

## **Crown Pastoral Land Tenure Review**

**Lease name : CAMBRIAN HILLS**

**Lease number : PO 069**

### **Conservation Resources Report - Part 3**

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.

**May 07**

- 4.4 **NGO's Comments**
- 4.4.1 Southern Lakes Branch NZDA
- 4.4.2 Central Otago Deerstalkers Club
- 4.4.3 Dunedin Branch of Forest and Bird
- 4.4.4 Upper Clutha Branch of Forest and Bird
- 4.4.5 Federated Mountain Clubs (FMC)

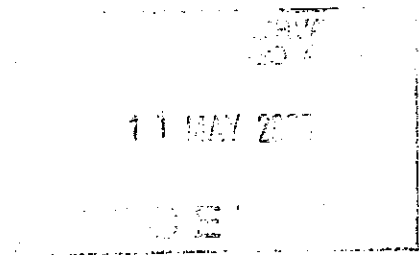
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4.4.1

Re 2004/05 Tenure review program

On behalf of the Southern Lakes branch of new Zealand Deerstalkers association like to make some comments on the current Tenure review program. The properties in question

- The Homestead (Rock and Pillar
- Carrickmore (Rock and pillar
- Patearoa Syndicate (rock and pillar
- Riverslea (Rock and pillar
- The Beeches (Rock and pillar
- Waipata Syndicate (Rock and pillars
- Leaning rock (Cromwell grge
- Moa Hills (Old man range
- Mt Grand Hawea flats
- Glenfellen (upper Mataura
- Cambrian Hills (Dunstans
- Caithness (Kakanuis
- Mt Aspiring station
- Coronet Peak



I like to make a general comment on the proces rather than individual properties  
 We are increasingly concerned about the lack of recognition given to hunting as an recreational activity  
 Access with fire arms and Dogs is still often put in the to hard basket  
 Hearing a Doc staf member mentioning the three principal ways of access as being walking Horse bac  
 Push bike is in our eyes Cutting out a big propotion of recreationalist  
 Most of the properties mentioned above do have Game animals on them Always or certain times of the  
 year.

Hunting is not only about shooting , a lot of time is spend exploring new places and looking around.

we like more recognition given to Hunting as an recreational activity and provision made where it is appropriate for Acces with firearms and or Dogs

Sincerely  
 Hans Biemond  
 Secretary Southern lakes branch NZDA

Earnsclough road rd 1  
 Alexandra

30 Earnsclough rd.  
Alexandra  
28-04-05

26

4.4.2

Department Of Conservation

RE: Tenure review

Central Otago Deerstalkers Club wish to make a submission to the last round of reviews,  
being

- The Homestead
- Carrickmore
- Patearoa
- Riverslea
- The beaches 1
- Wiapiata Syndicate
- Leaning Rock
- Moa Hills
- Mt. Grand
- Glenfellen
- Cambrian Hills
- Caithness
- Mt Aspiring Station
- Coronet Peak

We wish the Department to note our request

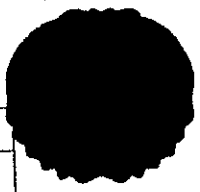
1. for good public four wheel drive access to the above blocks.
2. that permission to carry guns be met by DOC permit only
3. and dogs be allowed on those blocks

Thank You  
Alan Mackie

4.4.3

PALE 12 04 2001

(27)



15.5.05  
Dunedin Branch  
PO Box 5793  
Dunedin

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OTAGO CONSERVANCY  
**16 MAY 2005**  
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CONS	
A.M.	
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T.S.M.	
H.R.A.	
H.C.T.R.M.	Bruce
K.A.M.	
OTHER	

**FOREST & BIRD**

ROYAL FOREST AND  
BIRD PROTECTION  
SOCIETY OF  
NEW ZEALAND INC

Mr Tony Perrett  
Department of Conservation  
77 Stuart Street  
PO Box 5244  
Dunedin

Dear Tony

I enclose these very brief and I hope, to the point, preliminary submissions on Cambrian Hills and Mt Aspiring on behalf of the Dunedin Branch of Forest and Bird. I leave for UK tomorrow and have just run out of time to produce more detailed submissions. I could add some illustrations on my return on June 8<sup>th</sup> if you felt this would be helpful.

I cannot comment on Moa Hills at this stage as we have not yet been able to inspect the property and it is not one that I know well.

Thankyou for the opportunity to make submissions on these leases.

Yours sincerely

Janet Ledingham  
For the Management Committee of the Dunedin Branch, Forest and Bird Protection Society

Email [janet.ledingham@stonebow.otago.ac.nz](mailto:janet.ledingham@stonebow.otago.ac.nz)  
622 Highgate, Maori Hill, Dunedin. Phone 03 467 2960

Bruce  
Please cover this submission  
in cr/r recommendations report  
16/5

## **Preliminary submission on Cambrian Hills Pastoral Lease, May 2005.**

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

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

The submission is made on the basis of an inspection trip to the property in May 2005 and on knowledge of the area gained over many years. It is written with reference to the objectives of tenure review as set out in the Crown Pastoral Land (CPL) Act 1998, and the recently stated government objectives for the South Island high country, especially the following:-

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

### **Introduction**

Cambrian Hills consists of 3000ha lease which is bounded on the northwest by the Dunstan Range crest at point 1492 and runs along to Cluden Pass and then turns and follows the ridge crest on the true left of Shepherds Creek coming close to Dunstan peak. On its northwestern boundary below point 1492 it borders the Lauder Conservation Area and follows the line of the ridge between Donald Stuarts Creek and Shepherds Creek.

