

## **Crown Pastoral Land Tenure Review**

**Lease name : MT DASHER**

**Lease number : PO 030**

### **Conservation Resources Report - Part 2**

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.

They are released under the Official information Act 1982.

**March 05**

## Dansey RAP 4 : HECTORS

## Ecological units

TWINSPAN vegetation group (no) name and landform	Plots
(05) "Modified" tussocklands on debris mantled slopes	HEC01, 04
(08) Broadleaved forest on debris mantled slopes	HEC02, 03, 05, 06

## Landform and soils

This RAP includes three discontinuous forest remnants within the catchment of Hectors Creek, a tributary of the Kauru River that drains the "volcanic plateau" area to the east of the Kakanui Mountains. Bedrock in the RAP is semi-schist and schist.

Hectors Creek has cut deeply into the bedrock leaving a valley of steep planar sideslopes and broadly rounded intervening ridges. Where rock outcrops do occur, mainly on the steep valley sides, they are jagged but of low relief.

The soils are mapped in the Hurunui set (Marshall 1977), but for similar reasons described in the Longbob RAP this classification is unlikely to be correct. They are better placed in the Silver Peaks set.

## Vegetation

Hectors Stream catchment contains scattered pockets of mixed broadleaved forest (TWINSPAN group 08), confined mainly to steep shaded gullies and lower slopes. The forest canopy is predominantly broadleaf (*Griselinia littoralis*), marbleleaf (*Carpodetus serratus*), lemonwood (*Pittosporum eugenioides*) and lancewood (*Pseudopanax crassifolius*), as well as some kowhai (*Sophora microphylla*) and ribbonwood (*Plagianthus regius*). Occasional trees of Hall's totara (*Podocarpus hallii*) are scattered throughout the lower slopes of the forest. Common species in the mainly open understorey are *Coprosma crassifolia*, *C. virescens*, *Helichrysum lanceolatum* and patches of tree nettle (*Urtica ferox*). The slopes are steep (> 25°) with loose rock underfoot. Ground cover is sparse in places (<5 % cover) and consists mainly of hound's tongue fern (*Phymatosorus diversifolius*), kiokio (*Blechnum* sp. "2"), *Asplenium* ferns, prickly shield fern (*Polystichum vestitum*), hooked sedges (*Uncinia* spp.) and mosses. Regeneration of canopy species is densest on steep banks and in damp hollows.

The discontinuous forest remnants are separated by shrubland patches and tussockland. The shrubland (TWINSPAN group 05) is mainly *Coprosma propinqua*, *Coprosma* sp. 't', *C. rugosa* and mountain flax (*Phormium cookianum*). Near the forest edge small trees of lancewood, cabbage tree (*Cordyline australis*) and broadleaf are common amongst the scrub. Ferns, particularly kiokio and prickly shield fern, usually dominate the ground cover. Bracken fern (*Pteridium esculentum*) is also common on some slopes.

Tussockland (TWINSPAN group 05) is extensive above the forest and shrubland. Fescue tussock (*Festuca novae-zelandiae*) is the dominant species. Browntop (*Agrostis capillaris*), sweet vernal (*Anthoxanthum odoratum*), catsear (*Hypochoeris radicata*) and mouse-eared hawkweed (*Hieracium pilosella*) are widespread. Narrow-leaved snow tussock (*Chionochloa rigida*) is locally common on shady faces and hollows.

### Fauna

Birds recorded in the forest were silvereve, bellbird, South Island tomtit, grey warbler, and fantail, as well as groups of New Zealand pigeon in all three forest patches. These were the only pigeon noted during the PNA survey. The insect fauna was not surveyed in this catchment during the PNA survey.

### Discussion

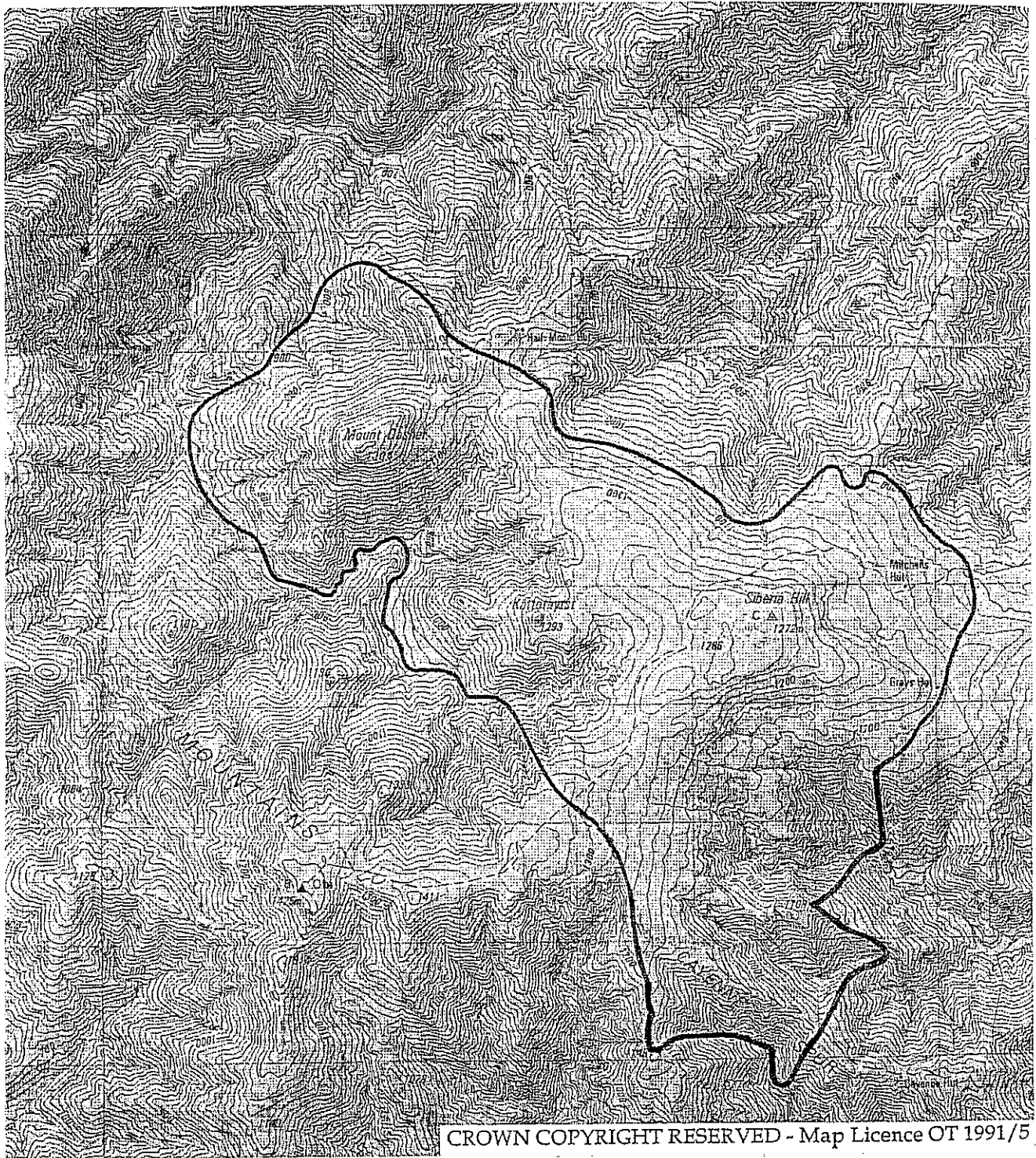
These forest remnants are recommended for protection because the area once covered by forest has been reduced substantially from its previous extent by fires. The Hectors Creek forest remnants are in good condition, with a largely closed canopy and healthy regeneration of forest species. Stock seem to penetrate only at the edges, or use the forest as a through-route to other grazing slopes.

