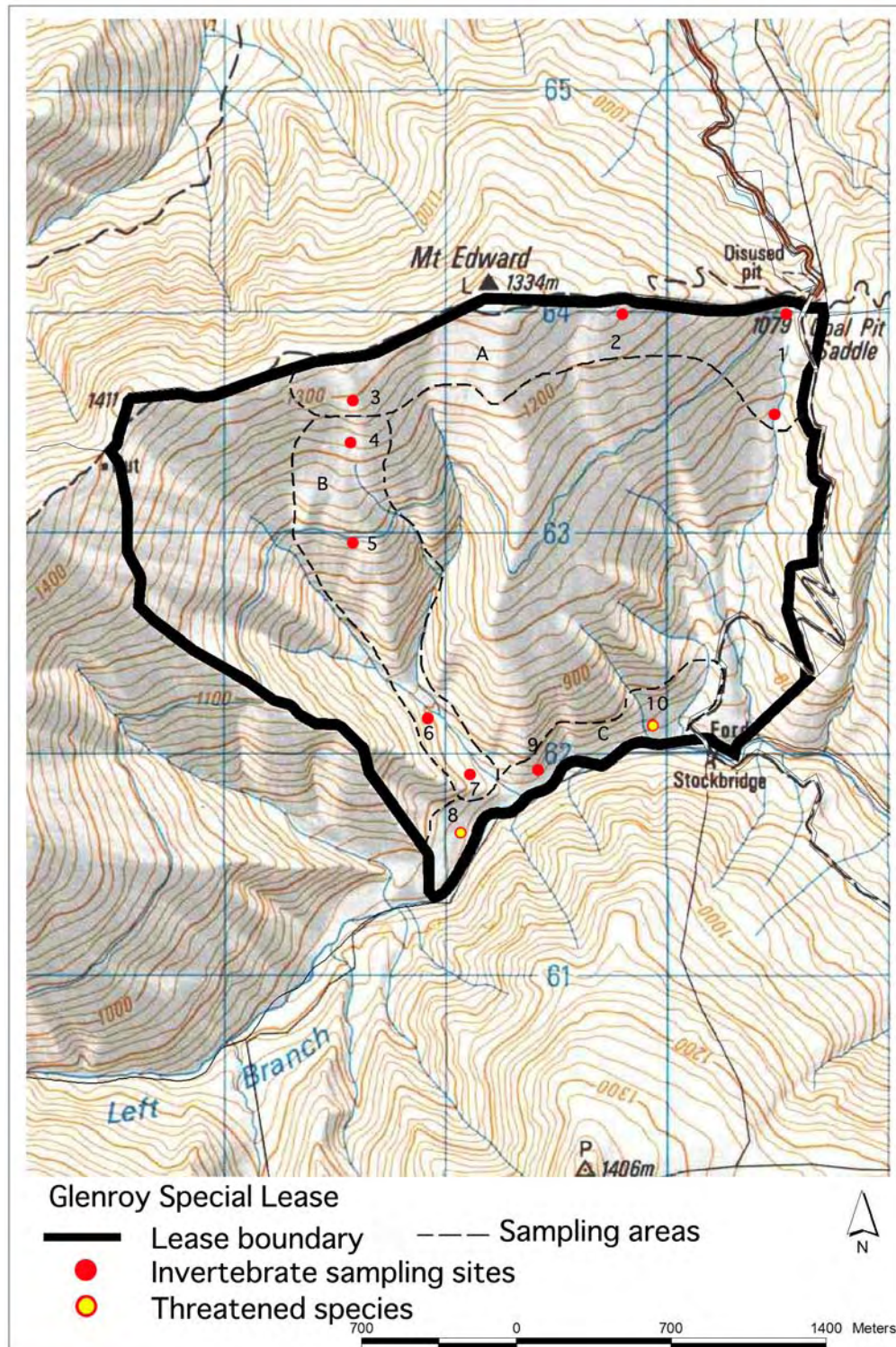
Class	Order	Family	Genus and species	Site	Taxonomic and Conservation status*
Arachnida	Araneae	Araneidae	<i>Colaranaea</i> sp.	8	Genus of brightly coloured orb web spiders. Specimen is an immature.
	Araneae	Araneidae	Species A	9	Unidentified orbweb spider.
	Araneae	Agelenidae	<i>Cambridgea antipodiana</i>	8	Common and widespread species
	Araneae	Clubionidae	<i>Clubiona</i> sp.	7	Genus of native hunting spiders. Widespread group.
		Cycloctenidae	<i>Cycloctenus</i> sp. ? <i>C. westlandica</i> Forster	5	Endemic 'scuttling spider' Not threatened.
	Araneae	Gnaphosidae	<i>Taieria erebus</i> Koch L.	8	Common and widespread species from Wellington south. Not threatened.
	Araneae	Lycosidae	<i>Anoteropsis urquharti</i> Simon	4	Endemic Otago wolf spider. Known from the Remarkable Range. Not threatened.
	Araneae	Miturgidae	<i>Miturga</i> sp.	8,9	A genus of widespread prowling spiders. Native.
	Araneae	Pisuridae	<i>Dolomedes aquaticus</i> Goyen	8	Threatened species (data deficient). Found at this site only.
	Araneae	Pisuridae	<i>Dolomedes minor</i> L. Koch	7,9	Native nursery web spider. Not threatened.
	Araneae	Salticidae	Species A	9	Jumping spider, probably native. Beaten from <i>Olearia bullata</i> .
	Araneae	Tetragnathidae	<i>Tetragnatha</i> sp.	8	Native big jawed spiders. Ex. <i>Dracophyllum prunum</i> .
		Tomisidae	<i>Diaea ambara</i> Urquhart	6,9	Native crab spider. Common on flowering plants. Beaten from <i>Olearia bullata</i> .
Chilopoda	Lithobiomorpha	Henicopidae	<i>Henicops maculatus</i> Newport	8	Widespread and common native centipede. Occurs in Australia. Not threatened.
Diplopoda	Polydesmoidea	Sphaerotrachopidae	<i>Icosidesmus olivaceus</i> Carl	2,3,7	Common endemic scree, shrubland and forest millipede. Known from Mackenzie basin to north Otago.

