

Crown Pastoral Land Tenure Review

Lease name : CAMBRIAN

Lease number : PO 375

Conservation Resources Report - Part 4

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

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(d) **Donald Stuarts Creek Valley (becomes more deeply incised towards the top of the property.)**

The margins of Donald Stuarts Stream retain a strip of native vegetation which varies considerably in width. Portions of this strip comprise the most intact and diverse native shrublands on the property. Towards the head of the gully there is a significant subalpine shrubland/forest under floor remnant including a variety of ferns which are not widespread in the Dunstan ecological district. Woody species recorded include *Discaria toumatou*, *O. bullata*, *Carmachaelia petriei*, *Gaultheria depressa*, *G. crassa*, *Coprosma rugosa*, *Aristotelia fruticosa*, *Rubus schmidelioides*, *Corokia cotoneaster* and *Hebe salicifolia*. Native ferns and herbs recorded include *Polystichum vestitum* (prickly shield fern), *Hypolepis millefolium*, *Blechnum* spp (previously known as *B. capense* - not recorded from Dunstan Ecological district during PNAP survey). These shrublands represent an ecosystem which is characterised by a degree of fire resilience and community diversity (Grove 1994).

Significance of Vegetation

Although the Donald Stuarts Creek riparian zone supports only a narrow strip of native shrublands for much of its length, this remnant provides an insight into species which probably once formed the dominant cover in the area. Riparian vegetation is also an important factor in regulating the temperature and light environment of small streams. Maintaining quality riparian environments in small streams will generally exert a relatively larger influence on stream functioning than alongside large lowland rivers. Improvements in lowland rivers are often achieved through riparian management upstream (Collier et al 1995). The value of the wetland is enhanced in that it forms the lower part of a relatively intact sequence of native vegetation which runs from approximately 500 m.a.s.l. to the upper boundary of the property and beyond to the Lauder Conservation Area on the crest of the Dunstan Range.



Photo 4. Donald Stuarts Creek and Riparian Shrublands

(e) Plant Pests

From a farming perspective, vigorous regeneration of native woody species including kanuka, manuka, *Olearia* and matagouri inhibits production and are considered weeds. From a conservation perspective retention of these species is desirable. From a conservation and farming perspective, gooseberry (*Ribes uva-crispa*), elder (*Sambucus nigra*), *Pinus radiata*, and briar (*Rosa rubiginosa*) constitute weeds.

Herbaceous weeds include *Arctium minus*, (burdock), *H.pilosella* (mouse eared hawkweed), *H.lepidulum* (tussock hawkweed). *H.pilosella* is probably the most serious weed threat on the property, particularly on sunny north facing aspects. Removal of manuka/kanuka cover from these areas would be likely to result in a substantial spread of this species.

2.5 FAUNA

(a) Invertebrate Values

Alpine wetland

The tarns and wetland at 1090 m.a.s.l. in the upper north western corner of the property (described under the previous section (4.c)) support the short winged crane fly (Subfamily Limoniinae) which is common in alpine wet flushes. The area is probably rich in native invertebrates; especially bugs, flies, moths, beetles and dragonflies; however cold weather conditions at the time of inspection were not conducive to assessing the abundance of insect life present.

Snow tussock grassland and scarps

These span from 850 m - 1100 m on the south facing slopes above Donald Stuarts Creek. A variety of common grassland insects were noted indicating that this community is relatively intact. Insects observed included five predatory ground beetle species (Carabidae), bibionid flies, medium sized weevils, hoverflies (Syrphidae) and litter feeders including the native cockroach (*Celatoblatta quinquimaculata*), native earwig and Oecophorid moth (*Gymnobathra* n.sp.). Although the Oecophorid moth is widely distributed throughout southern New Zealand, this finding is a new record for the Dunstan Mountains. This moth is notable in that females are flightless.

Rubbly outcrops on lower slopes (fire refugia)

These areas support remnant Halls totara, kanuka, *Corokia* etc. The presence of the totara moth, *Chrysorthenches porphyritis* indicates that these communities are remnants of pre human era vegetation cover.

Manuka/kanuka shrublands

Many insects characteristic of these shrublands are known to occur on the North Dunstan Mountains (Patrick 1995). Characteristic species noted on Cambrian include the large native shield bug (*Oncaontias vittatus*) and the moth *Pasiphila* n.sp. which lives on *Carmichaelia petriei* (native broom) and *Olearia bullata*.

Donald Stuarts Creek and its margins

Diverse shrublands surrounding this creek (previously described Section 4.1) overhang the water on many reaches, creating a valuable habitat for insect fauna. A variety of adult aquatic stoneflies and caddis were caught. The presence of the stonefly *Spaniocerca longicauda* and the caddis *Beraeoptera roria* are indicative of the relatively intact state of riparian vegetation. Insect abundance is greater at lower altitudes (600-800 m.a.s.l.).

Significance of Invertebrates

Insect values appear to closely reflect botanical values, in that diversity is greatest in areas which retain an element of their original vegetation cover; in particular the riparian zone of Donald Stuarts Creek, Halls totara remnants, manuka/kanuka shrublands and montane/subalpine grasslands.

