Toitu te Land whenua Information New Zealand

Crown Pastoral Land

Lease name : MT GLADSTONE

Lease number : OM 095

Conservation Resources Report

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

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

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

August 05

MT GLADSTONE PASTORAL OCCUPATION LICENCE

CONSERVATION RESOURCES REPORT

Department of Conservation

May 2005

CONTENTS

PART 1 INTRODUCTION

This report describes the significant inherent values present on Mt Gladstone Pastoral Occupation Licence. Mt Gladstone Pastoral Occupation Licence covers an area of approximately 3804 hectares on the western flank of the Inland Kaikoura Range in South Marlborough. The property is triangular in shape, lying between the Winterton River and Totara Stream catchment in the south and southwest, the Hodder River in the east and a straight-line boundary across the lower western slopes of Mt Gladstone in the northwest. It lies between altitudes of approximately 700 m at its northeast and southwest corners, in the Hodder and Winterton valleys respectively, and 2400 m on the Red Hills range just north of Mitre Peak. The property includes the summit of Mt Gladstone (2371 m).

Mt Gladstone Pastoral Occupation Licence adjoins Middlehurst Pastoral Lease to the south, Camden Pastoral Lease to the east, the freehold part of Mt Gladstone to the northwest and Tapuae-O-Uenuku Scenic Reserve at its southeast corner. Legal road lines are present at property boundaries along the Hodder and Winterton Rivers and along lower Gladstone and Totara Streams. A marginal strip extends up Trail Stream within the property.

The property lies in the Tapuae-O-Uenuku Ecological District, within the Clarence Ecological Region. The inland Marlborough ecological districts were investigated as a collation exercise for the Protected Natural Areas Programme in 1990. Two areas on the property, Totara Stream and the Hodder Valley, were identified for protection (Clare,1990). More recently, Clerke (1994) investigated the conservation values on Mt Gladstone Pastoral Occupation Licence. He recommended that lower-altitude parts of the property between Totara and Gladstone Streams and in the vicinity of Limestone Stream be made available for freehold title, and that the remainder of the property be protected and administered by the Department of Conservation.

This review is being carried out under Part 3 of the Crown Pastoral Land Act (CPLA). The Department of Conservation (DOC) is tasked with meeting the following objectives in reporting under Part 3:

- Provide Land Information New Zealand (LINZ) with sufficient information about significant inherent values (in the range of values agreed with the commissioner of Crown Lands (CCL)) to assist the development by the CCL of a preliminary proposal under Part 3 CPLA;
- Record for LINZ any special matters that will need to be dealt with by the CCL in devising a preliminary proposal;
- Provide the DOC delegate (for the purposes of consultation) with proposals to protect significant inherent values within the agreed reporting range.

This report has been compiled from the following field survey reports:

- Mt Gladstone Pastoral Occupation Licence Landscape Assessment, Alan Petrie, October 2004, 9p + photographs + map.
- Botanical Assessment for Tenure Review Mt Gladstone Pastoral Occupation Licence, Geoff Walls, January 2005, 16p.
- Assessment of the Fauna Values of Mt Gladstone Pastoral Occupation Licence, Jane Sedgeley, January 2005, 7p + photographs.
- Mt Gladstone Pastoral Occupation Licence, A Report on the Aquatic Fauna Survey, Scott Bowie, January 2005, 10p + map.
- Mt Gladstone Pastoral Occupation Licence, Invertebrates, Ian Millar, February 2005, 6p.

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

2.1 LANDSCAPE

2.1.1 Landscape Context

Mt Gladstone Pastoral Occupation Licence forms an integral part of the central massif of the Inland Kaikoura Range. This mountain range, crowned by Tapuae-O-Uenuku (2885 m), contains the highest peaks in the country outside the Southern Alps. The Inland Kaikoura Range is a tectonic landscape, formed by dramatic uplift of the earth's crust and featuring a number of block-faulted geological features, such as disjointed landforms, steep scarp faces and displaced streambeds. The main structural components of the landscape on the property are the deep V-shaped valleys and the series of long disjointed ridges that extend out from Mt Gladstone. The repetitive pattern of deep valleys and steep ridgelines provides the landscape with a serrated appearance. The upper section of the property is dominated by the prominent apex-shaped Mt Gladstone (2371 m) which, with the neighbouring high peaks, forms a focal point when viewed from the Awatere Valley Road and other parts of South Marlborough.

2.1.2 Landscape Description

For the purposes of this landscape assessment Mt Gladstone Pastoral Occupation Licence is divided into five landscape units (see attached map), principally reflecting different water catchments. The criteria used to assess and evaluate the landscape values of each unit are based on the following attributes:

1. Naturalness: an expression of the indigenous content of the vegetative cover and the extent of human intervention.
2. Legibility: an expression of the clarity of the formative processes and how striking these processes are.
3. Aesthetic value: the memorability and naturalness of the area, including factors which can make a landscape vivid, such as simplicity in landform, muted colours and fine-textured ground cover.

Finally, visual values, which are a sub-set of landscape values and relate to the visibility of a particular landscape or natural feature as seen from key viewing points, are also assessed.

Landscape Unit 1

This unit includes the part of the main Hodder River valley that lies within the property boundary. It is defined in the northwest by the narrow crest of the distinctively-coloured Red Hills, in the north and southeast by the Hodder River, and in the south by the property boundary at approximately 2200 m altitude.

A basin on the north flanks of Mitre Peak dominates the upper section of the landscape unit. The basin comprises precipitous rock bluffs, shattered rock and scree. Below the basin the

topography changes to a deep symmetrical valley with constant steep-sided slopes covered in long screes, rock outcrops and patches of snow tussock. In the mid section the snow tussock becomes more abundant and is supplemented by mountain flax, subalpine shrubs and remnants of mountain totara forest. The lower section is more enclosed, with patches of shrubland and modified fescue tussock grassland. The Hodder River flows alternately over beds of alluvium and bedrock. The only cultural elements in the unit are two tramping huts in the upper Hodder Valley.

Landscape Values

This unit has significant inherent landscape values due to the diverse array of natural features associated with the valley. The legibility of the underlying formative processes is demonstrated by the disjointed landform features. The enclosed valley and series of dramatic rocky gorges of the Hodder River convey wild and scenic values. In aesthetic terms, this unit is memorable due to its very rough-textured ground surfaces, intimate scale and fractured landforms.

Visual Values

The upper and mid slopes of the Red Hills have a high visual resource values, as they are visible from long stretches of the Awatere Valley Road. At a local scale the diversity of landforms and vegetation in the Hodder Valley has high value for trampers using this popular route to Mt Tapuae-O-Uenuku.

Potential Vulnerability to Change

Land uses and activities that have the potential to affect this unit include:

- Further loss and degradation of the inherently erosion-prone soils.
- Earth disturbances, such as track formation, on prominent ridgelines.
- Spread of pasture weeds.
- Wilding pine spread.
- Erection of further structures around the Hodder Huts.
- Inappropriate siting, style and colour of structures on prominent ridgelines and high peaks that are visible from the Awatere Valley Road.

Landscape Unit 2

This unit incorporates all of the extensive Trail Stream catchment. The upper limit to the unit is the deep U-shaped saddle between Mt Gladstone and the Red Hills. The northwest boundary is the razorback crest of the long north ridge of Mt Gladstone, the southeast boundary is the Red Hills ridge, and the northern boundary is the rocky gorge of the Hodder River.

The unit is characterized by complex and fractured topography. The upper section is an alpine basin with precipitous buttresses, rock bluffs and scree. The mid section features long constant slopes dissected by gullies with straight runnels. The lower section tapers into an over-steep gorge before it connects with the Hodder River. Along its entire length Trail Stream winds around a series of interlocking spurs and flows over a bed of deep gravel. Open weathered surfaces extend down to about 1300 m altitude, where they grade to grasslands with scattered shrubs.