Class	Order	Family	Genus and species	Site	Taxonomic and Conservation status*
Insecta	Blattodea	Blattidae	<i>Celatoblatta quinquemaculata</i> Johns	1,2	Common Otago alpine cockroach
	Coleoptera	Carabidae	<i>Demetrida lateralis</i> Broun	9	Small carabids, found near water/damp habitats. Native.
	Coleoptera	Carabidae	<i>Holcaspis egregialis</i> Broun	11	Endemic Otago ground beetle. Not threatened.
	Coleoptera	Carabidae	<i>Holcaspis</i> sp. cf. <i>H. impigra</i> Broun	8	Endemic ground beetles. Part of a southern species complex. Threat status unknown.
	Coleoptera	Carabidae	<i>Mecodema chiltoni</i> Broun	10	Threatened endemic species. Classified "Sparse". Western Otago and Southland.. Large (40mm) beetle. Coll.D.Jack 6.xii.2005
	Coleoptera	Carabidae	<i>Mecodema lucidum</i> Laporte de Castelnau	1,2,8	A moderately widespread Otago species
	Coleoptera	Carabidae	<i>Mecodema politanum</i> Broun	1,3,4	Common Otago alpine carabid. Not threatened.
	Coleoptera	Carabidae	<i>Megadromus sandageri</i> Broun	1,11	Southern South Island endemic.
	Coleoptera	Carabidae: Pterostichini	<i>Neoferonia</i> sp. ? <i>N. edax</i> Chaudoir	2	An endemic South Island genus. Not known to be threatened.
	Coleoptera	Carabidae	<i>Taenarthus capito</i> Jeannel	8	Not threatened. Otago endemic. Damp (stream bank) sub alpine habitats.
	Coleoptera	Coccinellidae	<i>Coccinella leonina</i> F.	9	Native ladybird. Beaten from <i>Coprosma</i> spp..
	Coleoptera	Curculionidae	<i>Inophloeus sulcifer</i> Broun	1	Flower feeding weevils (especially speargrass) relatively common through Otago high country
	Coleoptera	Curculionidae: Eugnomini	Species A	1	Small flower weevils.
	Coleoptera	Scarabeidae	<i>Pyronota festiva</i> L.	9	Native manuka beetle. Widespread and common
	Coleoptera	Scarabeidae	<i>Odontria</i> sp. cf. <i>O. striata</i> Broun	9	Genus of common chafer beetles
	Coleoptera	Tenebrionidae	<i>Mimopeus opaculus</i> cf. <i>M. opaculus otagensis</i> Hudson	9	Endemic Otago darkling beetle. Not threatened.
	Diptera	Calliphoridae	<i>Calliphora stygia</i> F.	7,9	Common brown blowfly. Introduced.
	Diptera	Syrphidae	<i>Melangyna fasciatum</i> Maquart	6,9	Native hoverfly. Not threatened.