### **Landscape and ecological values.**

A section of RAP 1 covers an area from the lower reaches of Shepherds Creek and extends up to the ridge top on the true right of Shepherds Creek.

The parts of the lease on the top of the range have spectacular tors, wonderful plant communities on the tors, and herbfields and fellfields and small wetland areas with vegetation of very high inherent value as detailed in the description of the RAP 1 and this was certainly confirmed by our own observations. *Myosotis cheesemanii* was seen and edelweiss.

Shepherds Creek flows down through a very deep gorge and contains outstanding vegetation. The western branch of the Creek has spectacular waterfalls. In the higher areas there is narrow-leaved snow tussock, blue tussock, *Gaultheria depressa* and *G macrostigma*, *Hebe subalpina*,

Pentachondra pumila and Leucopogon colensoi and L depressa, much Brachyglottis cassinioides. In the lower reaches Halls totara is widespread and Corokia cotoneaster, Olearia nummularifolia, Phyllocladus alpinus, broadleaf, Coprosma propinqua, matagouri (lower down) koromiko and prominent and dense stands of Dracophyllum longifolium (between about 800-900m) are all present along with other vegetation. We saw one wilding pine only (which the lessee plans to remove) and there are a few sycamore near the Creek in the lower section.

The general impression was of a lease that has been well managed and not overgrazed and in very good condition, in contrast to one of the adjoining neighbours.

### **Recreation Values**

The lease offers scope for very rewarding tramping/botanising or just tramping excursions, up Shepherds Creek (all untracked in the higher reaches) or one of its spurs on to the magnificent tor country on the top and with the potential to go on over Cluden Pass or Dunstan Pass down into Cluden station and the Lindis Pass road.

### **Access**

Vehicle access to the top of the range is not available on the lease. There is a farm track some way up a spur above Shepherds Creek and this would be an ideal start point for a continuing track up onto the ridge top. There is also a farm track into the base of Shepherds Creek which goes past a historic hut dating from the goldmining era and also skirts Vinegar Hill diggings and this track would be needed to secure walking access to that area. The 4WD tracks across the high parts of the lease all originate on neighbouring properties and we do not see general vehicle access being desirable or possible here.

### **Tenure review outcome**

Ideally, the high country above 1100m and the whole of Shepherds Creek should be secured by the Crown. The sequence down Shepherds Creek from the tops is of great ecological significance with major inherent values.

### **Acknowledgements**

Forest and Bird would like to thank QV for arranging access and the lessee, Mr Peter Shaw for giving up his time to giving us a memorable tour of the property.

4.44

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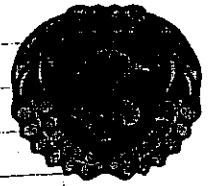
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25<sup>th</sup> May 2005

Mr Tony Perrett  
The Manager Tenure Review  
Department of Conservation  
77 Stuart Street  
PO Box 5244  
DUNEDIN

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26 MAY 2005  
  
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H.C.T.R.M.	<i>Bruce</i>
K.A.M.	ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INC
OTHER	



FOREST & BIRD

*Bruce  
Please cover in your  
final crr and  
recommendations.  
JP 30/5*

Dear Tony

**CAMBRIAN HILLS - Early Report**

This property was introduced to us at the last meeting of stake holders held in Alexandra on 23<sup>rd</sup> September, 2004, and again discussed on 12<sup>th</sup> April 2005.

We would be pleased if you would accept this report on Cambrian Hills from our branch of the Forest and Bird Society.

We have inspected the property with the help of Mr Ian Harvey of Quotable Values in Dunedin, who arranged the introduction, and with the help of Mr Shaw the lessee of the property who took the time to show us around the property. We wish to take the opportunity of thanking him for doing so.

**1.0 General Description.**

- This is a medium sized run situated on the south side of the North Dunstan Mountains.
- Being on the south side of these mountains it is cooler and wetter than the northern side.
- It appears to have been moderately farmed and the bulk of the property is still in one block, with only the lower eastern slopes being developed by fencing into smaller blocks, over sowing and topdressing.
- The back 20% of the property drains into the Lindis River catchment, the rest into the Manuherikia catchment.

**2.0 Inherent Conservation Values.**

- The landscape values in Cambrian Hills are of considerable importance. It is seen by travellers on the Alexandra to Ranfurly road as the northern boundary of the Upper Manuherikia Basin. The hill slopes of tussock are still intact in appearance without roads, tracks or fence lines.
- DUNSTAN - RAP A1 of the North Dunstan Ecological district lies within the lower part of the Shepherds Creek catchment. This is still mostly unmodified tussock country with woody shrubs such as corokia, hebe, coprosma, mountain totara and halls totara being present to mention but a few.
- The higher part, on the southern side of the run lie next to the Lauder Tussock Conservation Area (See photos # ) and carry a similar tussock and vegetative cover to that area although on the eastern side of this higher ground under Dunstan Peak the tussock

UPPER CLUTHA BRANCH  
C/- PO BOX 38 · LAKE HAWEA · CENTRAL OTAGO 9192



cover is thinner.