Landscape Values

This unit has significant inherent landscape values, incorporating all the attributes of a classic high country valley that contribute to the special character of the Inland Kaikoura Range, especially the jumbled nature of the terrain. In aesthetic terms this unit conveys an appearance of visual coherence due to the lack of obvious human intervention.

Visual Values
This unit complements Landscape Unit 1, as the north ridge of Mt Gladstone is conspicuous from the Awatere Valley Road.

Potential Vulnerability to Change
Land uses and activities that have the potential to affect this unit include:

- Wilding pine spread.
- Further loss or degradation of the inherently erosion-prone soils.
- Inappropriate siting, style and colour of structures on prominent ridgelines and high peaks that would compromise the remoteness qualities of this extensive valley.

Landscape Unit 3

This landscape unit comprises the whole of the unnamed tributary valley of the Hodder River just below the Trail Stream confluence. The unit is enclosed by narrow-crested ridges that descend in a northeast direction to the Hodder River.

The unit features moderately-steep slopes that are intermittently broken by deep runnels. Unlike the neighbouring Trail Stream catchment, the natural weathering process is less pronounced because a layer of colluvium gives the landform a more rounded appearance. Some rocky outcrops are present on steeper slopes in the lower section of the catchment. The unnamed stream has a boulder-bound channel. Vegetation is predominately modified fescue tussock grassland with a scattering of matagouri and tauhinu, and mats of hawkweed on sunnier slopes.

Landscape Values
This unit has moderately high inherent landscape values as it is representative of the band of middle country on the flanks of the Inland Kaikoura Range. This middle ground forms the transition between the precipitous high country and the more moderate country along the Awatere River. The vegetation still conveys an overall appearance of naturalness even though it has a high component of exotic species. The more rounded landforms contrast markedly with the craggy and more dissected high country contained within the Trail and upper Hodder valleys.

Visual Values
The visual resource value of this unit is limited, as it is obscured from public vantage points.

Potential Vulnerability to Change
Land uses and activities that have the potential to affect this unit include:

- Further modification or depletion of the grassland, especially on sunnier slopes where the vegetative cover is sparse.
- Wilding pine spread.

Landscape Unit 4

This landscape unit encompasses all of the part of the Totara Stream catchment within the property boundary. It is dominated by an alpine basin on the southern flanks of Mt Gladstone. At the head of the basin a saddle forms the watershed between Totara and Trail streams. The upper slopes are over-steep and feature vertical buttresses, jagged rock outcrops, scree slides, debris chutes and incised gullies. The lower section of the catchment has moderately-steep colluvial slopes indented by deep gullies. Totara Stream is contained within a rock-bound gorge. Upper- and mid-sections of the catchment support diverse patches of broadleaved shrubland. The lower section supports modified grassland and *Coprosma* shrublands.

Landscape Values
The upper and mid sections of this unit have significant inherent landscape values due to the natural diversity provided by the precipitous rock walls, stable scree and diverse shrublands. In contrast with the other slopes, this unit conveys a coarse texture and pattern owing to the more fractured nature of the terrain.

Visual Values
This unit has limited visual resource values as it is on the southern side of Mt Gladstone, away from public vantage points such as the Awatere Valley Road. However, its obscurity helps reinforce its remoteness and wilderness qualities.

Potential Vulnerability to Change
Land uses and activities that have the potential to affect this unit include:
- Inappropriate siting, style and colour of structures on prominent ridgelines and peaks.
- Earth disturbances.

Landscape Unit 5

This landscape unit incorporates all of the strongly dissected northwest-facing slopes of Mt Gladstone. Its lower boundary follows the straight-line property boundary. The primary physical feature of this unit is the sequence of small valleys that drain west or northwest into the Winterton and Awatere rivers. The headwaters of these streams are etched into the rocky surface just below Mt Gladstone while the mid and lower sections of the streams are contained within rocky gullies. Separating the gullies are narrow ridges with prominent high points, and shortened razorback spurs with rocky outcrops.

The upper slopes are principally stable scree, debris chutes and rocky outcrops, with a sparse covering of alpine cushion plants at sheltered sites. Most mid slopes support modified grassland with a scattering of shrubs. The shrublands become denser and more extensive within the deeper gullies.

Landscape Values
The upper and mid sections of this unit have significant landscape values due to the legibility of the natural processes that have created the craggy landforms. These austere and rugged characteristics help augment the distinctive alpine character of the Inland Kaikoura Range. An aesthetic feature of this unit is the manner in which the vegetative colour is mimicked in the underlying dry yellow-brown earths, with the whole visual appearance of the landscape being confined to a range of tawny colours. The lower slopes are less distinctive and are representative of the more typical lower country of the Awatere Valley.

Visual Values
This unit has high visual resource values, combining with surrounding peaks to form a prominent landmark. The precipitous slopes of Mt Gladstone form the visual edge to the Inland Kaikoura Range when viewed from along the Awatere Valley Road.

Potential Vulnerability to Change
Land uses and activities that have the potential to affect this unit include:
- Modification or depletion of the already sparse vegetation.
- Earth disturbances on slopes and ridges where there is a thinner mantle of soil.
- Wilding pine and other weed spread.

SUMMARY

A large part of Mt Gladstone Pastoral Occupation Licence makes a significant contribution to the recognizable and distinctive landscape character of the Inland Kaikoura Range. It forms part of a dramatic tectonic landscape that contains the highest peaks in the country outside the Southern Alps. Notable features are the long scree faces and debris chutes that extend from the highest peaks down to about 1000 m altitude, the diverse range of geomorphic features including a range of disjointed and fractured landforms, and the down-cutting of streams into steep rocky gorges. The scenic and aesthetic values of the property derive from the arrangement of landscape elements, the scale of the landscape, and its texture, colour and level of diversity. These combine to create a memorable landscape, significant parts of which are clearly visible from the Awatere Valley.

2.2 LANDFORMS AND GEOLOGY

Mt Gladstone Pastoral Occupation Licence covers steep to very steep slopes and summits on the western flank of the Inland Kaikoura Range. The Inland Kaikoura Range is the highest mountain range in the country outside the main divide of the Southern Alps, rising to 2885 m at Mt Tapuae-O-Uenuku. The property is dominated by the high summit of Mt Gladstone (2371 m), the slopes of Mitre Peak and the long broken rocky ridges that extend north from these summits on either side of Trail Stream, including the appropriately-named Red Hills. Higher-altitude parts of the property are dominated by steep rocky slopes, bluffs and extensive areas of rock pavement or scree.

Soils on the property are predominantly Muller and Benmore steepland soils, with smaller areas of Kekerengu Hill, Haldon Steepland and Alpine soils.

Mt Gladstone Pastoral Occupation Licence is drained by tributaries of the Awatere River, principally the Winterton River and its tributaries in the south and the Hodder River and its tributaries (including Trail Stream) in the north. On the western slopes of Mt Gladstone upper tributaries of Stony, Otterson and Limestone streams drain directly to the Awatere River. Rivers and streams on the property are typically steep, rocky and incised, with few areas of gently-flowing water. Streams and rivers carry high bed-loads of debris when in flood.

Basement rocks of the property are Lower Cretaceous graded bedded greywacke and argillite of the Torlesse Group rocks (Lensen, 1962). The Red Hills area comprises alkaline mafic-ultramafic rocks, and higher-altitude parts of the property are intruded by numerous dolerite dykes (Williams, 1989). The property lies between the large and active Awatere and Clarence faults. The area is tectonically active, with relatively high rates of uplift and natural erosion. Many slopes are over-steep, and rocks rapidly weathered by frost-shattering at higher altitudes. The absence of glacial landforms is unusual for a mountain range of this altitude in New Zealand.