As these forest remnants are small and discontinuous, and the environment surrounding the remnants has been modified significantly, the precise boundaries and future viability of the RAP will need to be considered further when it comes to implementing these proposals.

### Criteria summary

Representativeness	H	remnant of once extensive low altitude forest.
Diversity	M	medium species diversity, low number of vegetation groups.
Naturalness	MH	high in forest, medium-low in surrounding tussockland.
Special features	L	
Viability	LM	discontinuous, small remnants.
Buffering	L	rapid transition from forest to modified tussockland, no catchment boundary.
Threat	MH	fire, stock ingress, possums.

# Dansey RAP 5 - Dasher



GR Centre: : NZMS 260 I42 145578  
Area : 1620 ha  
Altitude Range : 700 - 1300m  
Tenure : Pastoral Lease (The Dasher and Mt Dasher)  
Sample Sites : DAS 01 - 27, & KAU 06 - 08

## Dansey RAP 5 : DASHER

## Ecological units

TWINSPAN vegetation group (no.) name and landform	Plots
(02) Shrubland on basalt boulderfield	DAS02, 04, 07, 10, 14, 19, 25
(02) Shrubland on debris mantled slopes	DAS07, 08, KAU06
(03) Slim snow tussockland on debris mantled slopes	DAS13, 24, 26
(03) Herb-shrub rockland on bedrock bluffs	KAU07
(04) Narrow-leaved snow tussockland on debris mantled slopes	DAS01, 03, 11, KAU08
(05) Modified tussocklands on debris mantled slopes	DAS05, 06, 22
(06) Red tussockland on debris mantled slope	DAS27
(06) Red tussockland on mountain top	DAS20, 21
(07) Cushion bog and sedgeland on flat mountain top	DAS16, 17
(07) Cushion bog and sedgeland on debris mantled slopes	DAS23

## Landform and soils

This RAP covers part of an extensive gently inclined mountain top situated to the east of the main range of the Kakanui Mountains. Bedrock is primarily low grade schist overlain in places by a cap of volcanic rock, tuffs, breccia and lava. The three assumed eruptive centres are Mt Dasher (1304 m), Siberia Hill (1272 m) and Mt Kattothyrst (1293 m) (Brown 1955). All except Siberia Hill are plug remnants resting on the schist bedrock. Siberia Hill consists of a series of flows of varying rock types that rest upon Tertiary sediments (Rae 1990).

The schist bedrock dips very steeply (50-70°) to the north-east forming prominent NW-SE strike ridges where streams have cut deeply into the plateau surface and exposed the underlying structure. This is particularly evident in Deep Creek, the rock bluffs of Cayenne Spur and the head of the Kauru River.

The volcanic rock is evident today as rock outcrops and as "streams" of uncemented boulders. The formation of these boulderfields into "streams" is a characteristic outcome of cryogenic processes such as frost wedging and heaving (Tonkin pers. comm., Rae 1990). The boulderfields are particularly spectacular around Mt Dasher where they extend in places almost to the valley floor (800 m).

The soils on Mt Dasher, Kattothyrst and the flat tops around Siberia Hill are mapped within the Saddle Hill set. Soils of the Kaikoura set are mapped on the steep colluvial schist slopes in the headwaters of Deep Creek, the Kauru River and the rock bluffs of Cayenne Spur, with a small area of Kirkliston soils at the top of Cayenne Spur where the ridge tops are predominantly gently sloping (Marshall 1977).

Hewitt (1990) inspected areas mapped as the Saddle Hill set and noted the soils strongly reflected the degree of weathering and drainage conditions. Recent soils occur under boulderfields, brown granular soils are associated with ridge crests, shoulders and well-drained slopes and gley soils occur in hollows and drainage-ways on upper slopes and under wetlands on saddles and lower slopes. Organic soils occur in association with wetlands dominated by comb sedge (*Oreobolus pectinatus*).

## Vegetation and flora

Tussockland of slim snow tussock (*Chionochloa macra*), narrow-leaved snow tussock (*C. rigida*) and hybrids between the two, are extensive on the broad gentle slopes of the volcanic plateau, particularly on ridge crests and upper slopes (TWINSPAN groups 03 and 04). The tussock is predominantly under 1 m tall with a dense inter-tussock cover of small herbs and grasses. The introduced species browntop (*Agrostis capillaris*), sweet vernal (*Anthoxanthum odoratum*) and mouse-eared hawkweed (*Hieracium pilosella*) are well established in places, particularly on the drier, flattened areas where stock tend to camp. The cover of tussock grasses and the number of native inter-tussock species is generally higher on the steeper slopes of Mt Dasher, where boulderfields appear to have isolated much of the tussockland from fire and intensive grazing.

Wetland (TWINSPAN group 07) occurs over much of the gently sloping area between Siberia Hill and Kattothyrst; at mid-slope seepage sites or where drainage is impeded on flat ground. Within these wet sites, subtle changes in drainage have marked effects on the vegetation patterns. Small patches of red tussockland (*Chionochloa rubra* ssp. *cuprea*) (TWINSPAN group 06) are common throughout, and bog rush (*Schoenus pauciflorus*) is extensive, particularly at mid slope. More extensive red tussocklands occur on the gently inclined east-facing slopes at the northern end of Cayenne Spur and in depressions to the south and east of Mitchells Hut. Associated with these more extensive areas of red tussockland are sphagnum moss, rautahi (*Carex coriacea*), *C. gaudichaudiana*, browntop and, around Cayenne Spur, the daisy *Celmisia haastii*.

The wetlands on the flat top of Siberia Hill and on the saddles between lava residuals comprise large areas of cushion bog and *Carex*-dominated sedgeland. Comb sedge (*Oreobolus pectinatus*) is widespread, with associated species being mainly *Abrotanella caespitosa*, *Luzula leptophylla*, *Carex gaudichaudiana*, *C. sinclairii*, *C. echinata*, *Juncus novae-zelandiae*, *Celmisia alpina* and sphagnum moss (*Sphagnum cristatum*).

The extensive basalt boulderfields on the slopes of Mt Dasher and Siberia Hill, have little vegetation apart from lichens and mosses. However, shrublands (TWINSPAN group 02) are common on the margins and in sheltered places between the boulder streams. Common shrubs are snow totara (*Podocarpus nivalis*), *Coprosma ciliata* and *Hebe rakaiensis*. There are occasional small patches of mountain toatoa (*Phyllocladus alpinus*) on both Mt Dasher and Siberia Hill, and the locally distributed threatened daisy *Celmisia hookeri* on the southern slopes of Siberia Hill. The shrub *Brachyglottis cassinioides* was noted by Allen *et al.* (1988) during a previous survey of this area, but it was not recorded during the PNA Programme survey.

The boundaries of the RAP extend into the headwaters of the Kauru River and the rock bluffs of Cayenne Spur to include an area of steep colluvial slopes and extensive schist bedrock outcrops. The vegetation on the colluvial slopes is mainly snow tussockland on the sunny faces and fern-shrublands of *Coprosma ciliata*, with prickly shield fern (*Polystichum vestitum*) and thousand-leaved fern (*Hypolepis millefolium*), on the upper shady faces. The extensive bedrock outcrops and bluffs are sparsely vegetated with an assemblage of herbs and lichens that includes *Anisotome flexuosa*, *A. aromatica*, *Forstera tenella*, edelweiss

(*Leucogenes grandiceps*) and *Celmisia hookeri*. Turpentine scrub (*Dracophyllum uniflorum*), with snow tussock, scarlet snowberry (*Gaultheria crassa*) and mountain flax (*Phormium cookianum*), occurs on the steep colluvial slopes between the outcrops.