### **3.0 Recreation.**

3.1 When access becomes available through this property to the Lauder Tussock Reserve, it will open up the top of the North Dunstan Mountains for walking, nature appreciation, photography and in the winter skiing.

### **4.0 Comments and Discussion.**

4.1 The Conservation Management Strategy for Otago in its Objectives for the North Dunstan Mountains, states:

*To extend protection in the area to cover the remaining higher altitude areas of nature conservation importance, and to secure appropriate public access.*

Again in its Priorities for the North Dunstan Mountains, the Strategy states:

*The negotiation of protection arrangements for areas of biodiversity importance and recreational opportunities and access are the priority activities in this Special Place*

4.2 When it became evident during the 1980s that most of our higher altitude flora and fauna was at risk from grazing and other farming practices, a survey was started to systematically make an in depth study of all the ecological districts in the higher regions of the South Island of New Zealand. This survey was known as the protected Natural Areas Programme. The object was then, after establishing where the best examples of the remaining indigenous flora and fauna were, to offer some form of protection to these areas. These areas came to be known as "Recommended Areas for protection". The Tenure Review programme under Part 2 of the CPL Act 1998 is the ideal opportunity to offer that protection for these important areas.

*It is our recommendation that the lower part of Shepherds Creek taking in all of DUNSTAN RAP A1 be returned to full Crown ownership and control.*

4.3 The highest point on the property .1555 lies just next to and to the north of the Lauder Tussock Reserve already created. The tall tussock on this reserve is not represented to any great extent elsewhere in Otago is well worthy of protection. (See photo # )

*It would be our recommendation that the top of the hill surrounding and to the north of the Lauder Tussock Reserve be returned to the Crown and added to the present conservation area..*

### **5.0 Access.**

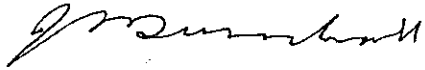
5.1 *When the area containing Shepherds Creek RAP DUNSTAN A1 is returned to full Crown ownership and control, access should be provided from the end of the Cambrian valley road and around the base of the hill to the area.*

5.2 *Walking access should also be provided from a car park at the same spot for walking access up the spur to the south of Welshmans Creek and then up the boundary fence to the*

*tussock reserve.*

We thank you for the opportunity to have this input and would be pleased to help if called upon for further discussion.

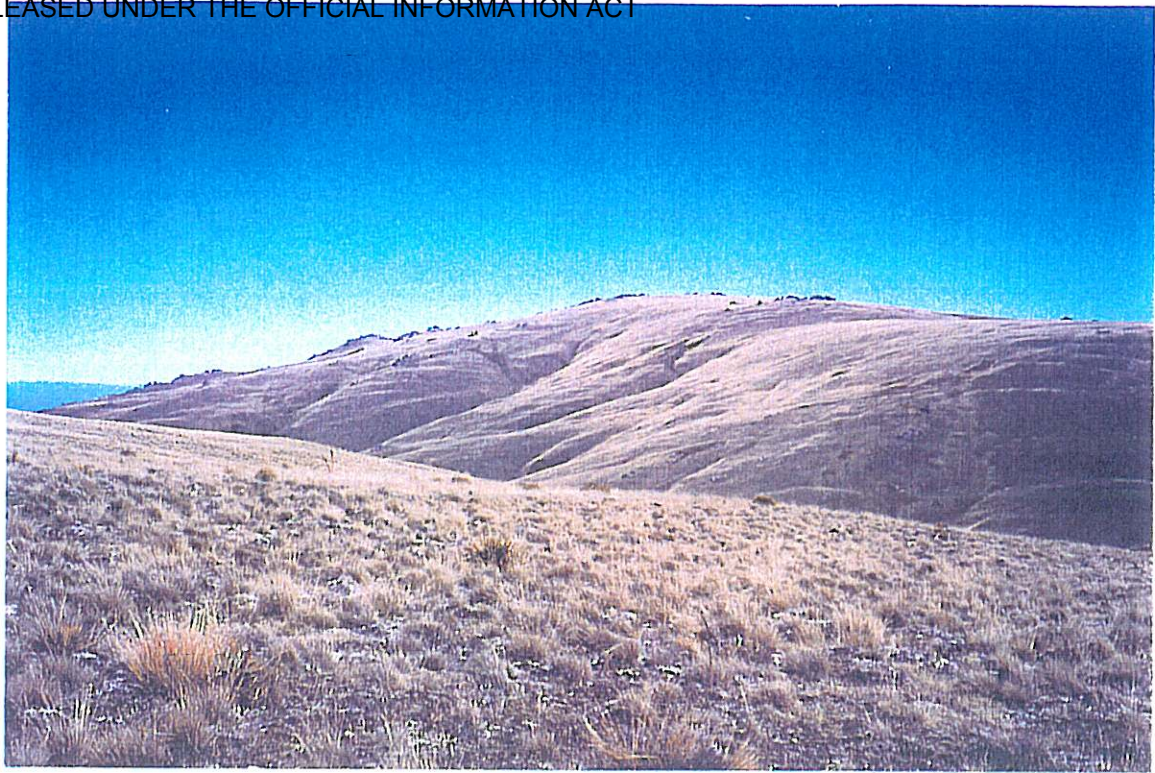
Yours faithfully

A handwritten signature in black ink, appearing to read 'John L Turnbull', written in a cursive style.