Three sites on the southeast (upper Hodder River) boundary of Mt Gladstone Pastoral Occupation Licence are listed in the inventory of important geological sites and landforms (geo-preservation sites) for the region by Hayward *et al* (1999):

- Staircase intrusion (the best New Zealand example of rhythmic layering in an intrusive body) near the confluence of Staircase Stream and the Hodder River.
- Hodder River weathering features (a good example of differential lithology weathering) 400 m downstream from the confluence of Staircase Stream and the Hodder River.
- Hodder River weathering features (a good New Zealand example of joint controlled weathering) at the confluence of Gut Stream and the Hodder River.

2.3 CLIMATE

Mt Gladstone Pastoral Occupation Licence lies in an area characterized by warm to hot summer temperatures and frequent strong northwest winds, and cool winter temperatures with less frequent but often severe southerly storms. Annual rainfall is between 600 and 1200 mm (Tomlinson, 1976), though precipitation is probably significantly greater on higher altitude parts of the property where snow may fall at any time of the year and lies on the ground for several months. The area experiences high annual and moderate winter solar radiation and slight rainfall deficits (Leathwick *et al*, 2003).

2.4 VEGETATION

2.4.1 Ecological Context

Mt Gladstone Pastoral Occupation Licence lies within Tapuae-O-Uenuku Ecological District (McEwen, 1987). This ecological district is characterised by geologically active mountains with a climate of extremes and vegetation much disturbed by human activity, especially fire and pastoral farming. Little of the vegetation on the property or in the wider vicinity is ecologically pristine, despite indigenous plants being dominant at many sites and characteristic of most places. A history of burning and grazing, supplemented latterly in the lower country by fertilising and over-sowing with exotic pasture species, has seen the loss of most of the pre-human vegetation cover at lower altitudes. However, the extensive nature of the pastoral land-use has allowed indigenous vegetation and some noteworthy flora to persist. In the high-altitude country, wild animals (notably chamois and hares) have altered and continue to affect the vegetation.

Prior to human arrival much of the land below 1300 m altitude would have had a cover of woody vegetation. Forest would have been extensive, dominated by mountain totara, mountain beech, mountain ribbonwood, mountain toatoa, kanuka and broadleaf, and featuring considerable diversity of lowland species in sheltered lower-altitude sites. Rock outcrops and scarps would have been home to a proliferation of indigenous shrubs, daisies, brooms and other specialised rock plants, many endemic to Marlborough. The frequently-disturbed boulderfields and gravelfields in the valleys would have supported a sparse transient vegetation of shrubs, grasses and herbs. Around the tree line may have been a zone of subalpine shrubland, above which was tussock grassland on stable sites and sparse alpine vegetation including the distinctive vegetable sheep elsewhere.

In their analysis of New Zealand's Land Environments, Leathwick *et al* (2003) propose that 76% of the property, comprising the higher-altitude parts, lies within Land Environment P1, 23% comprising the lower country lies within Land Environment E1, and the remaining 1% of the property lies within land environments B8 and K2. They propose that the majority of the area would have originally supported forest, dominated by mountain beech. It is likely that the extent to which woody vegetation prevailed in the area prior to human settlement would have been influenced by natural erosion events and the frequency and extent of natural fires.

Analysis of the extent to which the Land Environments of the property are represented within existing protected natural areas indicates that approximately 37% of Land Environment P1 and 19% of Land Environment E1 are protected (Department of Conservation, *unpublished data*, 2004). However these data should be interpreted with caution, as the predicted extent and suggested vegetation types for each Land Environment have been extrapolated from limited field data.

2.4.2 Plant Communities

The property can be divided into two broad vegetation zones: the Front Country and the Back Country. All of the property is steep, rugged and rocky country. The Front Country is that below about 1500 m, mostly with a northerly aspect. Included in the front country is the lower part of the unnamed catchment north of Trail Stream. The Front Country has been more actively farmed than the Back Country, because it is lower and more accessible. As a result its vegetation is more modified and contains more exotic plants. Nevertheless, it is very rugged in places and still contains many significant inherent botanical values (see attached map).

The Back Country is mountainous. It is made up of two prominent ridge systems, the Red Hills and that containing Mt Gladstone (2371 m), with the valley of Trail Stream between them and the valley of the Hodder River to the east of Red Hills. The land is extremely steep, and is composed largely of exposed rock and scree. It is geologically complex, being crushed, uplifted and intruded by numerous igneous dykes. Only in portions of the valley floors could the land be described as gentle. Stock make their way into parts of this back country from lower down, but these days this area is not deliberately farmed. Plant communities are described below for each of these two parts of the property.

Front Country

The Front Country comprises the northwest portion of the property, land below 1500 m and land with a generally northerly aspect. The vegetation cover is mainly a mosaic of extensive rough pasture, short tussock grassland and shrubland, broken by rock outcrops, gullies and scree. The pasture is made up mostly of exotic grasses (browntop being a major component) and mouse-ear hawkweed, with scattered native grasses (conspicuously fescue tussock and lesser amounts of silver tussock). King devil hawkweed is common on shadier slopes and herbs such as sheep's sorrel are prevalent, especially where sheep congregate. Bare ground is often colonised by mat daisies (particularly *Raoulia australis*).

Shrubs of matagouri and tauhinu are ubiquitous, varying in density from a light scattering to dense shrubland. The densest and tallest shrubland occurs in gullies and on the stable lateral erosion debris of the main streams. Other shrubs frequently present are *Coprosma propinqua*, *Olearia odorata*, porcupine shrub and sweet brier. Dense shrubland also contains various scramblers such as scrub pohuehue, leafless clematis, bush lawyer and native jasmine. Bracken occurs in places. On dry rock outcrops and scarps are shrubs specialised for such sites. Most common are Marlborough rock daisy, NZ lilac, *Brachyglottis monroi* and prostrate kowhai. Also present are mountain flax and various "hot rock" ferns (*Cheilanthes sieberi*, *Asplenium trichomanes*, *Pellaea calidirupium* and *Polystichum richardii*). On shaded and damp rock are assemblages of grasses, ferns, mosses, shrubs such as tutu (*Coriaria* spp.) and *Hebe traversii* and herbs such as *Gingidia montana*. On the unstable material in stream beds are mat daisies, localised occurrences of *Muehlenbeckia ephedroides* and various other small transient plants.

In some places are remnants of taller vegetation providing examples of the pre-human patterns of forest and shrubland. In a gorged section of lower Gladstone Stream, upstream of a substantial waterfall, is a forest-shrubland community with a large population of fierce lancewood (scores of plants of many age classes). Also present are kohuhu, weeping matipo, common broom, akiraho, *Coprosma linariifolia* and what appear to be dead kowhai trees, mingled with the typical shrubs, scramblers and rock plants listed above. Just downstream of the waterfall is a population of pink broom (probably *Carmichaelia carmichaeliae*) growing on a rock scarp.

Similar sites in each of the branches of Otterson Stream contain large old trees of broadleaf and pockets of mountain ribbonwood and pink broom, along with much akiraho, kohuhu and *Coprosma linariifolia*. Also present are korokio, *Helichrysum lanceolatum* and various ground ferns characteristic of forest. In lower Trail Stream and on the true left (west) side of the Hodder River downstream are scattered trees of broadleaf, mountain ribbonwood, mountain totara, lancewood, kanuka and cabbage tree. Pink broom is common on both sides of this stretch of the Hodder River. Coral shrub occurs sporadically on riparian rock scarps.