Appendix 6.: Location of significant invertebrate species and collection sites of all taxa found on Glenroy Special Lease, December 2005.

“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 put 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.”

Appendix 6. Location of significant invertebrate species and collection sites of all taxa found on Glenroy Special Lease, December 2005.



Appendix 7: Herpetofuana Habitats.



Figure 1: Large rock size fellfield. Pitfall site 4 altitude 1050 m



Figure 2: Numerous small fellfields of smaller rock size, in steep sparse short tussock grassland in the distance 1100-900m altitude, and good low *Dracophyllum* /*Aciphylla* cover in the foreground 1080m. Pitfall sites 2 & 3.



Figure 3 Very large rock size fellfield with *Coprosma* cover, altitude 1000m



Figure 4: Medium rock sized fellfield with *Olearia* / *Aciphylla* association, 1100m



Figure 5: Small rock size fellfield taller grey shrubland lower altitude 960m

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DEPT OF CONSERVATION

PAI

Glenroy SL

Wakatipu Trails Trust

22 August 2005

Department of Conservation
Otago Conservancy
PO Box 5244
DUNEDIN

Dear Sir/Madam

RE: TENURE REVIEW GLENROY SPECIAL LEASE

We apologise we cannot attend your meeting on 23rd August however, the area in mention is of interest to the Wakatipu Trails Trust as it is in close proximity to the Trails Trust boundaries and there are neighbouring trails currently enjoyed by many visitors and locals in the community.

Trails in the near vicinity of the Glenroy Special Lease are:

- Coal Pit Saddle to Mt Rosa
- Coal Pit Saddle to Ben Cruachan
- Coal Pit Saddle to Stockbridge

The Trails Trust encourages access to these trails be maintained specifically for hiking, bridle trails and mountain biking - ie: non motorized activities.

It would also consider it an advantage to expand on the recreation available in this area. The Trust would suggest the formation of a loop trail from Coal Pit Saddle, down to Stockbridge, along the left branch of the Doolan Creek up to the Hut (located halfway between Mt Edward and Mt Salmon) to be considered.

If the contours or the lie of the land are not appropriate to such a suggestion, we would emphasise that any opportunity to enhance the recreational enjoyment of the area for non-motorised adventurers would be advantageous, and we would encourage support from DoC in this regard.

With kind regards

Tina Haslett
Trails Facilitator
Wakatipu Trails Trust

PO BOX 204, ARROWTOWN
P 03 459 8555 E trails@arrowtown.govt.nz

Appendix 9. Written Submission – Federated Mountain Clubs

**FEDERATED MOUNTAIN CLUBS OF NEW ZEALAND
Inc.**

PASTORAL LEASE TENURE REVIEW

**A Supplementary Report on the Recreational, Landscape,
and other Conservation Values, and Recommendations
for Outcomes of Tenure Review**

(Note that an earlier Report on Glenroy was submitted in 1996)