John L Turnbull

for Upper Clutha Branch Forest and Bird

Attached, 2 photos



1 Looking south from Dunstan Peak towards the highest Point of Cambrian Hills, 1555ms. The tussock on the near northern slope is not so strong.



2 Looking north from the high point .1555ms Shows the quality and density of the tussock.



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

P.O. Box 1604, Wellington

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03 JUN 2005

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H.C.R.M.	<i>[Signature]</i>
K.S.M.	
OTHER	

*Brace*

30 May 2005

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

Dear Tony

**Re FMC Tenure Review Report**  
**Recreation and Related Significant Inherent Values**  
**on Cambrian Hills, Mount Aspiring, Moa Hills and Mt Grand.**

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 2004. 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 we now enclose our reports on Cambrian Hills, Mount Aspiring, Moa Hills and Mt Grand.

We wish to thank the Crown Agents for their efforts to make the appropriate access arrangements with lessees to facilitate these inspections. Both the runholders and the Crown Agents have been most helpful in this regard.

These Reports are offered as the FMC contribution to the statutory consultation process undertaken by the Department. We hope that the Reports will be helpful to you in developing tenure review proposals for these properties. We look forward to commenting on the Preliminary Proposals in due course.

For their information we are sending copies to the Crown Agents as listed below.

Yours sincerely

*Michael Floate*

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

Cambrian Hills  
Mt Grand

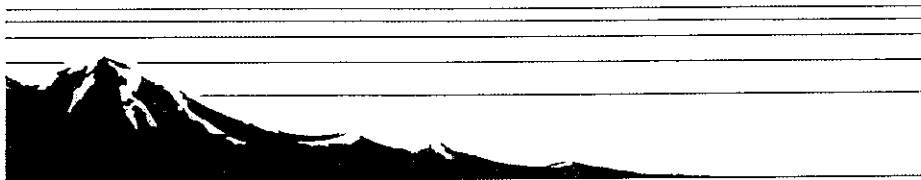
Mt Aspiring

Moa Hills

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Cc Dave Payton  
Opus International Consultants Ltd.  
114 Rattray Street  
Private Bag 1913  
DUNEDIN

Cc Bevan Lill  
DTZ New Zealand  
PO Box 27  
43 Tarbert Street  
ALEXANDRA



**HIGH COUNTRY  
CONSULTANCY**



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

**PASTORAL LEASE TENURE REVIEW**

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

**CAMBRIAN HILLS**

**May 2005**

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

**PRELIMINARY REPORT ON THE RECREATIONAL, LANDSCAPE, HISTORIC  
AND OTHER CONSERVATION VALUES, AND RECOMMENDATIONS  
FOR OUTCOMES OF TENURE REVIEW ON CAMBRIAN HILLS**

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

**May 2005**

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**LIST OF FIGURES**

Fig. 1. Cambrian Hills is a relatively small pastoral lease of 3,000ha situated at the northern end of the Dunstan Mountains overlooking the lower reaches of Dunstan Creek and the Manuherikia Valley. It extends from about 600m at Cambrians village to 1,600m at its back boundary with the Lauder Basin Conservation Area. Unfortunately, this property does not provide good access to this landlocked Reserve because the only available tracks are on neighbouring properties.

Fig. 2. This fence separates the Lauder Basin Conservation Area (right) from Cambrian Hills pastoral lease (left). Pristine tussock grasslands in the Reserve, which extend over the crest of the Dunstans, are only part of the 2,760ha RAP A1 identified by PNA surveys. Tenure review offers an opportunity to protect another 700ha of the RAP on Cambrian Hills pastoral lease, part of which can be seen on the left.

Fig. 3. This view is looking from the eastern boundary of Cambrian Hills across Shepherds Creek to the western boundary at about 1,100m. This mid-altitude country lies almost entirely within the RAP A1 North Dunstan and should be protected as an outcome of this tenure review. Only the foreground, on the true left of Shepherds Creek should be excluded from the proposed Conservation Area.

Fig. 4. A track runs northwards from Dunstan Peak to Cluden Pass. This would provide a good mountain bike trip from St Bathans to the Lindis country and SH 8. However, both the track and Dunstan Peak itself are just outside Cambrian Hills pastoral lease and are therefore outside the scope of this tenure review.

Fig. 5. The most northerly part of Cambrian Hills occupies some of the smooth northern slopes of the Dunstans and drains into the Cluden/Lindis river system. In this view the Cluden (C) and Dunstan (D) Passes over the Chain Hills can also be seen. The LUC Class VII land seen here may not be able to be managed in an ecologically sustainable way unless nutrient losses due to burning and removal of animal products are balanced by fertiliser application to replenish soil nutrient reserves.