A number of the plants occurring in this RAP are restricted in distribution within the District. Mountain toatoa and *Brachyglottis cassinioides* were only found in sheltered sites in one other location in the District outside of this RAP. Both these plants seem to now only remain, either on steep shady rock faces, or between boulderfields - areas isolated from past fires. Similarly, *Celmisia hookeri*, a daisy restricted in distribution to Otago and northern Southland, now only occurs in inaccessible rocky sites in the eastern part of the Dansey Ecological District.

*Hebe pinguifolia*, a low growing shrub (<0.5m high) also occurred scattered amongst the boulderfields and on the rocky top of Mt Dasher. This shrub is more commonly found from Marlborough to South Canterbury, and in northern Southland, and was only noted on rocky sites in the southern part of the Dansey Ecological District, particularly associated with areas of volcanic parent material.

#### Fauna

Pipit, falcon, and paradise shelduck were recorded around the flat topped summit of Siberia Hill and Mt Dasher. A group of adult black-backed gull and several young were nesting adjacent to the ponds on Siberia Hill.

Two undescribed giant weevils in the genus *Lyperobius* were found on Cayenne Spur and nowhere else in the district, while the wetlands on Siberia Hill have a diverse fauna of diurnal moths. These wetlands also contained the most diverse and abundant aquatic invertebrates in the Ecological District (see Section 4.4.4). The invertebrates collected included a number of very small crustacea, a spider and insect larvae.

#### Discussion

The combination of relatively unmodified vegetation and volcanic landforms makes the Dasher RAP one of the most valuable natural areas in Dansey Ecological District.

Siberia Hill is one of the largest volcanic masses of the Dunedin Volcanic Group outside of the Dunedin volcano. (The group included a major shield volcano, the Dunedin volcano, and numerous outlying short lived vents active from around 21 million years ago (Coombs *et al.* 1986)). Siberia Hill is also one of the exceptions of the East Otago peripheral vents in that it has petrographically and chemically distinct lava flows overlying one another. The small, monogenetic vent of Kattothyurst is more typical of the outlying vents in this group (Rae 1990).

Wetlands are uncommon in Dansey Ecological District, occurring only in two other catchments outside of this RAP (both being tributary streams of the North Branch Maerewhenua River). The Dasher RAP contains the most extensive and diverse (in terms of communities) of these wetlands.

The RAP also includes areas of red tussockland at relatively high elevation (1100 - 1200 m), a vegetation type substantially reduced from its original extent and now uncommon at this altitude in the District.

Boulderfields are a feature of several other volcanic outcrops in eastern Otago, but the ones in this RAP, particularly those on Mt Dasher, are visually spectacular. In addition, in the Dasher RAP, there are subalpine shrub species not found in other east Otago boulderfields (Allen *et al.* 1988) such as mountain toatoa and *Brachyglottis cassinioides*.

Patrick (1991) has identified the wetlands of Siberia Hill and the rock bluffs of Cayenne Spur as key sites for the conservation of insects.

**Criteria summary**

Representativeness	H	representative range of vegetation and landform on volcanic and schist substrate.
Diversity	H	diverse vegetation groups, landforms, plant and faunal species.
Naturalness	MH	high naturalness in shrublands and wetlands, variable in tussocklands.
Special features	H	volcanic landscape, plant species uncommon in District, two undescribed giant weevil species on Cayenne Spur.
Viability	MH	large intact area.
Buffering	H	surrounding landscape largely natural.
Threat	ML	increased stock pressure, aerial oversowing, pigs.



Appendix 2: Extracts from Inventory of Soils Sites of International, National and Regional Importance (Arand *et al*, 1991): Geopreservation Site No. 296 Dasher.

**TOPOGRAPHY:** fan and gully **PARENT MATERIAL:** fan alluvium **VEGETATION:** introduced grassland  
**SOILS:** brown-grey earths (Waitaki Otematata)  
**IMPORTANCE:** 3 **SIGNIFICANCE:** (i) unique soil with red weathering, possibly of Tertiary age.  
**VULNERABILITY:** 1 **MODIFICATIONS/THREATS:** grazed  
**TENURE:** private land **OWNER/MANAGER:** Bog Roy Station  
**CONTACT PERSON:** Peter McIntosh **DATE OF INFORMATION:** October 1989  
**REFERENCES:** McIntosh et al. (1990a)

**(296) Dasher**

**REGIONAL/CITY COUNCIL(S):** Otago **ECOLOGICAL DISTRICTS(S):** 65-02 Dansey  
**LOCALITY and GRID REFERENCE:** 40 km WSW of Oamaru I42 145578  
**AREA(ha):** 1620 **ALTITUDE(m):** 700-1300 **RAINFALL(mm):** 1200-1600  
**TOPOGRAPHY:** gently-sloping broad mountain top; steep colluvial mountain slopes and tops; boulderfields **PARENT MATERIAL:** schist and various volcanic rocks and derived colluvium **VEGETATION:** snow tussock grassland; red tussock grassland; rushland; sedgeland; cushionfield; broadleaved scrub; fern-shrubland  
**SOILS:** upland yellow-brown earths (Kaikoura Kirkliston), brown granular loams and clays (Saddle), gley soils, organic soils  
**IMPORTANCE:** 3 **SIGNIFICANCE:** (i) contains a moderately wide range of relatively unmodified soils and soil-vegetation associations.(ii) soils derived from volcanic rock and having a relatively unmodified vegetation cover are uncommon in the South Island.  
**VULNERABILITY:** 2 **MODIFICATIONS/THREATS:** introduced plants; 4WD road; huts  
**TENURE:** pastoral lease, recommended area for protection **OWNER/MANAGER:** The Dasher Station and Mt Dasher Station  
**CONTACT PERSON:** Alan Hewitt **DATE OF INFORMATION:** July 1991  
**REFERENCES:** Comrie (1991) Hewitt (1990)

**(297) Hughie**

**REGIONAL/CITY COUNCIL(S):** Otago **ECOLOGICAL DISTRICTS(S):** 65-02 Dansey  
**LOCALITY and GRID REFERENCE:** 30 km WSW of Oamaru I42 225580  
**AREA(ha):** 370 **ALTITUDE(m):** 450-700 **RAINFALL(mm):** 800-1200  
**TOPOGRAPHY:** steep colluvial mountain slopes dissected by small creeks separated by rounded ridges **PARENT MATERIAL:** schist and derived colluvium **VEGETATION:** broadleaved forest; broadleaved shrubland; manuka shrubland  
**SOILS:** lowland yellow-brown earths (Silver-Peaks)  
**IMPORTANCE:** 3 **SIGNIFICANCE:** (i) contains the largest remnants of lowland yellow-brown earths under manuka shrubland and broadleaved forest in the ecological district.  
**VULNERABILITY:** 2 **MODIFICATIONS/THREATS:** grazed by stock; possums, introduced plants (browntop, Hieracium pilosella, catsear)  
**TENURE:** pastoral lease, recommended area for protection **OWNER/MANAGER:** Mt Dasher Station  
**CONTACT PERSON:** Alan Hewitt **DATE OF INFORMATION:** July 1991  
**REFERENCES:** Comrie (1991) Hewitt (1990)