GLENROY SPECIAL LEASE

April 2006

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

**A SUPPLEMENTARY REPORT ON THE RECREATIONAL, LANDSCAPE,
AND OTHER CONSERVATION VALUES OF GLENROY SPECIAL LEASE
WITH RECOMMENDATIONS FOR OUTCOMES OF TENURE REVIEW**

(Note that an earlier Report on Glenroy was submitted in 1996)

A Report for FMC based on Field Inspections and other research
to assist in the Crown Pastoral Lease Tenure Review Process

April 2006

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Fig. 1 The high, shady slopes of the Doolans Block proposed in 1996 as Conservation Land, and the adjoining Special Lease (to the right) as seen from the Wye - Doolans Saddle in 1996. It can be seen that there is great similarity in landscape values of these two areas. In 2006, it would be entirely appropriate that the Special Lease land should be returned to full Crown ownership and control and added to the Conservation Area.

Fig. 2 This view is looking down the Special Lease area from above Welshmans Race and the Coal Pit Saddle, to the ford over Doolans Creek. Almost all this land has been classified LUC Class VII, with severe limitations for pastoral use. It is most unlikely that it could be managed in a way that promotes ecological sustainability (as required by the CPL Act).

Fig. 3 Part of the Special Lease, showing the foot and mountain bike access route along the Welshmans water race proposed in 1996. It is understood that a continuation of this route has subsequently been formed up the face to the Conservation Area boundary.

Fig. 4 Natural values above Mount Salmond include cushionfield plant communities, alpine landscapes and dramatic Schist tor rocks. All these features have been incorporated in the area which was designated Conservation Area.

Fig. 5 A view from about 1,700m, above Mt Salmond (S), over Mt Edward (E) and the top of the Special Lease to Mt Rosa (R) which is located to the east of Coal Pit Saddle. The integrity of the whole area would be enhanced by incorporating the Special Lease into the Conservation Area.

Fig. 6 An aerial view of the Special Lease showing Coal Pit Saddle (lower right) and Mt Edward at the top of the track which climbs up from the saddle. Mt Salmond is to the left (just below the wing strut).

Fig. 7 A better aerial view of Glenroy, taken in 2006, showing Coal Pit Saddle Road, Doolans crossing and the entire Special Lease area. It is clear from this view that the area has high landscape values very closely related to the Conservation Area to the left. In fact its natural values should rank much higher than its possible use for ecologically unsustainable pastoralism.

Fig. 8 When the Special Lease is returned to full Crown ownership and added to the Conservation Area, it will enhance unhindered access to Mt Salmond, Ben Cruachan (Centre) and the northern end of the Remarkables, thus adding significantly to the recreational opportunities available in the area. It will also be a worthy addition to the developing Remarkables Conservation Park.

INTRODUCTION

A Report, entitled “GLENROY STATION Report on Recreation and Public Values”, was submitted in March 1996 in relation to the tenure review of Glenroy pastoral lease which at that time covered some 4,900ha. That Report and the recommendations contained in it, were offered as a contribution to the tenure review process. However, at that time the tenure review process was in its infancy and was being developed under the Land Act, 1948. Subsequently, the tenure review process has been conducted under the Crown Pastoral Land (CPL) Act 1998. This supplementary contribution is offered in 2006.

This report has been prepared following the Early Warning Meeting in September 2005 at which the properties entering the tenure review process in 2005 were introduced. No further inspection of the property has been carried out this time but we have revisited the 1996 Report. Parts of that Report are reproduced here with updated commentary relevant to the current tenure review. Readers are directed to the set of Figures (Figs 1 to 8) which accompany this Report. Whilst these do not illustrate specific points in this text, they do support the general thrust of the arguments that are presented in the Report.

TENURE CHANGES PROPOSED IN 1996

We note that the proposed tenure change arrangements consisted of 9 clauses of which Clauses (f) and (h) referred to the issue of a Special Lease as follows:-

“(f). The issue of a Special Lease under S.67 (2) of the Land Act 1948 over an area of approximately 562ha of pastoral land, to be administered by the CCL.

“(h). The inclusion of a condition in the Special Lease allowing free public foot and mountain bike access along an agreed route shown on the attached map through the lease area to the proposed conservation area.”