Fig. 6. LUC Class VI land occupies about 600ha of the lower slopes below about 800m. This area has medium suitability for pastoral use and can probably be managed sustainably so it appears to be suitable for freeholding. There is also some historic interest in gold workings which include water races like the one seen here leading to Vinegar Hill. Historic relics could be protected under covenant.

Fig. 7. A temporary, and only partial, solution to the lack of public access to the Lauder Basin Conservation Area might be to designate walking only access up the western boundary of Cambrian Hills. This would start on a farm track near Welshmans Gully and continue as a route up the spur seen in this view. This view over the Manuherikia Valley is from Trig 'I' at 1,644m, about 800m west of the boundary. It shows part of RAP A6 North Dunstan and the boundary which runs down the crest of the spur.

Fig. 8. The PNA survey reported that *"in the north of the Dunstan Mountains, the summit dome has very little cushion and herbfield. It is dominated by extensive dense slim snow tussockland"*. Where there are herbfields they make a strong contrast with the tussockland especially when the *Celmisia* are profusely flowering. This view shows part of RAP A1 North Dunstan at the head of Shepherds Creek basin.

Fig. 9. *"Important remnants of forest vegetation include broadleaf forest particularly in the north, and more widespread Hall's totara treeland with traces of celery pine and bog pine. Matagouri shrublands are abundant throughout below 900m. Shrublands or scrub dominated by Coprosma propinqua are also widespread adjacent to streams, including some mixed scrub of high species diversity."* There is a good example of one such forest remnant situated in the lower reaches of Shepherds Creek. The presence of waterfalls in this creek makes it a particularly attractive place to explore.

Fig. 10. Historic gold workings near Cambrians and Vinegar Hill, together with water races in this area and in Welshmans Gully, add interest to the area and might be protected under covenant. Farming operations could be allowed to continue so long as these historic features are not damaged by erosion due to animal grazing pressure. Wilding pine control will be required.



## I. INTRODUCTION

This Report has been prepared following the Early Warning Meeting in September 2004 at which the properties entering the tenure review process in 2004 were introduced. Federated Mountain Clubs of NZ (FMC) inspected Cambrian Hills with the runholder in April 2005 and have subsequently written up this report. It is offered as a contribution to the statutory consultation process undertaken by the Department of Conservation (DOC).

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

Cambrian Hills was originally part of the large Lauder Station and now consists of some 3,000ha at the northern end of the Dunstan Mountains (Fig. 1). It ranges from about 600m at Cambrians village to about 1,600m where it adjoins the Lauder Basin Conservation Area (Tussock Reserve, Fig. 2). This area of almost pristine snow tussock grassland was identified as a Recommended Area for Protection (RAP A1 North Dunstan) by the PNA survey carried out in the 1980s (Fig. 2). The total area of RAP A1 is significantly larger than the existing Conservation Area and a large part of the remainder (about 700ha) lies within Cambrian Hills pastoral lease (Fig. 3). The future status of this area will be an important issue in this tenure review.

From a recreational perspective, the most significant issues in this tenure review will be the consideration of public access to the Lauder Basin Conservation Area, Dunstan Peak and over the Cluden Pass from St Bathans (via Dunstan Creek) to the Lindis country (Fig. 4).

## METHODS OF SURVEY AND ASSESSMENT

A site visit and inspection was carried out in May 2005 with the helpful co operation and permission of the lessee. This report is based in part on the field inspection and in part, on information gathered from other sources. The other sources include studies of topographical and Land Use Capability (LUC) maps, consultation with recreational user groups and a knowledge of the landscapes acquired from other trips in the general area of St Bathans and the Dunstan Mountains. A study of "Outdoor Recreation in Otago" was undertaken by Mason (1988) and published by FMC. Reference is made to this Recreation Plan for Otago in the recreation section below. The Conservation Management Strategy for Otago and the Survey Report of the Protected Natural Areas Programme have also been used as a source of reference.

## GENERAL DESCRIPTION OF CAMBRIAN HILLS

Cambrian Hills is a relatively small pastoral lease of about 3,000ha situated on the north eastern flanks of the Dunstan Mountains (Fig. 1). It rises from about 600m at Cambrians village to 1,600m on its back boundary where it adjoins the Lauder Tussock reserve (Fig. 2). The property includes the entire catchments of Shepherds Creek and Welshmans Gully which drain into Dunstan Creek. The most northerly part of Cambrian Hills (some 500ha near Cluden Pass) occupies the headwaters of an unnamed creek which runs into Richmond valley, and eventually the Lindis River (Fig. 5).

There is currently no public access on the property although there is a 4WD track up the ridge to the west of Donald Stuarts Creek on Cambrian Station. There is also a 4WD track to Dunstan Peak and Cluden Pass (Fig. 4) which is close to the eastern boundary but situated on the neighbours property, Mount St. Bathans or Dunstan Burn. The lack of tracking on Cambrian Hills does not seem to be a practical farming problem as these neighbouring tracks provide access for the runholder. They do not however, solve the problem of recreational access to the Lauder Basin Conservation Area (Tussock Reserve) and the northern end of the Dunstan Mountains, or to Dunstan Peak and Cluden Pass. This needs to be addressed in this tenure review.