**(298) Nobbler**

**REGIONAL/CITY COUNCIL(S):** Otago **ECOLOGICAL DISTRICTS(S):** 65-02 Dansey  
**LOCALITY and GRID REFERENCE:** 7 km W of Danseys Pass township I41 005753  
**AREA(ha):** 320 **ALTITUDE(m):** 740-1350 **RAINFALL(mm):** 800-1200  
**TOPOGRAPHY:** steep colluvial mountain slopes with broad mountain tops; large slump, blockfield **PARENT MATERIAL:** greywacke and derived colluvium **VEGETATION:** snow tussock shrubland; snow tussock grassland; red tussock grassland; cushionfield; blockfield  
**SOILS:** upland yellow-brown earths (Kirkliston Kaikoura), gley soils  
**IMPORTANCE:** 3 **SIGNIFICANCE:** (i) contains the most extensive and least modified upland yellow-brown earth - shrubland associations in the ecological district.  
**VULNERABILITY:** 2 **MODIFICATIONS/THREATS:** minor presence of introduced plants and little evidence of grazing or burning  
**TENURE:** pastoral lease **OWNER/MANAGER:** Mt Alexander Station and Shortlands Station  
**CONTACT PERSON:** Alan Hewitt **DATE OF INFORMATION:** July 1991  
**REFERENCES:** Comrie (1991) Hewitt (1990)

**(299) Pisgah**

**REGIONAL/CITY COUNCIL(S):** Otago **ECOLOGICAL DISTRICTS(S):** 65-02 Dansey  
**LOCALITY and GRID REFERENCE:** 45 km W of Oamaru I41 060660

Appendix 3: Federated Mountain Club submission

**HIGH COUNTRY  
CONSULTANCY**

DEPT OF CONSERVATION  
OTAGO CONSERVANCY  
  
11 MAR 2004  
  
RECEIVED

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11 March 2004

Tony Perrett  
High Country Tenure Review Manager  
Department of Conservation  
PO Box 5244  
DUNEDIN

*Donee  
to note*

CONS	
A.M.	
C.R.M.	
B.S.M.	
T.S.M.	
H.R.A.	
H.C.T.R.M.	<i>[Signature]</i>
K.A.M.	
OTHER	

Dear Tony

**Re FMC Reports on Recreation and Related Significant Inherent Values  
on Pisgah Downs and Mt Dasher Stations**

*PPC 11-014-216 P/L 10-014-30*

FMC has been preparing Reports on the recreational and conservation values of properties which were introduced as new entrants to the Tenure Review process at an 'Early Warning' meeting in September 2003. These Reports are a more detailed account of the recreational and related significant inherent values than was given in the earlier brief notes.

FMC have conducted inspections of some of these properties, and where this has not been permitted by the runholder we have carried out an academic study of the property from the literature, from maps and from any other information available to us. We wish to thank the Crown Agents for their efforts to make the appropriate access arrangements with lessees where this was possible, to facilitate these inspections. In other cases, where access has been denied, it is unfortunate that Reports have had to be written without the benefit of detailed on-site information.

We now enclose our Report on Pisgah Downs and Mt Dasher Stations which are the next two Reports of the series for the 2003 - 2004 round. The lessee of Pisgah Downs was most helpful to us, while the lessee of Mt Dasher has consistently frustrated access for most NGOs. The Commissioner of Crown Lands has been informed of these problems, but a reply from the Crown Property Manager was less than helpful in improving the access problem for NGOs.

These Reports are offered as the FMC contributions to the statutory consultation process undertaken by the Department. We hope that this Report will be helpful to you in developing tenure review proposals for Pisgah Downs and Mt Dasher. We look forward to commenting on the Preliminary Proposals in due course.

Yours sincerely

*Michael Floate*

Dr Michael J S Floate  
FMC High Country Tenure Review Co-ordinator, Otago/Southland

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PASTORAL LEASE TENURE REVIEW

Preliminary Report on  
Recreational and Related Significant Inherent Values

Mt DASHER

March 2004

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

**RECREATIONAL AND RELATED SIGNIFICANT INHERENT VALUES  
ON Mt Dasher**

**A Report to FMC based on map and literature research  
to assist in the Crown Pastoral Lease Tenure Review Process**

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Map showing the preferred allocation of conservation and freehold land (green and red outlines respectively) and important recreational access routes (yellow)	
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Fig. 1 This zig zag track leads to Trig 'B' (or Obi) at 1,425m which is the highest point on the back boundary of Mt Dasher pastoral lease. Its recreational importance lies in its location at the southern end of the Kakanui Mountains, and on a legal road from the Pigroot (SH 85), over Obi, Siberia Hill, Scout Hill and Mole Hill to the Kakanui and Waitaki River Valleys.

Fig. 2 The generally high, rolling landscape of the Kakanui peneplain (Hectors Plateau) includes prominent volcanic basalt outcrops such as Mt Dasher (D), Kattothyrst (K) and Siberia Hill which are focal points for recreation in North Otago. It will be important in the tenure review of Mt Dasher and other neighbouring properties to ensure public access to these places of greatest interest and attraction for recreation.

Fig. 3 This view is from Obi, northwards to the Kakanui Mountains and could be the start of a challenging traverse to Danseys Pass. It shows the high ground at the western end of Mt Dasher pastoral lease which lies above about 1,100m and drains to Deep Creek and the North Branch of the Kakanui River. It is most unlikely that this country can be managed in a way that is ecologically sustainable and it would be better assessed on the basis of its inherent natural and landscape values.

Fig. 4 Half Moon Spur (M) centre right, in the middle distance, leads to Mt Dasher (D), while to the left is Grassy Ridge (G) and further to the left, on the skyline, is Siberia Hill (S). These features dominate the landscape seen from the North Otago downlands. The lower slopes of these spurs, below about 1,000m, have been modified by farming practice while the higher ridges are still in a less modified and semi-natural state.

Fig. 5 The high country, especially that above about 1,100m is less modified and more nearly in its natural state, like this plateau area near Obi, with the dominant natural feature of the volcanic mass of Mt Dasher in the background (left) and the conical intrusion of Kattothyrst (right).

Fig. 6 The Hectors Plateau is a gently rolling inclined peneplain which stretches from the Kakanui Mountains to the North Otago downlands. Access to this plateau area is from the west (over Obi) or from the east, beyond the Mt Dasher homestead, or from Mt Stalker and the legal road up the Cayenne Spur shown in this view from Mt Stalker. Lateral access points such as this are important for recreation and underline the importance of taking a broad view of the overall outcomes of tenure review and the emerging network of recreation opportunities. Outcomes should be considered collectively rather than individually.

Fig. 7 There are opportunities for extended tramping and skiing trips along the length of the Kakanuis. Trampers are seen here traversing between Kakanui Peak (on Balmoral) and Obi (on Mt Dasher). Extended trips on the Kakanuis are also possible on skis in some seasons. These offer a greater variety of gradient and terrain than most other Central Otago block mountain ranges.

Fig. 8 The most important public access route on Mt Dasher is the legal road from Obi to the homestead. The actual road formation does however, deviate from the legal alignment, so to secure public access (as required by the CPL Act 1998) the actual formation should be formally recognised as the legal road as part of the tenure review process.

Fig. 9 There are currently 9 pastoral leases in the tenure review process along the Kakanui Range. If successful outcomes are negotiated this could lead to public access along a grand traverse from the Horse Range to Danseys Pass. This underlines the importance in considering the collective outcomes of a number of reviews rather than dealing with each review in isolation. Opportunities are opening up for continuous travel along the tops with side trips to places of interest and to destinations such as Danseys Pass.

Fig. 10 In previous reports FMC has advocated access to the North Otago high country from a number of relevant pastoral leases under review. One example is access from Kinross, across Glencoe and the Waianakarua River to Mt Stalker and The Dasher to Mt Dasher. If wise decisions are made now, a wide range of recreational opportunities will be available for future generations of New Zealanders to enjoy the outdoors.