LAND PROPOSED FOR SPECIAL LEASE FMC RESPONSE IN 1996

The FMC response (submission) to the 1996 tenure change proposal relating to the Special Lease are reproduced below. What FMC now (2006) believes to be the most important parts of that submission are indicated **in bold type**.

“It is accepted that the land in this category is not likely to be capable of sustaining improved pasture and is therefore not suitable for reclassification as farmland and should not be freehold.

Evidence, such as that presented to the South Island High Country Review Committee, reinforces doubts about the sustainability of grazing of unimproved grasslands such as this. The uncertainty of the advantages of destocking in relation to weed invasion and the doubts about the sustainability of continued pastoral use would seem to justify the alternative of Special Lease status so long as there is vegetation monitoring to ensure that degradation does not occur.

*The Knight Frank Report (1996) refers to the potential for commercial uses other than pastoral farming (mineral, tourism and forestry resources). It further states that the Special Lease is intended to facilitate such uses while ensuring their negative impacts are avoided, remedied or mitigated. There is reference to possible freeholding in the event of new legislation. **Any decision to freehold must be based on the sustainability of the ecosystems, not on changes to legislation. The same fundamental doubts about the sustainability of grazing exist regardless of the contemporary legislation.***

The potential uses referred to above (mining, tourism, forestry) have the potential to drastically reduce the landscape values of the area and, if they are to be considered, will need to be subject to full public scrutiny, submission and if necessary, appeal.

*It is proposed that the lease rental might be remitted for up to 3 years in lieu of eradication of wilding *Pinus contorta* trees. This is acceptable as it provides an incentive to control wilding tree spread, but it must be accompanied by appropriate monitoring to ensure that the control is effective.*

It is accepted that the most important values for recreation are for use as an access route to Mount Salmond and Ben Cruachan, and up the right branch of Doolans Creek (marked incorrectly as left branch on NZMS 260 F41). It is noted that elsewhere in the proposal, legal access will be provided to these points.

The proposed term of the lease is for 20 years, renewable at 10 year intervals if vegetation monitoring is satisfactory. It is argued that 20 years is too long and that a review of the lease should be undertaken every 5 or 10 years, and the lease only renewed if monitoring shows no degradation in vegetation.

*The proposal includes a list of 8 other conditions on the Special Lease. These conditions govern the terms and conditions of grazing and management and appear to be reasonable. **However, a condition should be added to the clause relating to public foot and mountain bike access to the effect that formed track access from Welshmans race up to the ridge track should be provided.***

Because of the importance of emergency exit routes from the tops and the need for shelter, it should be a condition of the Special Lease that the Salmond Hut be repaired and be made available for public use. The repairs required are only minor (see Fig. 9), and the lessee should also be able to expect to make use of the hut as required. Under no circumstances should the hut be removed.”

COMMENTARY (2006) ON THE 1996 SUBMISSION

FMC stands by most of the points made in our 1996 submission, particularly the statements:

- *the land in this category is not likely to be capable of sustaining improved pasture*
- *not suitable for reclassification as farmland and should not be freehold*
- *potential uses have the potential to drastically reduce the landscape values*
- *the most important values for recreation are for use as an access route to Mount Salmond and Ben Cruachan, and up the right branch of Doolans Creek*

- *a condition should be added to the clause relating to public foot and mountain bike access that formed track access from Welshmans race up to the ridge track should be provided*
- *a condition of the Special Lease that the Salmond Hut be repaired and be made available for public use*

We do not believe that anything has occurred in the intervening years to change our views about the first 4 bullet points. We note with pleasure that a link track was formed from the water race to the conservation land boundary. We are however, disappointed that the hut seems to have been removed.

KNIGHT FRANK PROPOSAL DATED 27 FEBRUARY 1996

FMC notes that the proposal document issued in February 1996, under the heading 'LAND PROPOSED FOR SPECIAL LEASE' stated:-

"The areais not considered capable of physically or economically sustaining pasture improvement. It is therefore not considered suitable for reclassification as 'farmland' and therefore cannot legally be freeholded."