General aspects of the climate and geology of the Dunstan Mountains has been well described in the PNA Survey Report:

*"The Dunstan Mountains are the driest of the alpine Central Otago ranges because their location is the most central. The Pisa Range and Lindis Mountains provide extra shelter from the north-west; the Old Man Range from the south-south-west, particularly the snow-bearing winds of winter; while 120 kilometres of basin, range and plateau country lie to the south-east and east."*

*"The Dunstan Mountains typify the Central Otago pattern of fault-block mountain ranges uplifted along faults on their south-eastern edges and tilted to the north-west. The mid-Tertiary peneplain surface is expressed as long gently sloping ridges (2-6 degrees) on the north-west slope and the smooth crest of the range." (Fig. 5).*

*"There is no evidence of the Dunstan Mountains ever having generated glaciers - an indication of the low precipitation in comparison with the adjacent Old Man Range of similar height which has several notable cirques and small glacial valleys. Schist tors and periglacial phenomena (in particular soil hummocks) are very well developed on the higher parts of the upland surface.*

*Apart from these minor effects, the absence of glaciation results in a simple topographic pattern, with steep slumped slopes characteristic of the dissected fault scarp on the southeast face, contrasting with the long north-west slope."*

A large part of Cambrian Hills (about 2,400ha) is characterised by Carrick Hill and Dunstan Steepland High Country Yellow Brown Earth soils which have been classified LUC Class VIIe, with severe limitations for pastoral use (Fig. 5). These soils are generally situated above about 800m and there is considerable doubt as to whether they can be managed in a way that is ecologically sustainable. This is because nutrient removals in animal products (meat and wool) probably exceed inputs and the system is slowly but surely being depleted unless fertiliser is applied to replenish losses. At higher altitudes, fertiliser application is usually not economically justified because pasture growth response is severely limited by climate. Where oversowing and topdressing have been carried out, and where maintenance fertiliser has been applied regularly, the pastoral use of the land may be sustainable. However, this should be assessed against important landscape and natural values identified by PNA Survey. This will be discussed under the heading of Significant Inherent Values.

The remaining land (LUC Class VI, Blackstone Hill Yellow Grey Earth soils) occupies about 600ha of the lower slopes below about 800m (Fig. 6). This area has medium suitability for pastoral use and can probably be managed sustainably so it appears suitable for freeholding. There is some historic interest in gold workings and water races (Fig. 6) which might be protected under covenant. The covenant might also permit limited grazing.

## **RECREATIONAL ACTIVITIES AND POTENTIAL**

The recreational significance of the property lies in its position on the flanks of the Dunstan Mountains, including features of natural interest in Shepherds Creek and access to Dunstan Peak and the Cluden Pass (Figs. 4 and 5). Its proximity to the Lauder Basin Conservation Area (Fig. 2) is also important as we understand that this magnificent area of pristine tussock grasslands is still landlocked from public enjoyment.

Mason (1988) commented *"Hot, semi-arid conditions, with an absence of features, provides little of general interest for summer tramping over much of the range. A climb up to Leaning Rock from the vicinity of Clyde is one exception... .. There are many botanical and geomorphological features of more specialist interest. With greater awareness of the features identified in the PNA survey it can be anticipated that summer visitation will increase."*

Although Mason did not refer to mountain bike riding, this has become much more popular in the 14 years since his account was written. A mountain bike trip would be possible to Dunstan Peak, over Cluden Pass and out to the Lindis country (Fig. 4). While several properties in the Lindis area have completed tenure review and access is available, public access to Dunstan Peak is not yet available. In fact, public access to the tops of Cambrian Hills depend on access over the neighbouring properties of Lauder Station and Mount St Bathans. Although public access may eventually become available through tenure review this cannot be progressed through the review of Cambrian Hills.

The problem of public right of access to the Lauder Basin Conservation Area also still persists. A possible temporary solution might be to provide walking only access up the western boundary of Cambrian Hills (Fig. 7). There is a farm track up to about 1000m on a spur overlooking Welshmans Gully, and from there a walking route could be formed near the western boundary.

Although there is little use of Cambrian Hills for recreation at the present time there is potential for greater use on foot within the Shepherds Creek catchment and up to the Lauder Conservation Area.

FMC believes that the recreational significance of this property (and other leases in the tenure review process) should be assessed not only on its present usage but also on its potential. This is because current usage is less than its potential for a number of reasons. There is potential for greater use and it is the full range of possibilities which should be considered during this tenure review.

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

This report focuses on those features of Cambrian Hills which are known to be, or could become important for public recreational interests. It should be noted that while much of this interest focuses on access, the natural and historic values and landscapes of the areas concerned all have a fundamental impact on the recreational value of the back country. So too do the views to be had from vantage points which greatly influence the quality of recreational experience enjoyed. It is for this reason that reference is also made to natural, historic and landscape values of this property.