Back Country

This ruggedly mountainous area forms the majority of the property. In the high alpine zone, dominated by rock and scree and subject to climatic extremes, vegetation is sparse. It consists of compact plants in which daisy family genera (*Raoulia*, *Haastia*, *Helichrysum* and *Celmisia*) are well represented. Most distinctive and conspicuous are vegetable sheep (*Haastia pulvinaris* and *Raoulia bryoides*). Also present are lichens, mosses, small *Hebe* and *Coprosma* species, snow totara and scree specialists such as penwiper, *Lignocarpa diversifolia* and *Lobelia roughii*. Tussock grassland dominated by mid-ribbed snow tussock and also featuring golden speargrass, is uncommon but occurs in the Hodder and Trail valleys about and above the tree line. Shrubs associated with tussock grassland include tauhinu, inaka (*Dracophyllum longifolium* and *D. uniflorum*), snow totara and small-leaved *Coprosma* species.

In the valleys of the Hodder River, Trail Stream and Totara Stream, between about 1000 and 1300 m in altitude, are forest remnants. They form clumps, patches and scatterings of trees. Mountain totara is dominant, with a range of age classes from ancient gnarled trees to saplings. Broadleaf and mountain ribbonwood are common, and mountain toatoa occurs infrequently. At the lower levels of this zone are akiraho, kohuhu, lancewood and (rarely) kowhai. Hill slopes in the vicinity where the forest has been burnt and subsequently grazed have rough grassland-shrubland of browntop, silver tussock, matagouri, tauhinu and *Coprosma propinqua*. Mountain flax is common in places.

Rock outcrops and gorges contain much pink broom and characteristic Marlborough rock plants, including Marlborough rock daisy, *Brachyglottis monroi*, NZ lilac, leafless clematis, common broom, coral shrub and *Helichrysum parvifolium*. Also present in all three valleys on steep rock is the distinctive locally-endemic *Ewartiothamnus sinclairii*. On the unstable fan and stream debris grow small transient plants including four species of mat daisy, *Helichrysum depressum*, several *Epilobium* species, silver tussock, creeping pohuehue and various colonising shrubs.

SUMMARY

Indigenous plant communities form the predominant cover throughout the property, particularly in the Back Country. Some plant communities, such as forest remnants, are regionally rare. The property supports an outstanding diversity of indigenous plant communities, due to the complexity of topography and substrate and its location within South Marlborough. A number of notable plant species occur on the property, including several species listed as nationally threatened, species at distribution limits and species that are locally endemic.

2.4.3 Notable Flora

Notable plant species observed on Mt Gladstone Pastoral Occupation Licence are listed in Table 1 below. Threat categories are those proposed by de Lange *et al* (2004).

Table 1 Notable plant species recorded from Mt Gladstone Pastoral Occupation Licence.

Plant Species	Known Distribution on Property
Nationally Vulnerable	
Carmichaelia carmichaeliae	Populations in all of the main valleys: Hodder, Trail, Otterson, Gladstone and Totara.
Sparse	
Muehlenbeckia ephedroides	Otterson and Totara valleys in the active stream beds.
Pseudopanax ferox	Very strong population in Gladstone Stream gorge.
Range Restricted	
Ewartiothamnus sinclairii	Hodder, Trail and Totara valleys, mainly growing on riparian rocks.
Lignocarpa diversifolia	Upland scree.
Hebe ramosissima	Recorded from two sites (upper Hodder River and upper Totara Stream). Type locality is Mt Tapuae-O-Uenuku.
Wahlenbergia cartilaginea	Possibly present; requires confirmation.
Data Deficient	
Elymus aff. *solandri (a)*	Gladstone Stream and on the ridge above Pack Saddle.
Gunnera densiflora	Recorded from one site (upper Hodder Valley).
Vittadinia australis	Widespread throughout.
Locally Endemic	
Carmichaelia glabrescens	Apparently growing with *C. carmichaeliae*, but requires confirmation.
Pachystegia "B"	Common throughout.
Uncommon in Ecological District	
Einadia allanii	Hodder Valley downstream of Trail Stream.

An important feature of the flora is the diversity of species, due to the complexity and range of topography and substrate and the geographical location. Over 450 native vascular plant species have been recorded from the Inland Kaikoura Range (Williams, 1989).

Also notable is the importance of composite species in the vegetation of the area, illustrated by the following list of normally-uncommon hybrids recorded from the Hodder Gorge: *Ewartia sinclairii* X *Helichrysum bellidioides*, *H. lanceolatum* X *H. bellidioides*, *H. coralloides* X *H. depressum*, *H. coralloides* X *H. parvifolium*, *H. depressum* X *H. parvifolium*, *H. depressum* X *Raoulia glabra*, *H depressum* X *R. tenuicaulis*, *H. parvifolium* X *R. bryoides* (Williams, 1989).

2.4.4 Problem Plants

Introduced plants that may have an important effect on indigenous plant communities on the property, and that can be controlled or contained, are listed and discussed below. Other ubiquitous naturalised species such as pasture grasses, for which containment or control are probably impractical, are not discussed here but are listed in the vegetation descriptions.

Hawkweeds
Mouse-ear hawkweed is abundant and occupies most grazed land below 1500 m in altitude. It is dominant over much of this land, particularly on dry sunny faces, and is a major competitor for space and nutrients with native plants. King devil hawkweed is common on shadier slopes, and tussock hawkweed is locally dominant beneath dense shrubland and forest remnants where it appears to be out-competing native plants such as ferns and herbs. Alan Rose (formerly of Landcare Research) has a series of long-term hawkweed monitoring plots, including exclosure trials, along the access track to Pack Saddle.

Sweet brier
Sweet brier is very common in shrubland on the lower-altitude portions of the property. It occupies dense shrubland and is also widely scattered in more open situations. It is undoubtedly a competitor with native shrubs for space and nutrients, but appears to be limited where native shrubs are dense and tall.

Broom
Broom is common to the west of the property and could become established. If present, it would threaten most sites, including rock outcrops and scarps. Any infestations of broom should be removed promptly.

Wilding conifers
Conifers are present in the area. Wilding conifer spread would pose a significant threat to large parts of the property. Any infestations of wilding conifers should be removed promptly.

2.5 FAUNA

2.5.1 Birds

McEwen (1987) describes Tapuae-O-Uenuku Ecological District as highly modified and the bird fauna is generally depleted. A large amount of the original forest and shrubland habitat has been lost on Mt Gladstone Pastoral Occupation Licence and as a consequence only a limited range of indigenous bird species are now present. During a previous survey of the property Clerke (1994) recorded South Island rifleman, bellbird, brown creeper and silvereye in forest and shrubland on bluffs and in gorges, Australasian harrier in lowland areas and New Zealand pipit in alpine areas. Three threatened bird species have been recorded on the property: kea (nationally endangered) and the South Island rifleman and New Zealand falcon (gradual decline). The threatened rock wren (nationally vulnerable) has been recorded in two locations less than three kilometres from the eastern boundary of the property (DOC Biosite Database; P. Gaze, *pers. comm.*).

Birds observed on Mt Gladstone Pastoral Occupation Licence are described below for the four locations surveyed, and are listed in Table 2 and Table 3.

Rockland and associated shrubland above Pack Saddle

Pack Saddle is at an altitude of 1250 m. The main habitats present are rock outcrops, small areas of scree, low shrubland dominated by tauhinu and porcupine shrub, and tussock. A New Zealand falcon was heard from the saddle. Australasian harrier, New Zealand pipit and southern black-backed gull were seen from the track near the saddle.