(b) Vertebrate Values

The skink *Oligosoma maccani* is widespread on the property.

Significance of Vertebrates:

The skink *Oligosoma maccani* is common throughout rocky areas in Otago and its presence is of low conservation significance.

Avi Fauna: Birds observed at time of field inspection were all common exotic species. The apparent lack of bird life may in part reflect the cold cloudy conditions with snow and sleet showers encountered at time of inspection.

Significance of Avi Fauna.

Species observed are considered to be of no conservation significance.

(c) Aquatic Fauna

Brown trout (*Salmo trutta*) were the only fish species collected from Donald Stuarts Creek and its tributaries.

Significance of Aquatic Fauna

The freshwater fish fauna has no conservation value.

(d) Wild Animals/Pests

Rabbits are under control but are potentially a serious pest, especially on sunny aspects. Goats were observed on the field inspection. Possums hares and the occasional pig are also present.

2.6 HISTORIC

This pastoral lease incorporates the catchment of Donald Stuarts creek and was originally part of run 226, Lauder Station. It is situated immediately south of Welshman's gully, the site of the old Cambrians township and gold field. Cambrians was one of a series gold fields along the foot of the Dunstan Range that flourished from the 1860s to the turn of the century. Because of its proximity to Cambrians, it was assumed that some sites associated with gold mining may exist on the lease.

At time of inspection Donald Stuarts creek was walked from where it issued from the confines of the range to the downstream boundary of the lease. Despite the proximity to Cambrians there was no sign of gold working along the creek. The only definite historic sites were several water races which presumably delivered water to Cambrians. Two races that may originate in Woolshed creek are evident on the true right of the creek and at least four races started in Donald Stuarts creek and headed towards Cambrians.

Significance of Historic Values:

The only historic sites located were several water races. These probably date to the 19th century and were used to supply water to the Cambrians diggings. As such they are protected under the 1993 Historic Places Act.

2.7 PUBLIC RECREATION

(a) Physical Characteristics

In a document titled 'Outdoor Recreation in Otago - Volume One' compiled for Federated Mountain Clubs (Mason 1988), the upper portion of Cambrian pastoral lease is included within a large area comprising the greater part of the Dunstan Mountains zoned 'Open Space'. This zoning recognises the highly modified landscapes resulting from extensive tussock depletion, pasture development, and vehicle tracking. Isolated features require protective management. These are the identified PNA's, historic sites, and summit tor landscapes. It is suggested that rights of public access through the zone need to be retained and extended.

(b) Public Access**(bi) Access Tracks**

The principal farm access track on Cambrian which runs from the homestead (off Loop Road), across freehold land owned by the lessees of Cambrian, and onto the crest of a spur which forms the southern boundary of the lease, provides the most practical access to the Lauder Conservation Area. Permission is required from the lessees of Cambrian and Lauder pastoral leases and is normally granted. This track is marked on Map 2 (appended).

Current land status is depicted on Map 1 (appendix).

(bii) Marginal strips

There are no marginal strips on the pastoral lease. Donald Stuarts Creek is the only water way likely to qualify at time of survey.

(biii) Roads

The pastoral lease is served by a legal unformed road referred to on the title plan as Cambrian Settlement Road. This paper road runs northwards from Lauder Station Road (legal and formed). Loop Road provides physical access to the homestead which is located on freehold land at the base of the pastoral lease.

(biv) Easements

Cambrian was once part of the much larger Lauder pastoral lease. In 1986, 982 hectares which now comprise Cambrian pastoral lease was subdivided from Lauder. In 1991 the Department of Conservation, assisted by the Miss E L Hellaby Indigenous Grasslands Research Trust, purchased the lessees interest in 1400 ha of Lauder pastoral lease on the North Dunstan Mountains for nature conservation purposes. The area is now administered as a Conservation Area. The area does not adjoin Cambrian pastoral lease, however access through both Lauder and Cambrian stations (including freehold land) is required to gain practical entry to the Lauder Basin from the eastern side of the Dunstan Mountains. There is no formal legal public access route into the conservation area at present, although the lessees have agreed to grant fair and reasonable access when requested. At the time a sale and purchase agreement was signed, the Vendors agreed to grant the Crown for conservation purposes, a right of way easement from Lauder Station Road to the Lauder Conservation Area. The Crown agreed to grant the vendors a right of way easement over the Lauder Conservation Area in favour of adjoining pastoral lease land. Neither of these actions have been completed. Lauder pastoral lease has since changed hands.

(c) Activities

The Cambrian/Lauder access track described above is utilised by 4WD vehicle owners and mountain bikers. Cross country skiers occasionally utilise the track to gain access to the North Dunstan Mountains. The route also provides potential access for horse trekkers. The broad, open nature of the Dunstan tops reduces the attractiveness of the area for walking.

Other recreation on Cambrian is confined to occasional pig hunting and quail shooting.

PART 3

CONSULTATION AND DISTRICT PLANS

3.1 CONSULTATION

An "early warning" meeting was held on February 11 1997 in Dunedin.