The vegetation patterns of the Dunstan Mountains have been well described in the PNA Survey Report: - *"In the north of the Dunstan Mountains, the summit dome has very little cushion and herbfield. It is dominated by extensive dense slim snow tussockland. This community has abrupt boundaries with narrow-leaved snow tussockland, without significant hybridism, at altitudes varying according to aspect from 1,400m on sunny slopes and 1,100m on shady faces."* (Fig. 8).

*"The Dunstan [Ecological] District lacks the snowbank communities characteristic of the Old Man and to a lesser extent Pisa Districts, but has numerous alpine flushes up to several hectares in extent, particularly on the northern summit dome. Narrow-leaved snow tussockland has survived in some abundance on the south-east face down to 900 metres with more scattered snow tussocks within fescue tussockland down to as low as 600m."*

*"Important remnants of forest vegetation are widely scattered on the eastern faces. These include broadleaf forest particularly in the north, and more widespread Hall's totara treeland with traces of celery pine and bog pine (Fig. 9). Forest vegetation has essentially been eliminated from the north-west slope, although single specimens of celery pine are known. Matagouri shrublands are abundant throughout altitudes below 900 metres. Shrublands or scrub dominated by Coprosma propinqua are also widespread adjacent to streams, including some mixed scrub of high species diversity."* (Fig. 9).

There is a particularly good example of one such forest remnant which is situated at the south east corner of RAP A1 North Dunstan, in the lower reaches of Shepherds Creek (Fig. 9). The presence of waterfalls in this creek makes it a particularly attractive place to explore.

The PNA Survey Report also contains a brief description of what is referred to as the 'Cambrians Land System': - *"The Cambrians Land System represents the northern segment of the dissected fault-scarp on the south-east face of the Dunstan Mountains. The altitudinal sequence of landform styles is less marked. In particular the mid-altitude steeper stable zone is less obvious. Although there are significant rock outcrops, these generally have been less effective fire refuges. Shepherds Creek is an exception, as it is more sharply entrenched than the other streams dissecting the Dunstan fault-scarp. It lies along the line of a north-north-west trending fault zone marking the beginning of the geological transition through semi-schist to the greywacke mountains of the St Bathans Range."*

*"...vegetation features, snow tussocklands are extensive at mid-upper altitudes, and remnant forest vegetation including broadleaf and Hall's totara are important, though concentrated mainly in Shepherds Creek."*

Ecologically, Cambrian Hills is important as it contains a significant part (about 700ha) of the total area (2,760ha) recommended for protection and identified as Dunstan RAP A1 North Dunstan. Much of this RAP has already been protected within the Lauder Tussock Reserve but some 700ha still remain within this pastoral lease (Fig. 3). Tenure review presents another opportunity to consider protection for this area.

There is some historic interest in gold workings near Cambrians and Vinegar Hill which, together with water races in this area and in Welshmans Gully, might be protected under covenant (Fig. 10). Wilding pines area threat in this area and conditions of freeholding should include control of wildings. We see no compelling reason why farming operations should not be allowed to continue around the historic features so long as features such as the water races are not damaged by erosion due to animal grazing pressure. Some form of monitoring would be required to ensure that this does not happen. It would be important that secure public access be provided, probably in the form of an easement across the lower freehold land in some location that does not interfere with farming operations.

### **AREAS TO BE PROTECTED**

For the reasons discussed above, which include the significant inherent natural and landscape values of the Shepherds Creek catchment and the public enjoyment of landscapes viewed from the upper part of the catchment, FMC recommends that much of the Shepherd Creek catchment should become conservation land. It would include the whole of the remaining part of RAP A1 North Dunstan within Cambrian Hills pastoral lease land. It should also include the tussock grassland with significant natural and landscape values which occupies the true right of the catchment below Point 1,555m up to the divide separating Shepherds Creek from the Cluden drainage system. It is particularly important that the forest remnant and waterfalls in the lower reaches of Shepherds Creek are protected. For all these areas the preferred protection (as stated in the CPL Act 1998) is return to full Crown ownership and control for management by DOC for conservation and recreation purposes.

Protective covenants are required over historic features (including gold workings and water races in the vicinity of Vinegar Hill in Welshmans Gully) which are situated on land likely to become freehold through tenure review. Wilding pines are a threat in this area so conditions of the covenant should include control of wildings. In addition to a protective covenant over these features, arrangements (such as monitoring and enforcement of grazing conditions) will need to be made to ensure no environmental damage occurs if farming operations are allowed to continue.

### **ACCESS REQUIREMENTS**

An ongoing problem at the northern end of the Dunstan Mountains is the absence of public access to the Lauder Basin Conservation Area. The ideal would be to provide access for foot, horse and non-motorised vehicles over a convenient 4WD track. Unfortunately, the only convenient 4WD tracks are on neighbouring properties so this is not an issue to be resolved during the tenure review of Cambrian Hills. However, a temporary solution to provide walking only access may be possible. We recommend an easement be designated over farm tracks up to about 1,000m on a spur overlooking Welshmans Gully. From that point on upwards a public walking easement should be designated over any remaining freehold to the lower boundary of the proposed Conservation Area.