Rockland and associated shrubland on hill slopes, Totara Stream

The hill slopes on the true right of Totara Stream provide a variety of rockland habitats including rock outcrops, rock bluffs and scree. Vegetation associated with rock outcrops includes matagouri, prostrate kowhai, sweet brier, *Celmisia* sp., *Aciphylla* sp. and coral bush. The area also supports a patch of mountain totara forest. Silvereye, brown creeper, South Island rifleman and grey warbler were common in the shrublands; South Island rifleman was particularly numerous. Welcome swallow, chukor, California quail and a range of introduced passerines were also present.

Habitats along the two tributaries of Otterson Stream

The part of Otterson Stream bed surveyed is active and unstable, however, stable rockland and shrubland habitats were present on the steep valley sides. Indigenous shrubland included pink broom, common broom and Marlborough rock daisy. South Island rifleman was very numerous, particularly on steep valley walls that had crevices and where there was good vegetative cover. They were often observed in family groups that included young. Silvereye, brown creeper and grey warbler were common. Bellbird, welcome swallow and a range of introduced passerines were present. A New Zealand falcon was heard calling close to the property boundary.

Habitats along Trail Stream

Parts of the bed of Trail Stream are active and unstable but there are areas of more stable riverbed that include rockland and low shrubland. The valley sides provide a variety of rockland habitats including outcrops, bluffs and scree. There are also patches of taller indigenous shrubland and forest. Silvereye, brown creeper, grey warbler, bellbird and South Island rifleman were common. Welcome swallow and a range of introduced passerines were also present. A pair of New Zealand falcon was observed on the Hodder River, close to the northeast boundary of the property. Judging by the mobbing behaviour these birds exhibited, they were probably nesting in the vicinity.

SUMMARY

A total of 22 bird species were recorded on Mt Gladstone Pastoral Occupation Licence during this survey: ten indigenous species (six endemic and four native) (Table 2) and 12 introduced species (Table 3). Three threatened bird species occur on the property (Table 5). New Zealand falcon (gradual decline) was recorded in three locations. Judging by the mobbing behaviour of the pair observed close to the Hodder River, New Zealand falcon are probably nesting on the property or close by on the neighbouring Camden property. Keas (nationally endangered) are commonly seen around the Hodder Huts, but this area was not visited during this inspection and no keas were recorded. The presence of what seems like a stronghold for the South Island rifleman is of significant conservation value.

Table 2 Indigenous bird species recorded from Mt Gladstone Pastoral Occupation Licence, November-December 2004.

Bird species Common name	Scientific name	**Known Distribution on Property**
Australasian harrier	*Circus approximans*	Track to Pack Saddle.
bellbird	*Anthornis melanura melanura*	Shrubland throughout.
brown creeper	*Mohoua novaeseelandiae*	Shrubland throughout.
grey warbler	*Gerygone igata*	Shrubland throughout.
New Zealand falcon	*Falco novaeseelandiae "eastern"*	Pack Saddle, Otterson Stream, Hodder River.
New Zealand pipit	*Anthus novaeseelandiae novaeseelandiae*	Throughout.
silvereye	*Zosterops lateralis lateralis*	Shrubland throughout.
southern black-backed gull	*Larus dominicanus dominicanus*	Track to Pack Saddle.
South Island rifleman	*Acanthisitta chloris chloris*	Rock bluffs and shrubland beside streams, throughout.
welcome swallow	*Hirundo tahitica neoxena*	Totara Stream.

Table 3 Introduced bird species recorded from Mt Gladstone Pastoral Occupation Licence, November-December 2004.

Bird species Common name	Scientific name
Australian magpie	*Gymnorhina tibicen*
blackbird	*Turdus merula*
California quail	*Callipepla californica brunnescens*
chaffinch	*Fringilla coelebs*
chukor	*Alectoris chukar*
dunnock	*Prunella modularis*
goldfinch	*Carduelis carduelis*
greenfinch	*Carduelis chloris*
redpoll	*Carduelis flammea*
skylark	*Alauda arvensis*
song thrush	*Turdus philomelos*
yellowhammer	*Emberiza citrinella*

2.5.2 Lizards

The lizard fauna of South Marlborough is diverse. Five species of the *Hoplodactylus maculatus* complex are known from the area. Common gecko and Canterbury gecko are found in shrubland and forest, and Southern Alps gecko, Marlborough mini gecko and the threatened Kaikouras gecko (threat status: data deficient) are found in open rocky areas. The threatened black-eyed gecko (sparse) and rough gecko (gradual decline) have also been recorded. Four skink species are present in the general area: common skink, scree skink (gradual decline), spotted skink (gradual decline) and long-toed skink (sparse) (Whitaker and Gaze, 1999; R. Hitchmough, *pers. comm.*).

Common skink has been previously recorded on the property at Hodder Huts. Three lizard species: *Hoplodactylus* gecko (not identified to species), common skink and the threatened black-eyed gecko have been recorded on the neighbouring Camden Pastoral Lease. Black-eyed gecko was found in 1994, just over one kilometre from the property boundary in the vicinity of Staircase Stream, at an altitude of 2000 m. Marlborough mini gecko has been recorded in the Awatere Valley (Department of Conservation Herpetofauna Database).

Lizards observed on Mt Gladstone Pastoral Occupation Licence are described below for the four locations surveyed, and are listed in Table 4.

Rockland and associated shrubland on Pack Saddle

Pack Saddle is at an altitude of 1250 m. The main habitats present are rock outcrops, small areas of scree, low shrubland dominated by tauhinu and porcupine shrub, and tussock. Two Marlborough mini geckos and one Southern Alps gecko were found in the rock outcrops. Lizard pitfall traps were set for three days, but no lizards were caught. Windy and rainy weather may have affected trapping success.

Rockland and associated shrubland on hill slopes, Totara Stream

The hill slopes on the true right of Totara Stream provide a variety of rockland habitats including rock outcrops, rock bluffs, and scree. Vegetation associated with rock outcrops includes matagouri, prostrate kowhai, sweet brier, *Celmisia* sp., *Aciphylla* sp. and coral bush. The area also supports a patch of mountain totara forest. One Marlborough mini gecko, one unidentified gecko and seven gecko skins were found during an extensive search effort (ten person-hours). Both geckos were found in an area of rock outcrops and scree relatively close to the forest remnant.

Habitats along the two tributaries of Otterson Stream

The part of Otterson Stream bed surveyed is active and unstable,however, stable rockland and shrubland habitats are present on the steep valley sides. Indigenous shrubland included pink broom, common broom and Marlborough rock daisy. No lizards were observed.

Habitats along Trail Stream

Parts of the bed of Trail Stream are active and unstable but there are areas of more stable riverbed that include rockland and low shrubland. The valley sides provide a variety of rockland habitats including outcrops, bluffs and scree. There are also patches of taller indigenous shrubland and forest. An unidentified skink, most probably a common skink, was observed mid-way up Trail Stream close to a mountain totara forest remnant.

SUMMARY

Areas of rockland and shrubland on the property provide habitat for three species of lizard: Marlborough mini gecko, Southern Alps gecko and an unidentified species of skink (probably common skink). Rockland habitats on the property are abundant and diverse, and appear suitable for several other lizard species including other members of the *Hoplodactylus maculatus* complex (common gecko and Canterbury gecko), scree skink, long-toed skink and spotted skink. High altitude habitats include areas of rock bluff with crevices that appear suitable for the black-eyed gecko. A larger number of lizards and a greater range of species are likely to be present on the property. The lack of lizard observations may be partly due to the limited survey time and unfavourable weather conditions.

Table 4 Lizard species recorded from Mt Gladstone Pastoral Occupation Licence, November-December 2004.