Fig. 11 Although somewhat depleted in terms of its tussock stature, the plant community in the RAP identified during PNA surveys in the 1980s does contain a wide range of sub-alpine species including *Drachophyllum* and *Celmisia* together with other high altitude plants including *Coprosma* and *Luzula* spp. Because of their significant inherent values these are worthy of protection by return to full Crown ownership and control.

Fig. 12 Among the rocky crevices and upper slopes of eroded areas and screes there are natural rock gardens including such interesting plants as the southern Edelweiss. Natural features such as this certainly add to the interest and enjoyment of the recreational experience of traversing the Kakanui Mountains.



RECREATIONAL AND RELATED SIGNIFICANT INHERENT VALUES

ON Mt DASHER

INTRODUCTION

This report has been prepared following the Early Warning Meeting in September 2003 at which the properties to be reviewed in 2003 - 2004 were introduced. Some notes were provided at that time and this report is a more detailed follow up to those notes. The report is offered as a contribution to the statutory consultation process undertaken by the Department of Conservation.

An inspection of the property was planned for January 2004 but permission was not granted by the runholder. This report is therefore written without the benefit of detailed on-site knowledge, but instead is based on knowledge gained from visits to neighbouring properties, and from other sources of information as described below.

The report focuses on those features of Mt Dasher which are important for public recreational interests. It should be noted that while interest focuses on access, the natural values and landscapes of the property have an important influence on its recreational value and greatly affect the quality of recreational experience enjoyed. It is for this reason that reference is also made to natural and landscape values in this report. The landscapes and views to be had from the vantage points on Mt Dasher and neighbouring properties are outstanding and add greatly to the enjoyment of traversing this property. Legal roads across the property could provide access to the volcanic peaks of what Mason (1988) refers to as 'Hectors Plateau' and to the Kakanui Mountains.

Mt Dasher is a medium sized pastoral lease of just over 7,000ha situated on the eastern side of the Kakanui Mountains, stretching out across the 'Hectors Plateau' to its highest point at Trig 'B' or Obi at the southern end of the Kakanui Mountains (Fig. 1). The Mt Dasher homestead is situated on a freehold block at about 400m, some 5km east of the pastoral lease boundary, on Mole Hill Road. The pastoral lease includes the prominent volcanic features of Mt Dasher and Kattothyrst (Fig. 2) which are intrusions into a gently rolling greywacke plateau, sometimes known as the 'Hectors Plateau'. Mt Dasher pastoral lease is located between other properties currently in the tenure review process - Balmoral to the north, The Dasher to the south, and Shingley Creek (over the Kakanui Mountains) to the west.

The government has recently declared as one of its new objectives for the high country: *"to progressively establish a network of high country parks and reserves"* (EDC Min (03) 5/3; CAB Min (03) 11/5). This has now been further qualified by the Cabinet Business Committee which noted "that DOC has identified 15 to 20 areas in the high country that could be recategorised as conservation parks in the long term." It was further noted that *"the area generally should be at least 10,000ha in size."* (CBC Min (03) 10/3). This is noted in this Report because it seems very likely that The Kakanui Mountains could be considered as one such conservation park, and that collectively all the leases under review could easily contribute an area of appropriate size.

It is important too that a broad view of the overall outcomes of tenure review should be taken as each lease is reviewed, and consideration should be given to the emerging network of recreation opportunities. Currently, a group of some 9 adjacent properties on the Kakanui Mountains are under review. Attention should be paid to the emerging network of recreational opportunities and outcomes should be considered collectively rather than individually. Recreational use in the future will depend on decisions made now, so it is important that adequate provision is made for public access and enjoyment during the tenure review of Mt Dasher and the neighbouring properties. Similarly, it is also important that outcomes regarding potential new conservation parks should be considered collectively rather than individually (see section on Mt. Dasher in the context of the wider Kakanui area).

METHODS OF SURVEY AND ASSESSMENT

It was explained above that a site inspection was planned but in the event did not prove acceptable to the runholder. It is therefore unfortunate that this Report is written without the benefit of detailed on-site knowledge. Instead it is based in part on knowledge gained from visits to neighbouring properties, and on

information gathered from other sources. Those sources include publications and accounts by members of local tramping and outdoor recreation groups that have been consulted about trips undertaken in the Kakanui Mountains area. A study of "Outdoor Recreation in Otago" was undertaken by Mason (1988) and published by the Federated Mountain Clubs of New Zealand (FMC). Reference is made to this recreation plan for Otago in the discussion below. Land Use Capability (LUC) maps have been used to assess the extent of soil types and their significance with respect to sustainable pastoral use. The Conservation Management Strategy for Otago, and the Protected Natural Area (PNA) survey report on the Dansey Ecological District have also been used as a sources of reference.

### GENERAL DESCRIPTION OF Mt. DASHER

Mt Dasher pastoral lease is located in North Otago on the eastern side of the Kakanui Mountains, some 20km north west of Maheno. The property covers some 7,000ha and extends from a high point at 1,425m at Obi (Fig. 2) on the Kakanui Mountains at its south western corner, and drops (over some 20km) to about 400m where the South Branch of the Kakanui River exits the property. The back boundary (Fig. 3) is about 30km from the homestead and there are over 80km of tracks on the property.

Most of the pastoral lease is within the catchment of the South Branch of the Kakanui River although much of the land on the true left of this river (north from the foot of Grassy Ridge) is on the neighbouring property, Balmoral. The high ground at the western end of the property (Figs. 2 and 3) including the prominent volcanic basalt features of Mt Dasher (1,304m), Kattothyrst (1,293m), and that part of Mt Dasher pastoral lease which lies northwest of Half Moon Spur, drains by way of Deep Creek into the North Branch of the Kakanui River. Deep Creek also forms the boundary with Balmoral Station.

Most the land below about 1000m (east of a line between Half Moon Hut and Mitchells Hut) has been improved by fencing, oversowing and topdressing (Fig. 4). Incidentally, Mitchells Hut is named after Ron Mitchell, the long-time runholder between 1919 and 1953. By contrast, much of the land west of that line and extending up to more than 1,400m at Trig 'B' or Obi (Fig. 1) has not been greatly modified by farming practices and is in a more nearly semi-natural state (Fig. 5). This area is dominated by its natural landscape including the prominent volcanic basalt features of Mt Dasher and Kattothyrst (Figs. 2 and 5) which form the core of an area recognised by Protected Natural Area (PNA) Programme as a Recommended Area for Protection (Dansey RAP 5). Part of this RAP extends on to The Dasher pastoral lease, and in the FMC report of that property it was recommended that it should be returned to full Crown ownership and control to be managed for conservation and recreation purposes.

FMC understands that some 1,000ha of the property, including the volcanic areas of Kattothyrst and Siberia Hill may now be protected under a QE II Covenant. FMC is not at all clear where the boundaries of this covenant area are, or what are the terms and conditions of the covenant. It is understood that the covenanted area may include some of Quinns Creek but exclude Mt Dasher itself. If this is so, the protection area seems less than adequate. Recommendations below are made without regard to this alleged covenant arrangement.

### LAND RESOURCES OF Mt. DASHER

Most of the steeper land in the catchment of the South Branch of the Kakanui River, below about 1,000m, is characterised by Hurunui Steepland Yellow Brown Earth soils on greywacke parent materials. These soils and the associated High Country Yellow Brown Earth Kirkliston Hill soils (for example on Grassy Ridge, Fig. 4), and Kakahu Yellow Brown Earth soils on the downlands have been classified in Land Use Capability (LUC) Class IV or VI, with high to medium suitability for pastoral use. With appropriate maintenance to replenish soil nutrients removed in animal products (meat and wool) these areas should be capable of being managed in a way that is ecologically sustainable (CPL Act S24 (a)(i)). Disposal as freehold may therefore be appropriate.