We recognise that the legal basis of tenure review has changed under the CPL Act 1998, and that reclassification as 'farmland' is no longer a prerequisite for freeholding. However, under the CPL Act 1998 the first object [S24 (a) (i)] is to **"Promote the management of reviewable land in a way that is ecologically sustainable."** FMC asserts that for essentially the same reasons that were given in 1996, it is still not possible to satisfy the first object of the CPL Act 1998.

There is an interesting concluding statement to this part of the proposal: *"The Special Lease for this area will be designed to maintain land use options in the face of uncertainty about the sustainability of the present use. In the event of new legislation which would allow freeholding of such areas and with an improved understanding of sustainability issues associated with such country the Crown's need to retain this area may be reassessed."* This statement clearly anticipated the CPL Act 1998, but we doubt whether the uncertainty of sustainability has been resolved. If anything, we would suggest that it is now less likely that ecological sustainability can be assured on land such as this (LUC Class VIIe) at the altitude of this block, in the absence of replenishment of nutrients lost from the soil reserves.

In order for any land to be managed in a way that is ecologically sustainable in the long term, losses from the soil of essential nutrients in animal products (meat and wool) must be replenished. The alternative is that sooner or later the ecosystem will be depleted and degraded. LUC Class VIIe land may not be capable of being managed in a way that is ecologically sustainable because it may not be justifiable economically to replenish (in the form of fertiliser) the nutrients which are lost through grazing and burning. On lower country where pasture growth rates are higher, topdressing is worthwhile, but at higher altitudes (above about 1,000m), pasture growth and hence response to fertiliser is limited by climate. Under these

circumstances conservation values should be assessed and considered as an alternative to unsustainable pastoral use.

FMC's current (2006) recommendation would therefore be that the entire area of the Special Lease should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

GLENROY SPECIAL LEASE IN THE REMARKABLES CONTEXT

The Special Lease on Glenroy only occupies about 500ha, but it is almost surrounded by conservation land with highly significant inherent values. This new conservation land has emerged out of tenure reviews on Glenroy, Wentworth and Mt Rosa. It is also in very close proximity to the Remarkables Mountains and the developing Remarkables Conservation Park.

There are a whole series of conservation and recreation arguments which support the notion that the whole Special Lease should be returned to full Crown ownership and control and link up the surrounding areas of conservation land. Those arguments are as follows:-

- There are highly significant inherent values (cushionfields and tussock grasslands) in the upper part of the block
- There are significant shrublands on shady aspects and in gullies in the lower part of the block.
- There are areas in the lower part of the block which represent threatened LENZ categories which should be protected.
- The landscape value of the whole block is high, and complements the surrounding areas.
- Wilding pine control was a condition of the Special Lease but under this tenure control has not been effective.
- The recreational use of the Coal Pit Saddle route to Doolans Crossing is part of an increasingly popular mountain bike route to the Nevis.
- The Welshmans Race route is used by cross country skiers heading into the Doolans.
- The Mt Edward/Water Race route is also used by a commercial mountain bike touring business.
- Continued pastoral use of the block without maintenance is unsustainable.
- The argument made in 1996 that the land was not suitable to be reclassified as farmland (as required under the 1948 Land Act) is essentially the same as today's argument that pastoral use does not promote ecological sustainability (as required by the CPL Act 1998).
- Crown ownership of this block would unite several disconnected areas of conservation land into a single entity which would then be a worthy addition to the developing Remarkables Conservation Park.

Rather than contemplate any renewal of the Special Lease, FMC believes that the time has now come to recognise that the scenic, landscape, recreational and conservation worth of this piece of land is greater than its unsustainable future for pastoral farming.