Lizard species Common name	Scientific name	**Known Distribution on Property**
unidentified skink	*Oligosoma* sp.	Mid reaches of Trail Stream.
Marlborough mini gecko	*Hoplodactylus* aff. *maculatus* "Marlborough mini"	Pack Saddle and Totara Stream.
Southern Alps gecko	*Hoplodactylus* aff. *maculatus* "Southern Alps"	Pack Saddle.

2.5.3 Fish

Mt Gladstone Pastoral Occupation Licence lies in the catchment of the Awatere River. Tributaries of the Awatere River that drain the property are Totara and Gladstone streams (via the Winterton River), the upper reaches of Otterson and Limestone streams, and the Hodder River and its main tributary Trail Stream.

One of the distinguishing features of the Awatere River is the absence of dams. This has two effects on the fish communities. The first is that the fish communities are more likely to have diadromous species present (species with a sea phase in their lifecycle). The second effect is that fish are able to migrate between streams, allowing colonisation of previously dewatered streams.

The New Zealand Freshwater Fish Database contains 90 records (at 1st November 2004) from the Awatere River catchment (McDowall and Richardson, 1983). Species recorded from streams near the property are Canterbury galaxias, torrentfish and longfin eel. Other fish species known to be present in the area include koaro, upland bully and brown trout (Jan Clayton-Greene, *pers. comm.*).

Three freshwater habitats, classified by size and physical character, were observed on the property. These habitats and the fish species recorded are described below.

Rivers

This habitat is represented by the Hodder and Winterton rivers, and the lower parts of Trail and Totara streams, at the eastern and western boundaries of the property. These rivers flow through modified country dominated by pasture, hawkweeds and sweet brier shrubland, with patches of indigenous shrubland and forest. All are accessible to domestic stock and wild

animals. There is a vehicle track alongside the lower part of the Winterton River and a well-used tramping route follows the Hodder River. The rivers vary in size from one and a half to eight metres wide and from 100 to 500 mm average depth. River substrates are predominantly boulders with small amounts of bedrock and cobbles. Five sites were surveyed. A single koaro was found at a site in the lower Hodder River.

Large Streams

This habitat is represented by the middle reaches of Trail, Totara, Otterson and Gladstone streams. These large streams flow through country with vegetation similar to that alongside the rivers. All are accessible to domestic stock though wild animals, particularly feral goats, are more prevalent. These streams are generally less than two metres wide and normally between 100 and 200 mm deep, though some pools are up to 600 mm deep. Waterfalls are present in the upper reaches of these streams. Stream substrates are mostly bedrock, boulders and cobbles. Five sites below the waterfalls were surveyed. All sites contained koaro at varying densities.

Small Streams

This habitat is represented by the smaller tributaries in all river catchments on the property. These small streams flow through pasture, shrubland and rockland. Upper reaches are often steep and sparsely vegetated. All are accessible to domestic stock and wild animals, though many parts are not deliberately grazed and the steep terrain prevents easy access to other parts. The small streams are generally up to one metre wide and less than 100 mm deep on average. Substrates are largely bedrock, but substrates of gravel with some large boulders are also present. No sites were surveyed for fish as the streams were very steep with waterfalls and few areas of standing water.

SUMMARY

Freshwater fish communities were surveyed at ten sites on or adjoining Mt Gladstone Pastoral Occupation Licence. One fish species, koaro, was recorded at six sites. The limited occurrence of fish on the property is not unexpected, and is likely to be related to the unstable nature of the riverbeds and the frequency of large floods.

2.5.4 Invertebrates

There is little existing information about invertebrate species on Mt Gladstone Pastoral Occupation Licence. Clerke (1994) reports that two giant weta species, the bluff weta *Deinacrida elegans* and scree weta *D. connectens* have been recorded from the property. The scree weta is widely distributed in screes of the eastern South Island alpine country. The bluff weta occurs in rock bluffs with deep cracks at several sites in inland Marlborough as well as at Mt Somers in Canterbury.

Speargrass weevil feeding sign, probably from the 'Wellington' speargrass weevil, (*Lyperobius huttoni*), has been reported from the Hodder River gorge below Hodder Huts (J. Ravens, *pers. comm.*). Mt Lookout, to the south of the property, was until recently the only known location for a little-known high altitude tiger beetle, *Neocicindela hamiltoni*. In recent years this species has also been recognised from two other sites in inland Marlborough and two in mid-Canterbury (Savill, 1999). It is possible that its range also extends to Mt Gladstone. A number of darkling beetle species with quite limited distributions occur in South Marlborough (Watt, 1988). One of these, *Mimopeus vallis*, has been found along the Awatere Valley, from Seddon to Limestone Stream.

Invertebrates observed on the property are described below for each of the areas and habitats surveyed, followed by a description of the significant species observed (see attached map for numbered areas).

1. Subalpine-alpine habitats dominated by steep faces and rockfield, and the montane to alpine valleys of Hodder River and Trail Stream

This area includes most of the land above approximately 1400 m altitude, including the higher parts of the Red Hills and Mt Gladstone ridges, and the upper Hodder and Trail valleys. The higher-altitude sites were largely unvisited; only mid Trail Valley was inspected in any detail.

Much of this area, up to at least the subalpine level, is assumed to have been affected to some degree in the past by land clearance and fires. However the affects of this have often been overtaken by ongoing processes of change associated with uplift and erosion. Also, pockets of habitat appear to have survived these changes, providing refuge for species such as speargrass weevils which often do not survive burning. Existing values range from good to outstanding, with the valleys in particular having a diversity of habitats and microhabitats. The presence of the micropterygid, *Micropardalis* sp., a liverwort feeder associated with damp areas, in Trail Stream underlines the importance of the diversity of microhabitats in the deeply incised valleys of the property.

2. Steep gorgy streams draining Mt Gladstone ridge

This area comprises the tributaries of catchments flowing west and northwest to the Winterton and Awatere rivers. Many of these tributaries are steep and incised, forming numerous gorges and waterfalls. They hold a substantial amount of quality remnant habitat with significant natural values, usually in riparian or near-riparian zones but in some instances extending onto associated steep faces. The diversity of Lepidoptera identified in the light-trap catch in Otterson Stream reinforces the importance of these habitats for invertebrates. A key species for invertebrate conservation which is present in many parts of this habitat is the deciduous tree daisy *Olearia odorata*. Within this area the Totara Stream Valley is especially outstanding, crossing a wide altitudinal range and supporting remnant and regenerating mountain totara forest.

3. Riparian vegetation at lower altitudes

This area comprises remnant or regenerating riparian vegetation along lower Totara and Gladstone streams, and the parts of Winterton River and the lower Hodder River within or adjacent to (within marginal strip) the property. It includes some of the more substantial and diverse areas of shrub habitat, including 'grey scrub', on the property. The deciduous tree daisy *Olearia odorata* is often conspicuous in this habitat, especially in Totara and Gladstone streams, where mature caterpillars of the *Olearia*-feeding noctuid moth *Meterana exquisite* (gradual decline) were found. A large amount of sweet brier shrubland is present.

4. Pasture- and hawkweed-dominated faces

These areas are dominated primarily by pasture and/or hawkweed and generally have lesser value for invertebrate conservation.

Species

Species found included caterpillars beaten from *Olearia odorata* in riparian vegetation include two Noctuids (subfamily Hadeninae): *Meterana exquisita* and an unidentified species (possibly *Graphania* or *Meterana*), and a Geometrid (*Pasiphila* sp.). The Lepidoptera catch in Otterson Stream displays a wide diversity of species, indicating that riparian and residual woody vegetation on the property harbours a significant invertebrate fauna.