The higher ground in the upper catchments of both the North and South Branches of the Kakanui River, above about 1,000m is dominated by Brown Granular Loam Saddle Hill soils on the basalt outcrops and High Country Yellow Brown Earth Kaikoura Steepland soils on the surrounding greywacke plateau country (Figs. 1 and 3). These soils are all classified LUC Class VIIe, with severe limitations for pastoral use.

In order to be managed in a way that is ecologically sustainable in the long term, as promoted by the CPL Act 1998, any losses of essential nutrients in animal products and by burning must be replenished. The alternative is that sooner or later the ecosystem will be depleted and degraded. High country LUC Class VIIe land may not be capable of being managed in a way that is ecologically sustainable because it may not be economically justifiable to replenish (in the form of fertiliser) the nutrients (especially sulphur) 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 need to be assessed and considered as an alternative to unsustainable pastoral use.

On Mt Dasher pastoral lease the areas characterised by Kaikoura and Saddle Hill soils (LUC Class VIIe) are almost certainly better retained in full Crown ownership and control to be managed by the Department of Conservation for conservation and recreational purposes. This corresponds to the FMC recommendations for similar soils on the adjoining property – The Dasher.

### RECREATIONAL USE AND POTENTIAL NEW OPPORTUNITIES

The recreational importance of Mt Dasher lies in its situation near the southern end of the Kakanui Mountains, and in the presence of the outstanding natural landscape features of the prominent basalt outcrops of Mt Dasher, Kattothyrst and Siberia Hill (Figs. 2, 4 and 5).

Mason (1988) notes with respect to recreation in the Kakanui Mountains that *“tramping activity tends to be concentrated on the forested Waianakarua catchment with its deeply dissected ridge and valley system.”* He also notes that *“over the greater area of the Kakanui Mountains there is less frequent tramping activity. Features such as the volcanic caps of Siberia Hill and Kattothyrst, and the high points of Kakanui Peak and Mt Pisgah are the more usual attractions. Winter snow cover provides another dimension, particularly for ridge climbs from the Pigroot. When snow cover is sufficient, extended ski tours on variable terrain are possible from Obi in the south along the main crest to Dansey’s Pass. This is a distance of over 35 km. The crest is relatively narrow with greater variations in gradient than is found on most Central Otago ranges [Fig. 7]. The crest is suitable for both cross-country and alpine ski touring in the right conditions.”*

Recreational use of Mt Dasher has been relatively light in the past although it has very considerable potential. There is some use by local pig hunters and other users include local trampers with a focus on the Hectors Plateau, Kattothyrst and Mt Dasher itself (Fig. 2). With increased knowledge of the area and improved access through tenure review, it is likely that usage by walkers and mountain bike enthusiasts will increase.

There is an important legal road which roughly follows the southern boundary of Mt Dasher (the northern boundary of The Dasher) from Trig ‘B’ or Obi (on the Kakanuis) over Siberia Hill to Mitchells Hut and beyond (Fig. 8). The continuation traverses Scout Hill and Mole Hill and eventually connects with Mole Hill Road, and Dunrobin Road, thence leading to the Kakanui Valley near Five Forks. This is an important recreational route over which public access should be secured in order to fulfil the requirements of the CPL Act 1998.

The actual alignment of this formed track across Mt Dasher pastoral lease should be checked against the legal alignment and where there are discrepancies, the actual formation should be formally recognised as the legal road, as part of the tenure review process.

Another important (or potentially important) recreational route (although not in this case a legal road) leads from the yards near Scout Hill (Map Reference NZMS 260 I41 195.638) down and over the South Branch Kakanui River and up onto Half Moon Spur, and thence to Half Moon Hut and Mt Dasher (Fig. 4). An easement for public access by foot, mountain bike and horse would be a very valuable outcome of this tenure review. Routes lead out across neighbouring properties, most of which are also in the tenure review process. The legal road from Mt Stalker, via Cayenne Spur that links with the Obi to Siberia Hill road is a good example of such links across neighbouring properties (Fig. 6). This highlights the importance of considering the outcomes of this tenure review in the wider context of the whole range of Kakanui Mountains and recreation opportunities generally in North Otago (see next section).

Local tramping clubs from Dunedin, Central and North Otago also use the Kakanuis and the Hectors Plateau from time to time, with access being both from the Pigroot side and from North Otago. With tenure reviews in progress on several neighbouring properties (see those listed in the introduction and in the next section) an increasing number of through trips over and along the range are becoming possible. The area is also well suited to mountain bike and horse riding, and in some seasons for cross country skiing and ski touring. It is likely that with increasing pressure and demand for new recreational areas, and increasing knowledge of this area, together with improved access, usage will increase following the completion of these tenure reviews.

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

An increasing problem for people wishing to make trips involving overnight stays in the backcountry is security of car parking at road ends. Consideration should be given during the tenure review process to making provision for car parking, where possible off highways, and in the most secure places possible near the start of new easements over land which becomes freehold through tenure review. In the case of Mt Dasher, it would be very helpful if off-road parking could be provided at the yards near Scout Hill (Map Reference given above) as this would provide for a round trip including Half Moon Spur, Mt Dasher, Kattothyrst, and Siberia Hill, returning via Mitchells Hut. It would also serve longer trips along the Kakanui Range.

In summary, this assessment indicates that there is considerable scope for increased recreational use of the Kakanui Mountains and the Hectors Plateau if easier access over Mt Dasher becomes available through tenure review. Predominant uses would be for tramping, mountain bike trips and horse riding, and the possible use of the Kakanui Mountains for cross country skiing or ski touring in some seasons, as well as use by local pig hunters. In the longer term, the development of a classic traverse (in either summer or winter) along the range to Danseys Pass is envisaged.

#### Mt. DASHER IN THE CONTEXT OF THE WIDER KAKANUI AREA

An important part of the tenure review process which is sometimes overlooked is to consider the property in question in relation to recreational and other related public interest values and accessways on neighbouring properties. Where neighbouring properties are also undergoing tenure review, an overview should be taken of the outcome of the review in the context of the wider network of possible recreational opportunities over the entire geographic area.

Mt Dasher is situated in an area where a number of other tenure reviews are in progress. These include The Dasher and Mt Stalker to the South, Islay Downs and Shingley Creek to the West and Balmoral, Dome Hills, Pisgah Downs, Ben Ledi and Mt Alexander to the North. Mt Dasher and The Dasher can provide access to the Hectors Plateau and up to the Kakanui Mountains at Obi, thus allowing exploration of the interesting basalt volcanic peaks on the Hectors Plateau, as well as to the main Kakanui Mountains including Obi, Kakanui Peak and Mt Pisgah. Other pastoral leases are involved along the Kakanui Mountains and these include Clover Flats and Dome Hills. A significant area, formerly part of Longlands, is now conservation land. Still further to the north but closely associated in the recreational context are Ben Ledi and Mt Alexander, all of which are at various stages of tenure review, and could eventually provide continuous access along the range to Danseys Pass (Fig. 9).

It is important that, as a matter of principle, a broad view of the overall outcomes be taken as each pastoral lease is reviewed and that consideration is given to the emerging network of recreation opportunities. Recreational use in the future will depend on decisions made now, so it is important that adequate provision is made for recreation and public access. This case was made by FMC in the report on the Recreational and Related Significant Inherent values of Mt Stalker (February 2002), and The Dasher (July 2003).

Similarly, in its commentary on the tenure review of Kinross (March 1997), FMC recommended that public access for foot and mountain bike use should be negotiated over the route along the track to Conical Peak, and on to Bells Saddle and Mt Miserable (on Glencoe). It was also recommended that public access down the track from Conical Hill to the Waianakarua ford crossing (to Mt Stalker) should be negotiated (Fig. 10).