For these reasons too, FMC therefore recommends that the Special Lease should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

OTAGO CONSERVATION MANAGEMENT STRATEGY

In the Otago Conservation Management Strategy (CMS) the Remarkables Area is recognised as a 'Special Place'. The objective for this 'Special Place' is:

The Objective for the 'Remarkables' Special Place is:- *“To protect the very high landscape and ecological values of the area, and its historic value, and the remoteness of parts of it, while allowing appropriate parts of it to be used for a range of recreational opportunities including the existing skifield.”*

This is to be implemented through a number of methods which include:-

(a) *Action will be taken to create and gazette a Conservation Park covering the lands administered by the department in this area, subject to its own management plan. The management plan will provide for an amenities zone covering the existing commercial ski area and any approved expansion of it, and will not derogate from the provisions of the ski area lease agreement.*

(b) Through pastoral lease tenure review negotiations, endeavour to add appropriate contiguous areas on the Remarkables, Hectors and in the Nevis catchment, to the core Remarkables Conservation Park proposal.

These statements (particularly statement (b) highlighted above) illustrate DOC's commitment to making best use of tenure review opportunities to pursue and achieve its CMS objectives.

The Priority for the 'Remarkables' Special Place is:- *“Creation and management planning for the Conservation Park will be a priority for this Special Place, although timing and extensions will be kept under review as tenure change proposals develop on adjoining properties.”*

From statements in the CMS, it is clear that significant progress would be made towards achieving the objectives if this tenure review can be successfully negotiated.

CONCLUSIONS

1. An FMC Report entitled “GLENROY STATION - A Report on Recreation and Public Values” was submitted in March 1996 in relation to the tenure review of Glenroy pastoral lease, which at that time covered some 4,900ha. That Report and the recommendations contained in it, were offered as a contribution to the tenure review process. However, at that time the tenure review process was in its infancy and was being developed under the Land Act, 1948. Subsequently, the tenure review process has been conducted under the Crown Pastoral Land (CPL) Act 1998. This supplementary contribution is offered in 2006.

2. The FMC response to the 1996 tenure change proposal for Glenroy (relating to the Special Lease) was: "It is accepted that the land in this category [LUC Class VIIe] is not likely to be capable of sustaining improved pasture and is therefore not suitable for reclassification as farmland and should not be freehold."
3. FMC (1996) supported the designation of a Special Lease subject to the following: "The doubts about the sustainability of continued pastoral use would seem to justify the alternative of Special Lease status so long as there is vegetation monitoring to ensure that degradation does not occur".
4. FMC (1996) also asserted that: "Any decision to freehold must be based on the sustainability of the ecosystems, not on changes to legislation. The same fundamental doubts about the sustainability of grazing exist regardless of the contemporary legislation".
5. FMC (1996) agreed that "the most important values for recreation are for use as an access route to Mount Salmond and Ben Cruachan, and up the right branch of Doolans Creek to the Remarkables".
6. The Proposal document issued in February 1996, by Knight Frank Ltd. under the heading 'LAND PROPOSED FOR SPECIAL LEASE' stated:- "The areais not considered capable of physically or economically sustaining pasture improvement. It is therefore not considered suitable for reclassification as 'farmland' and therefore cannot legally be freeholded."
7. FMC recognises that the legislation has changed and that reclassification as 'farmland' is no longer a prerequisite for freeholding. However, under the CPL Act 1998 the first object [S24 (a) (i)] is to "Promote the management of reviewable land in a way that is ecologically sustainable." FMC asserts that for essentially the same reasons that were given in 1996, it is still not possible to satisfy the first object of the CPL Act 1998.
8. . If anything, we would suggest that it is now less likely that ecological sustainability can be assured on such land (LUC Class VIIe) at the altitude of this block, and in the absence of replenishment of nutrient losses from the soil reserves.
9. In order for any land to be managed in a way that is ecologically sustainable in the long term, losses from the soil of essential nutrients in animal products must be replenished. The alternative is that sooner or later the ecosystem will be depleted and degraded. On lower country where pasture growth rates are higher, topdressing is worthwhile, but at higher altitudes (above about 1,000m) pasture growth and hence response to fertiliser is limited by climate and fertiliser application is usually not economic. Under these circumstances conservation values should be assessed and considered as an alternative to unsustainable pastoral use.
10. FMC's current (2006) recommendation would therefore be that the entire area of the Special Lease should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

11. The Special Lease on Glenroy only occupies just over 500ha, but it is almost surrounded by conservation land with highly significant inherent values. This new conservation land has emerged out of tenure reviews on Glenroy, Wentworth and Mt Rosa. It is also in very close proximity to the Remarkables Mountains and the developing Remarkables Conservation Park.