Despite a reasonable amount of effort turning rocks and occasional logs, no moderate-sized to large carabid beetles were found during the survey. Searching was not sufficiently intensive to suggest that species from this group do not occur on the property, but they appear to be quite scarce. What was found quite commonly across the property at these sites was one or more species of a moderate-sized scolopendromorph centipede. This combination of an apparent scarcity of carabids and commonness of a large predaceous centipede may be an artefact of past disturbance, with the centipede being better able to survive the disturbance or re-colonize afterward.

SUMMARY

The subalpine-alpine habitats dominated by steep faces and rockfield, the montane to alpine valleys of Hodder River and Trail Stream and the steep gorgy streams draining Mt Gladstone ridge all have high significant inherent value for invertebrate conservation. Within the riparian habitat type, the areas along lower Totara and Gladstone streams are considered to have high significant inherent value for invertebrate conservation and the Winterton River and lower Hodder River habitats are considered to have low to moderate significant inherent value.

2.5.5 Notable Fauna

Table 5 Notable fauna recorded from Mt Gladstone Pastoral Occupation Licence, November-December 2004.

Animal Species Common name	Scientific name	**Known Distribution on Property**
Nationally Endangered*		
kea	*Nestor notabilis*	Previously recorded at Hodder Huts.
Gradual Decline*		
moth	*Meterana exquisita*	Totara Stream, Gladstone Stream.
New Zealand falcon	*Falco novaeseelandiae* "eastern"	Pack Saddle, Otterson Stream, Hodder River (presumably throughout).
South Island rifleman	*Acanthisitta chloris chloris*	Rock bluffs and shrubland beside streams, throughout.
Regionally Significant		
Southern Alps gecko	*Hoplodactylus* aff. *maculatus* "Southern Alps"	Pack Saddle (northern-most record in the Kaikoura Ranges).

* Threat rankings (except 'regionally significant') are those proposed by Hitchmough (2002)

2.5.6 Problem Animals

Introduced animals that may have an important effect on indigenous plant or animal communities on the property, and that can be controlled or contained, are listed and discussed below. Other ubiquitous naturalised species for which containment or control are probably impractical (such as rodents and mustelids), or domesticated animals that are grazed on the property, are not discussed here.

Feral goat
Feral goats are common on the property and constitute a severe threat to the native vegetation. They damage and impede regeneration of forest, scrub and rockland communities. Immediate and ongoing control of feral goats will be necessary to ensure the protection and continued regeneration of indigenous plant communities. Feral goat control is probably the key present conservation management issue on the property.

Chamois
Chamois are present on higher-altitude and back-country parts of the property. They can have a significant impact on indigenous plants. Control of chamois will be required to protect conservation values on the property.

Feral pig
Feral pig sign was observed at a number of locations, indicating a relatively low but widespread population. Feral pigs cause localised damage to native shrubland, grassland and forest ground cover. Control of feral pigs will be required to protect conservation values on the property.

Brushtail possum
Brushtail possums appear relatively common on the property, despite previous control. They are predators of birds and lizards, as well as foliage browsers. Brushtail possum control is likely to be necessary to maintain conservation values.

Hare
Hares occur throughout the property. They are known to have a detrimental and long-lasting effect on alpine vegetation. Control of hares may be required to protect conservation values on the property.

Rabbit
Rabbits occur throughout the front country and probably inhabit valleys of the backcountry also. They have the potential to do severe damage to native vegetation because of their prolific breeding capacity. Control of rabbits may be required to protect conservation values on the property, or to help reduce re-infestation of adjoining properties.

2.6 HISTORIC

The area occupied by Mt Gladstone Pastoral Occupation Licence was first taken up for grazing by E.W. Stafford in 1851. However, Stafford failed to stock the run to the satisfaction of the Commissioner of Crown Lands, who then awarded the grazing rights to Francis Otterson in 1852. Otterson drowned while crossing the Wairau River in 1854 and the property passed to his widow, Jane, who held it for the next 22 years before selling it to her son Henry in 1876. In 1882 Mount Gladstone was sold to John Tinline and Sam Neville, and then in 1912 it was sold to A.D. Rutherford. Don Rutherford and then his son, A.L. Rutherford, farmed the property until 1963 when it was purchased by A.G. Pitts. Since that time the property has been farmed by the Pitts family (Kennington, 1978).

There are no known sites of historic interest on the Pastoral Occupation Licence. A cobb cottage on the freehold land near the Mt Gladstone homestead is protected under the Historic Places Trust.

2.7 PUBLIC RECREATION

2.7.1 Physical Characteristics

Mt Gladstone Pastoral Occupation Licence lies within the 'backcountry' and 'remote' recreation opportunity spectrum zones of the Nelson/Marlborough Conservancy Conservation Management Strategy (CMS) (Department of Conservation, 1996). The property can be divided into two main recreation settings:

Front Country

This recreation setting covers the lower northwest-facing slopes of Mt Gladstone. The setting is characterized by moderately-steep to steep slopes and small steep gullies. There are no recreational facilities, though parts of the area are accessible by 4wd vehicle.

Back Country

This recreation setting covers the higher-altitude and backcountry areas that form the bulk of the property. It is characterized by steep broken mountains and incised valleys and gullies. The setting is dominated by extensive bare rock and scree, and relatively intact indigenous plant communities. It is representative of the higher altitude parts of the Inland Kaikoura Range and provides a setting of high natural value for outdoor recreation. Two huts, owned by the Marlborough Tramping Club, and sections of walking track in the upper Hodder Valley are the only recreational facilities in the area.

2.7.2 Legal Access

Legal public foot access to the property is available via legal roads along the Hodder River and the Awatere and Winterton rivers, from the Awatere Valley Road. The most practical foot access is via freehold land in the Hodder Valley.

2.7.3 Activities

Existing public recreational use of Mt Gladstone Pastoral Occupation Licence is centred on the Hodder Valley at the eastern boundary the property. The Hodder Valley provides the main tramping route for the ascent of the peaks of the Inland Kaikoura Range, notably Tapuae-O-Uenuku (the highest summit), Mt Alarm and Mitre Peak. The Hodder Huts have been constructed and maintained by the Marlborough Tramping Club to facilitate tramping and climbing in this area. The property provides opportunities for tramping, climbing, hunting, scenery appreciation, nature study and photography, though there appears to be little existing public recreational use of areas outside the Hodder and Trail valleys.

The Inland Kaikoura Range is a nationally-important destination for tramping and climbing. It provides relatively easy opportunities for the ascent of peaks higher than those in the North Island or in many parts of the South Island. The Hodder Valley is within a day's travel of the main centres of Christchurch, Wellington, Nelson and Blenheim. The mountain range (of which the property forms an integral part) provides opportunities for recreation in a very distinctive and scenic area.

PART 3 OTHER RELEVANT MATTERS AND PLANS

3.1 CONSULTATION

Information-gathering meetings were held with non-governmental organisations (NGOs) at Renwick on 6th September 2004, Christchurch on 8th September 2004 and at Geraldine on 9th September 2004. Comments made at those meetings are summarised below.

- It is a nice trip to the top of Mt Gladstone.
- The Marlborough Tramping Club has huts in the area and uses them.
- The lessees have been good about access and have maintained a diary record of parties using the area. The Hodder Valley (on the property boundary) is used to gain access to Tapuae-O-Uenuku, Mt Alarm, Mitre Peak and Mt Gladstone. The farm track on the [freehold part of the] property is the preferred foot access route in the lower Hodder Valley.
- The property is a 'no-go' area for hunting (though the lessees are very accommodating for trampers and climbers). All parts of the property are of interest for hunting and access for hunting is desirable.
- Tapuae-O-Uenuku used to be commonly ascended from the Shin Valley (Camden Pastoral Lease) and the Shin Valley provides easier travel than the Hodder Valley.