In the Report on Glencoe Run it was stated: "*The Waianakarua Scenic Reserve is an important recreational area for local clubs in Otago and there are walking tracks in the remnant strips of native bush in the gullies within Herbert Forest. Because of the proximity of these other opportunities, and because of the new opportunities which may emerge from the Kinross review, the recreational opportunities on the Glencoe Run take on a new perspective. For example, through trips via Bells Saddle to Conical Peak on Kinross and side trips to Prominent Peak in the Waianakarua Scenic Reserve offer interesting extensions to the trip up to Mt Miserable.*"

With reference to the tenure review of Islay Downs in 1997 it was stated that: "*There are very high recreation and landscape values along the tops from Kakanui Peak to Obi [Fig. 7] and on the steep faces east and west of the main ridge. Much of the steep land is LUC Class VIIe and VIII which cannot sustain pastoral use and should be transferred to DOC.*"

FMC has recently reported in relation to Shingley Creek (April 2003) that: "*Public access to and over Shingley Creek is also important because the outcomes of these other tenure reviews are likely to provide opportunities to plan for through trips from the Pigroot to Danseys Pass and the Kakanui valley in the foreseeable future. This tenure review of Shingley Creek needs to bear in mind all these possible future possible options, and to make appropriate decisions to facilitate recreational opportunities for the future*".

The above commentaries and recommendations well illustrate the need to consider the wider implications of tenure review on one property, and set the review of Mt Dasher in the wider context of North Otago generally.

FMC therefore argues that ensuring public access to and across Mt Dasher, to the Hectors Plateau including Kattothyrist and Mt Dasher itself, and Kakanui Mountains beyond is the key issue in this tenure review.

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

This report focuses on those features of Mt Dasher which are important for public recreational interests. It should be noted that while access is important, the natural values and landscapes of the areas concerned have a fundamental impact on the recreational value of the place and greatly influence the quality of recreational experience enjoyed. It is for this reason that reference is also made to both natural and landscape values of this pastoral lease.

The most outstanding natural feature of Mt Dasher is its landscape. As seen from the downlands of North Otago it forms the western skyline (Fig. 4). In winter it is covered in snow which adds to its stature. Seen from Scout Hill the panorama from Mt Difficulty in the east, the penneplain running up to Siberia Hill, and then the mostly rounded summits of the Kakanui Mountains, is a very impressive scene which is fundamental to any recreational experience in the area.

A large part of Mt Dasher pastoral lease, below about 1,000m and east of Half Moon Hut has been much modified by pastoral farming and land development over the years. It is probable that with the possible exceptions of shrublands in Quinns Creek and the gorge of the South Branch Kakanui River, few areas of even semi-natural vegetation remain in this area. (Note that this could not be checked out in the field as FMC was not permitted to inspect this property).

By contrast, there is a significant area in the higher and western part of the pastoral lease including Siberia Hill, Kattothyrist and Mt Dasher itself which is still largely unmodified (Figs 1, 2 and 3). This area, which lies between about 1,000 and 1,400m is strongly influenced by the underlying basalt volcanic rock on which the Saddle Hill Brown Granular Loam soils are developed. This area has been classified LUC Class VIIe, with severe limitations for pastoral use. On the other hand, its inherent natural and landscape values are

high. In fact this area is part of the more extensive landscape which was identified by the PNA surveys of the 1980s as Dansey RAP 5. This will be described in more detail in the next section.

These landscapes and geological features (Figs. 1, 2 and 3) are of great interest to the public, and are indeed the very features which attract recreational users to the area.

On the Hectors Plateau, and between the basalt outcrops is the area characterised by Kaikoura Steepland soils developed on greywacke where both landscape and inherent natural values are also significant. This area is however prone to erosion and carries a depleted tussock grassland. Although depleted in terms of its tussock stature, the plant community does contain a wide range of sub-alpine species including *Drachophyllum* and *Celmisia*, together with other high altitude plants including *Coprosma*s and *Luzula* spp. (Fig. 11).

Along the back boundary the altitude increases to 1425m at Obi (Trig 'B') and particularly on the road up the south face to the summit there are superb natural rock gardens including such interesting plants as the southern edelweiss (Fig. 12). Although this road is actually on the boundary between Shingley Creek and Mt Dasher, such natural features certainly add to the value of the recreational experience of traversing the wider environs of the Kakanui Mountains.

### RECOMMENDED AREAS FOR PROTECTION (RAPs)

The PNA Programme carried out surveys of the Danseys Ecological District in the late 1980s and identified two Recommended Areas for Protection identified as RAP 4 and RAP 5.

The RAP 4: Hectors was described by the PNA Programme as follows:-

*"RAP 4 (Hectors) includes three discontinuous forest remnants within the catchment of Hectors Creek, a tributary of the Kauru River that drains the "volcanic plateau" area to the east of the Kakanui Mountains. One of these remnants is located within the Mt Dasher pastoral lease. Hectors Creek has cut deeply into the bedrock leaving a valley of steep planar sideslopes and broadly rounded intervening ridges. Where rock outcrops do occur, mainly on the steep valley sides, they are jagged but of low relief."*

*"Hectors Stream catchment contains scattered pockets of mixed broadleaved forest, confined mainly to steep shaded gullies and lower slopes. The forest canopy is predominantly broadleaf marbleleaf, lemonwood and lancewood as well as some kowhai and ribbonwood. Occasional trees of Hall's totara are scattered throughout the lower slopes of the forest. Common species in the mainly open understorey include Coprosma and Helichrysum with patches of tree nettle. Regeneration of canopy species is densest on steep banks and in damp hollows."*

*The discontinuous forest remnants are separated by shrubland patches and tussockland. The shrubland is mainly Coprosma and mountain flax. Near the forest edge small trees of lancewood, cabbage tree and broadleaf are common amongst the scrub."*

*Tussockland is extensive above the forest and shrubland. Fescue tussock is the dominant species. Browntop, sweet vernal, catsear and mouse-eared hawkweed are widespread. Narrow-leaved snow tussock is locally common on shady faces and hollows."*

*These forest remnants were recommended for protection by the PNA Programme because the area once covered by forest has been reduced substantially from its previous extent by fires. The Hectors Creek forest remnants are in good condition, with a largely closed canopy and healthy regeneration of forest species."*

In summary, RAP 4 was ranked high or medium for the criteria representativeness, diversity, naturalness and viability. Special features and buffering are the only criteria which rank low so the area has very high inherent values and should be included in the area to be returned to full Crown ownership and should in future be managed for conservation purposes.

RAP 5 covers part of an extensive, gently inclined mountain top situated to the east of the main range of the Kakanui Mountains, described as the Hectors Plateau. Bedrock is primarily schist overlain in places by a cap of

volcanic rock. Siberia Hill, on the boundary between The Dasher and Mt Dasher is one of the largest volcanic masses of the Dunedin Volcanic Group outside of the Dunedin volcano. Siberia Hill is also one of the exceptions of the East Otago peripheral vents in that it has distinct lava flows overlying one another. The small vent of Kattothyrist is more typical of the outlying vents in this group.