12. FMC has presented above a series of conservation and recreation arguments why the entire Special Lease area should be returned to full Crown ownership and control, to link with surrounding areas of conservation land to form a single entity which could be added to the emerging Remarkables Conservation Park.

13. Rather than contemplate any renewal of the Special Lease, FMC believes that the time has come to recognise that the scenic, landscape, recreational and conservation worth of this land is greater than its unsustainable future for pastoral farming. For these reasons too, FMC therefore recommends that the Special Lease should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

14. Statements in the CMS for Otago illustrate DOC's commitment to making best use of tenure review opportunities to pursue and achieve its CMS objectives. The Priority for the 'Remarkables' Special Place is:- *“Creation and management planning for the Conservation Park will be a priority for this Special Place, although timing and extensions will be kept under review as tenure change proposals develop on adjoining properties.”*

15. From such statements in the CMS, it is clear that significant progress would be made towards achieving the objectives if this tenure review can be successfully negotiated. FMC urges that strenuous efforts be made in this direction.

Appendix 10: Written Submission Forest & Bird Upper Clutha Branch

Forest and Bird Recommendations for the Outcomes of Tenure Review on Glenroy Special Lease

On behalf of the Dunedin Branch Management Committee of Forest and Bird.

This submission is written on behalf of the Dunedin Branch of the Forest and Bird Protection Society which has approximately 565 members with strong interests in botany and natural history in general and in the High Country. Many of the members enjoy active recreation in the back country and are very aware of the need to ensure the protection of natural values, vegetation and landscape, historical sites and to improve public access through the tenure review process.

The submission is made on the basis of an inspection trip to the property in February, 2006 and on knowledge of the area. It is written with reference to the objectives of tenure review as set out in the Crown Pastoral Land (CPL) Act 1998, and the recently stated government objectives for the South Island high country, especially the following:-

- *to promote the management of the Crown's high country in a way that is ecologically sustainable.*
- *to protect significant inherent values of reviewable land by the creation of protective measures; or preferably by restoration of the land concerned to full Crown ownership and control.*
- *to secure public access to and enjoyment of high country land.*
- *to ensure that conservation outcomes for the high country are consistent with the NZ Biodiversity Strategy to progressively establish a network of high country parks and reserves.*

Introduction

This Special Lease is a small one of 500 hectares which was put aside at the time of the tenure review process for Glenroy Station as it was not deemed suitable for freehold. We understand it has not now been grazed for 4 years and has not had a wilding pine problem controlled; such control was part of the lease agreement.

It is surrounded by land now secured for Conservation out of the now completed tenure reviews of Glenroy, Wentworth and Mt Rosa all of which land has significant inherent natural values.

Reasons why the lease should now be returned to full Crown Ownership and Control

1. The DOC surveys confirm that the lease has high botanical values with significant shrublands in the lower country and gullies and, in the higher, very intact part of the block, tussock grassland and cushionfields. A number of rare

and threatened plants are present on the block. The NZ Falcon is present in the area

2. Landscape values are high, especially taken in conjunction with the Conservation land surrounding the lease
3. Recreational values are also high given the surrounding Conservation land. Many people enjoy walking and tramping from Coalpit Saddle along the Welshmans Race, Mt Edward and into the Doolans area and the Nevis Valley. Mountain biking is similarly a popular activity in this area, and cross-country skiers use the Welshman's Race to access the Doolans area.
4. Pastoral use of this block would not lead to ecological sustainability.
5. Given the damage caused by unauthorised motor bike activity there may be justification to exclude such activities.
6. There are compelling arguments for this lease to be added to the surrounding Conservation areas and eventually to become part of the Remarkables Conservation Park.

Recommendation

We therefore recommend that the entire lease should be returned to full Crown Ownership and Control for its significant ecological and landscape values and for recreational activities.