3.2 DISTRICT PLANS

Under the Wairau/Awatere Resource Management Plan, publicly notified in November 1997, the station falls within the Rural 4 Zone. Under this zoning farming, keeping domestic livestock and homestays are permitted activities. Commercial forestry is permitted on land below the 1000m contour. Erection of further accommodation buildings is restricted to one dwellinghouse/title.

3.3 CONSERVATION MANAGEMENT STRATEGIES AND PLANS

Mt Gladstone Pastoral Occupation Licence lies within the South Marlborough Management Unit of the Nelson/Marlborough Conservancy. Relevant priorities for this unit are listed in the CMS (Department of Conservation, 1996) as:

- Identify and protect traditional falcon nesting sites in western Molesworth and Inland Marlborough.
- Control goats to protect endemic plant communities at the Richmond Range, Inland Marlborough and Inland Kaikoura Range.
- Resolve the status of conservation areas and reserves in Inland Marlborough and Inland Kaikoura Range.
- Provide for remote recreation in the Inland Kaikoura Range and western Molesworth.
- Negotiate access and provide for remote tussockland tramping in Inland Marlborough, western Molesworth and Inland Kaikoura Range.
- Maintain facilities and seek opportunities to improve access for recreational hunting, particularly in the Branch and Leatham catchments but also elsewhere in South Marlborough.
- Seek controls on land clearance and prevent fire in lowland areas and in Inland Marlborough.
- Seek control of those effects of pastoral farming that are detrimental to natural values.
- Protect freshwater fish habitat through statutory advocacy.

PART 4 ATTACHMENTS

4.1 ADDITIONAL INFORMATION

4.1.1 Scientific Names of Species

Plant Species

Species names follow the published volumes of New Zealand Flora (Allan, 1961; Moore and Edgar, 1976; Webb, Sykes and Garnock-Jones, 1988; and Edgar and Connor, 1999), Brownsey and Smith-Dodsworth (1989) for ferns, Allison and Child (1971) for mosses, the name changes listed in Connor and Edgar (1987) and recent names (for shrubs) listed in Wilson and Galloway (1993). Maori names are included for taonga species listed in Schedule 97 of the Ngai Tahu Claims Settlement Act 1998. Naturalised species are indicated by an asterisk (*).

Common name	Scientific name
akiraho	*Olearia paniculata*
bracken	*Pteridium esculentum*
broadleaf/kapuka	*Griselinia littoralis*
broom*	*Cytisus scoparius*
browntop*	*Agrostis capillaris*
bush lawyer	*Rubus schmidelioides.*
cabbage tree/ti rakau	*Cordyline australis*
common broom	*Carmichaelia australis*
coral shrub	*Helichrysum coralloides*
creeping pohuehue	*Muehlenbeckia axillaris*
fescue tussock	*Festuca* sp.
fierce lancewood	*Pseudopanax ferox*
golden speargrass/taramea	*Aciphylla aurea*
hawkweed*	*Hieracium* spp.
inaka	*Dracophyllum* spp.
kanuka	*Kunzea ericoides*
king devil hawkweed*	*Hieracium praealtum*
kohuhu	*Pittosporum tenuifolium*
korokio	*Corokia cotoneaster*
kowhai	*Sophora microphylla*
lancewood	*Pseudopanax crassifolium*
leafless clematis	*Clematis afoliata*
Marlborough rock daisy	*Pachystegia* sp.
matagouri	*Discaria toumatou*
mat daisies	*Raoulia* spp.
mid-ribbed snow tussock	*Chionochloa pallens*
mountain beech	*Nothofagus solandri* var. *cliffortioides*
mountain flax/whaririki	*Phormium cookianum*
mountain ribbonwood/houhi	*Hoheria lyallii*
mountain toatoa	*Phyllocladus alpinus*
mountain totara	*Podocarpus hallii*

mouse-ear chickweed* ..... *Cerastium fontanum*
mouse-ear hawkweed* ..... *Hieracium pilosella*
native jasmine ..... *Parsonsia* sp.
NZ lilac ..... *Heliohebe hulkeana*
penwiper ..... *Notothlaspi rosulatum*
pink broom ..... *Carmichaelia carmichaeliae*
porcupine shrub ..... *Melicytus alpinus*
prostrate kowhai ..... *Sophora prostrata*
scrub pohuehue ..... *Muehlenbeckia complexa*
sheep's sorrel* ..... *Rumex acetosella*
silver tussock/wi ..... *Poa cita*
snow totara ..... *Podocarpus nivalis*
sweet brier* ..... *Rosa rubiginosa*
tauhinu ..... *Ozothamnus leptophyllus*
tussock hawkweed* ..... *Hieracium lepidulum*
tutu ..... *Coriaria* spp.
weeping matipo ..... *Myrsine divaricata*

Animal Species

Species names follow King (1990) for mammals, the June 2003 version of the New Zealand Recognized Bird Names list (compiled by C.J.R. Robertson and D.G. Medway for the Ornithological Society of New Zealand Inc.) for birds, Whitaker (1998) for lizards and McDowall (2000) for fish. Maori names are included for taonga species listed in Schedule 97 of the Ngai Tahu Claims Settlement Act 1998. Naturalised species are indicated by an asterisk (*).

Common name ..... Scientific name

Australasian harrier/kahu ..... *Circus approximans*
bellbird/korimako ..... *Anthornis melanura melanura*
black-eyed gecko ..... *Hoplodactylus kahutarae*
bluff weta ..... *Deinacrida elegans*
brown creeper ..... *Mohoua novaeseelandiae*
brown hare* ..... *Lepus europaeus occidentalis*
brown trout* ..... *Salmo trutta*
brushtail possum* ..... *Trichosurus vulpecula*
California quail* ..... *Callipepla californica brunnescens*
Canterbury galaxias ..... *Galaxias vulgaris*
Canterbury gecko ..... *Hoplodactylus* aff. *maculatus*
chamois* ..... *Rupicapra rupicapra rupicapra*
chukor* ..... *Alectoris chukar*
common gecko ..... *Hoplodactylus maculatus*
common skink ..... *Oligosoma nigriplantare polychroma*
European rabbit* ..... *Oryctolagus cuniculus cuniculus*
feral goat* ..... *Capra hircus*
feral pig* ..... *Sus scrofa*
grey warbler/rironiro ..... *Gerygone igata*
hare* ..... *see* brown hare
Kaikouras gecko ..... *Hoplodactylus* aff. *maculatus* "Kaikouras"
kea ..... *Nestor notabilis*
koaro ..... *Galaxias brevipinnis*
longfin eel ..... *Anguilla dieffenbachii*
long-toed skink ..... *Oligosoma longipes*

Marlborough mini gecko ..... *Hoplodactylus* aff. *maculatus* "Marlborough mini"
New Zealand falcon/karearea ..... *Falco novaeseelandiae*
New Zealand pipit/pihoihoi ..... *Anthus novaeseelandiae novaeseelandiae*
rabbit* ..... *see* European rabbit
rock wren ..... *Xenicus gilviventris*
scree skink ..... *Oligosoma waimatense*
scree weta ..... *Deinacrida connectens*
silvereye ..... *Zosterops lateralis lateralis*
Southern Alps gecko ..... *Hoplodactylus* aff. *maculatus* "Southern Alps"
southern black-backed gull/karoro ..... *Larus dominicanus dominicanus*
South Island rifleman/titipounamu ..... *Acanthisitta chloris chloris*
spotted skink ..... *Oligosoma lineoocellatum*
torrentfish/piripiripohatu ..... *Cheimarrichthys fosteri*
upland bully ..... *Gobiomorphus breviceps*
welcome swallow ..... *Hirundo tahitica neoxena*

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