*"Tussockland of slim snow tussock and narrow-leaved snow tussock is extensive on the broad gentle slopes of the volcanic plateau, particularly on ridge crests and upper slopes. The tussock is mainly less than 1m tall with a dense inter-tussock cover of small herbs and grasses. Small patches of red tussockland are common and bog rush is extensive, particularly at mid slope. More extensive red tussocklands occur on the gently inclined east-facing slopes at the northern end of Cayenne Spur and in depressions to the south and east of Mitchells Hut. The daisy, *Celmisia haastii*, is associated with these extensive areas of red tussockland. The wetlands on the flat top of Siberia Hill and on the saddles between lava residuals comprise large areas of cushion bog and *Carex*-dominated sedgeland.*

*The extensive basalt boulderfields on the slopes of Mt Dasher and Siberia Hill have little vegetation apart from lichens and mosses. However, shrublands are common on the margins and in sheltered places between the boulder streams. Common shrubs are snow totara and hebe with occasional small patches of mountain toatoa on both Mt Dasher and Siberia Hill, with the locally distributed, threatened daisy *Celmisia hookeri* on the southern slopes of Siberia Hill.*

*Boulderfields are a feature of several other volcanic outcrops in eastern Otago, but the ones in this RAP, particularly those on Mt Dasher, are visually spectacular. In addition, in the Dasher RAP, there are subalpine shrub species not found in other east Otago boulderfields such as mountain toatoa and *Brachyglottis cassinioides*."*

In summary, RAP 5 was ranked high for the criteria representativeness, diversity, naturalness and viability special features, viability and buffering. Threat is the only criterion which ranks medium or low so the area has very high inherent values and should be included in the area to be returned to full Crown ownership and in future be managed for conservation purposes.

### **AREAS TO BE PROTECTED**

The following areas are recommended for return to full Crown ownership and control, to be managed for conservation and recreation purposes.

(i) The two areas recognised by the PNA Programme were both ranked highly for the important criteria of representativeness, diversity, naturalness and viability. As such these areas must qualify as having significant inherent values and will satisfy the recently declared government objective "to ensure that conservation outcomes for the high country are consistent with the NZ Biodiversity Strategy".

(ii) That land situated to the west of RAP 5, between about 1,000m and the highest point on the property, Obi or Trig 'B' on the Kakanui Mountains should also be protected because of its own significant inherent natural and landscape values and to conform with neighbouring lands which have also been recommended for return to full Crown ownership for similar reasons.

These areas could be conveniently enclosed within fencing from the northwestern boundary to the southeastern boundary of the pastoral lease between Three Brothers Rocks and Scout Hill. Much of this fencing already exists and little new fencing would be required.

These areas are included within the area indicated on the map which follows page 12.0

### **ACCESS REQUIREMENTS**

From a recreation perspective, access across Mt Dasher pastoral lease to the Kakanui Mountains and the volcanic features of the Hectors Plateau, and the opportunity to enjoy the special natural and landscape features of these areas are the most important issues in this tenure review.

The legal road from Obi (or Trig 'B') to Mole Hill Road is of particular importance in this regard. It is likely that the actual road formation does not precisely coincide with the alignment of the legal road, thereby making problematical its use by the general public, and failing to satisfy the access requirement of the CPL Act. This situation needs to be resolved during tenure review. The preferred solution would be formal recognition of the actual road formations as the legal alignment.

Formal recognition does not necessarily mean designation for vehicle use. It is however, most important that secure public access for foot, mountain bike and equestrian use be obtained as an outcome of this tenure review in order to satisfy the requirements of the CPL Act 1998.

The other access route which will become increasingly important for public recreation is the track from the yards near Scout Hill (Map Ref. 195.638) down and over the South Branch Kakanui River and up to Half Moon Spur, and thence to Half Moon Hut and Mt Dasher.

### **OTAGO CONSERVATION MANAGEMENT STRATEGY**

In the Otago Conservation Management Strategy for Otago (CMS), the Kakanui Mountains are recognised as a Special Place. The objectives for this Special Place are: *"to maintain the natural resources contained within the existing protected areas on the Kakanui Mountains while taking opportunities that may arise through pastoral lease tenure review to negotiate protection of and access to areas of high natural and recreational value."*

The CMS states that these objectives will be implemented by methods including:

- *"Foot access negotiated at key points for the public to areas managed by the Department, with public vehicular access having a lower priority.*
- *Protection of key areas for natural and historic resources will be sought through pastoral lease tenure review negotiation opportunities"*.

It should also be noted that the priority for the Kakanui Mountains Special Place is that *"in this Special Place, tenure review negotiations and wilding pine control will be the priority method for implementing the objective during the course of this CMS."*

It is clear from this statement of priorities that DOC is committed to achieving its objective for the Kakanui Mountains Special Place through the tenure review process, and that significant progress would be made towards the objective if these outcomes can be successfully negotiated.

### **CONCLUSIONS**

Significant conservation and recreation gains are possible outcomes of this tenure review. FMC recommendations for outcomes from this tenure review are as follows:-

1. Although the current recreational use of the Kakanui Mountains is relatively light, there is considerable potential for increasing recreational use of the range and the Hectors Plateau by trampers, mountain bike users and horse riders, also by hunters, and in some seasons in winter by skiers along the main range, perhaps as far as Danseys Pass. Potential as well as actual use should be considered as part of this review.
2. There is a significant area of improved pasture land below about 1,000m with Hurunui Steepland and Kakahu Yellow Brown Earth soils classified as LUC Classes IV and VI on Mt Dasher which is probably capable of being managed in a way that is ecologically sustainable so it is therefore likely to be suitable for freeholding.
3. Secure public access to the Hectors Plateau (including Mt Dasher and Kattothyrst) and the Kakanui Mountains over the legal road from Mole Hill to Obi (Trig 'B') which traverses Scout Hill and Siberia Hill needs to be confirmed through this tenure review. The preferred solution would be formal recognition of the actual road formation as the legal alignment.



4. There is a significant area on the Hectors Plateau covering some 1,600ha which was recognised by PNA surveys as Dansey RAP 5. Some two thirds of this area, including Kattothyrst, Siberia Hill and Mt Dasher are located within the Mt Dasher pastoral lease. The area is characterised by volcanic outcrops and basalt-derived Saddle Hill soils which are classified LUC Class VIIe. As discussed above, this area cannot be managed sustainably but it does have unique natural and landscape values. Because of its significant inherent values and in order to conform with the NZ Biodiversity Strategy, this part of the volcanic plateau should be returned to full Crown ownership and managed for conservation and recreation purposes.
5. There is an area to the west of RAP 5 which is characterised by Kaikoura Steepland soils and which therefore has severe limitations for pastoral use. This area can almost certainly not be managed in a way that is ecologically sustainable (for reasons explained above) but it has significant inherent natural and landscape values which are worthy of protection. This area should also be returned to full Crown ownership and control and be managed for conservation and recreational purposes.
6. The tenure review of Mt Dasher should be carried out with full consideration given to tenure reviews proceeding on nearby properties, and the probable outcomes of those reviews. It is important that an overview is developed now for the entire network of recreational opportunities on the Kakanui Mountains and the Hectors Plateau. It is important that decisions taken for Mt Dasher are appropriate in relation to recreational opportunities which may become available through these other reviews.
7. The Draft CMS for Otago states that the objective for the Kakanui Mountains Special Place is "*to maintain the natural resources contained within the existing protected areas on the Kakanui Mountains while taking opportunities that may arise through pastoral lease tenure review to negotiate protection of and access to areas of high natural and recreational value.*" This statement demonstrates DOC's commitment to tenure review and shows that the objective for the Kakanui Mountains Special Place could be significantly advanced by the negotiation of good outcomes on Mt Dasher.

#### ACKNOWLEDGEMENTS

It is unfortunate that despite the good offices of Opus International Consultants, it was not possible to arrange an inspection of Mt Dasher. The efforts of Opus staff are acknowledged. FMC is grateful to the staff of DTZ New Zealand who also provided access to LUC maps. Local tramping clubs and others were helpful in providing accounts of trips undertaken in the area.