A similar situation exists with respect to public access to Dunstan Peak and Cluden Pass. It would be ideal to provide for mountain bike access up the track close to the eastern boundary of Cambrian Hills. However, this is entirely outside the Cambrian Hills pastoral lease and will have to await some future opportunity to secure public access.

If arrangements can be made to protect, under covenant, the historic features in Welshmans Gully and in the vicinity of Vinegar Hill secure public access to the covenanted area(s) will be required. This could be in the form of an easement across new freehold land.

## CONSERVATION MANAGEMENT STRATEGY FOR OTAGO

There are important statements in the Conservation Management Strategy (CMS) for Otago, in which the North Dunstan Mountains are recognised as a Special Place. It is noted in the CMS that the Lauder Basin Conservation Area is landlocked and that public access to the area is required. The objective for this Special Place is:- *"To extend protection in the area to cover the remaining higher altitude areas of nature conservation importance, and to secure appropriate public access."*

Implementation includes:- *"Pastoral lease tenure review on properties in the area may provide opportunities to negotiate to protect the areas of interest. Overall management of these new areas with the existing conservation areas will confer net conservation and management benefits."*

The CMS objective and intended implementation accord very closely with the recommendations made in the present report. Furthermore, it should be noted that the priority for the North Dunstan Mountains Special Place is:- *"The negotiation of protection arrangements for areas of biodiversity importance and recreational opportunities and access are the priority activities in this Special Place."*

It is clear that the tenure review of Cambrian Hills presents a good opportunity to make progress with the achievement of these objectives.

## CONCLUSIONS

1. The tenure review of the Cambrian Hills pastoral lease presents an opportunity to enhance the recreational potential and use of the Dunstan Mountains area. There is also an opportunity to enhance the quality of recreational experience on those lands by recognising and protecting the significant landscape and other natural values described above.
2. Cambrian Hills pastoral lease ranges from about 600m at Cambrians village to about 1,600m where it adjoins the Lauder Basin Conservation Area (Tussock Reserve). This area of pristine snow tussock grassland was identified as a Recommended Area for Protection (RAP A1 North Dunstan) by the PNA survey carried out in the 1980s.
3. The total area of RAP A1 is significantly larger than the existing Conservation Area and a large part of the remainder (about 700ha) lies within Cambrian Hills pastoral lease. The future status of this area will be an important issue in this tenure review.
4. From a recreational perspective, the most significant issues in this tenure review will be the consideration of public access to the Lauder Basin Conservation Area, Dunstan Peak and over the Cluden Pass between St Bathans (via Dunstan Creek) and the Lindis country.
5. The location of Cambrian Hills at the northern end of the Dunstan Mountains is important in that it adjoins the Lauder Basin Conservation Area and there are 4WD tracks which lead to this Conservation area and to Dunstan Peak and the Cluden Pass. Unfortunately, these tracks are not situated on Cambrian Hills pastoral lease but instead are situated close to the Cambrian Hills boundaries and on neighbouring properties. Public access over these tracks cannot therefore be provided through the current tenure review. Instead, it may be possible to provide, as a temporary solution, walking only access to the boundary of a new Conservation Area and thence to the Lauder Conservation Area.
6. Land above about 800m has been classified LUC Class VII and there is considerable doubt as to whether it can be managed in a way that is ecologically sustainable. Where oversowing and topdressing have been carried out, and where maintenance fertiliser has been applied regularly, pastoral use of the land may be sustainable. However, this should be assessed against important landscape and natural values

identified by PNA Survey.

7. LUC Class VI occupies about 600ha of the lower slopes below about 800m. It can probably be managed sustainably and appears suitable for freeholding.
8. There is a particularly good example of a forest remnant which is situated at the south east corner of RAP A1 North Dunstan, in the lower reaches of Shepherds Creek. The presence of waterfalls in this creek makes it a particularly attractive place to explore. These features should be included in the new Conservation Area.
9. Ecologically, Cambrian Hills is important as it contains a significant part of the total area originally recommended by the PNA Programme for protection as Dunstan RAP A1 North Dunstan. Tenure review presents an opportunity to consider protection over the remaining 700ha within the pastoral lease.
10. FMC recommends that much of the Shepherd Creek catchment should become conservation land by return to full Crown ownership and control. It would include the whole of the remaining part of RAP A1 North Dunstan within Cambrian Hills pastoral lease land. It should also include the tussock grassland with significant natural and landscape values which occupies the true right of the catchment below Point 1,555m up to the divide separating Shepherds Creek from the Cluden drainage system.
11. Protective covenants are required over historic features (gold workings and water races in the vicinity of Vinegar Hill and in Welshmans Gully) which are situated on land likely to become freehold through tenure review. Wilding pine control should be one of the conditions of the covenant(s).
12. If arrangements can be made to protect, under covenant, the historic features in Welshmans Gully and in the vicinity of Vinegar Hill, secure public access to the covenanted areas(s) will be required. This could be in the form of an easement across new freehold land.
13. It is clear that the tenure review of Cambrian Hills presents a good opportunity to make progress with the achievement of the objective declared for the North Dunstan Special Place in the CMS for Otago.

### **ACKNOWLEDGEMENTS**

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