Comments were as follows:

- 1: Access to Lauder Conservation Area via eastern farm track essential.
- 2: Access up western track provides an interesting route to the wetland/tarns and beyond.
- 3: Donald Stuarts Creek gorge and surrounding shrublands may be of interest.

3.2 DISTRICT PLANS

(i) Transitional Plan.

The property is within the area administered by the Central Otago District Council under the Maniototo section of the council's transitional plan which is currently operative. The area comprising Cambrian pastoral lease is zoned 'Rural A'. Rural A is the zone comprising the District's productive land which is predominantly utilised for intensive grazing and pastoral use. Predominant uses listed include farming, forestry, recreation, scenic and historic reserves and private open space. Conditional uses include industries ancillary to farming, timber mills, quarrying and reserves as defined by the Reserves Act (1977). In addition to agricultural use of the land, provision is made for a range of conditional uses. The zone recognises that landscape qualities are an asset for recreation and tourism and that maintaining a high level of visual amenity throughout the rural area is desirable.

(ii) Draft Plan.

A draft plan for Central Otago District is currently under preparation. Limited public input has been sought on some components of the plan. Extensive public consultation on a draft plan is still to occur.

PART 4: JUSTIFICATION AND RECOMMENDATIONS

4.1 INTRODUCTORY STATEMENT

The areas described in the proposals which follow have high inherent values in the Departments opinion, and should be taken into account in tenure review discussions, along with public access requirements.

The Otago Conservancy of DOC has produced a draft Conservation Management Strategy (CMS) which is nearing final approval after a lengthy planning effort involving extensive public consultation.

The CMS identifies 41 special places of conservation interest in the Otago Conservancy. Cambrian lies within the North Dunstan Mountains (Special Place #21).

The stated 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”

Relevant implementation policies are :

- (a) Pastoral lease tenure review on adjacent properties (to Lauder Conservation Area) may provide opportunities to negotiate to protect the areas of interest.
- (b) The summit protected area will be signposted from the nearest gravel road once access is secured by negotiation.
- (c) Opportunities to legalise public access points and develop appropriate public facilities will be explored. Once access is improved, public awareness of the area can be increased.
- (d) Attempts will be made to negotiate as of right public foot and mountain bike access to high altitude protected areas.
- (e) Advocacy under the Resource Management Act and any other relevant statute will be maintained to secure protection of significant natural and historic resources.

- (f) A freshwater fisheries survey will be carried out.

The stated priority for the area is "The negotiation of protection arrangements for areas of biodiversity importance and recreational opportunities and access are the priority in this Special Place".

4.2 AREAS TO BE FULLY RESTORED TO THE CROWN

4.2.1 Cambrian Conservation Area.

Recommendation:

That an area of approximately 140 hectares comprising an altitudinal sequence from lower Donald Stuarts Creek to the upper boundary of Cambrian Pastoral lease be formally protected. The area (marked on Map 3 - appended) comprises 4 physical components over which 2 protection mechanisms are recommended:

1. The headwater basin of the Donald Stuarts Creek (~70 hectares), kanuka shrublands on the south side of Donald Stuarts Creek (~35 hectares) and totara shrublands (~10 hectares) on the north side of Donald Stuarts Creek are recommended for restoration to full Crown ownership as a Conservation Area.
2. If Donald Stuarts Creek meets the criteria for the establishment of a marginal strip (Part IVA Conservation Act (1987)), it is recommended that Ministerial approval is gained to survey a 30 metre strip on each bank (as opposed to the standard 20 metres). If the stream (or any part of it) does not qualify for a marginal strip, it is recommended that 30 metres on each side be incorporated the conservation area described above. Total area recommended for riparian protection is approximately 25 hectares. 36

Summary Description:

The area includes a relatively intact narrow-leaved snow tussock grassland in the vicinity of the upper boundary of the pastoral lease at the head of Donald Stuarts Creek. With decreasing altitude this grassland merges into a mixed tall/short tussock grassland. Below approximately 750 m.a.s.l. intact native vegetation is mostly confined to a narrow strip of shrublands, herbfields and grasslands along the margins of Donald Stuarts Creek. At lower altitudes exotic grasslands are interspersed with native riparian shrublands.

At two points the proposed reserve widens to incorporate extended areas of native shrublands (a) approximately 35 hectares of kanuka/manuka shrubland on the southern side of Donald Stuarts Creek and (b) a shrubland remnant covering approximately 10 hectares containing remnant Halls totara trees and numerous saplings, kanuka, snow tussock and matagouri on northern side of Donald Stuarts Creek.

Justification

The altitudinal sequence has been identified in the knowledge that it eventually stands to extend to the Lauder Conservation Area. Tussock grasslands which are part of Lauder pastoral lease and lie between Cambrian and the Lauder Conservation Area clearly meet conservation criteria for restoration to full Crown ownership under the tenure review.

The narrow-leaved snow tussock grasslands in the upper reaches of Cambrian retain much of their natural character. In association with adjoining shrublands and riparian vegetation, the area is considered to be of high conservation value as part of an altitudinal sequence of relatively intact native vegetation.

Whilst several larger, more intact *Kunzea* stands are present elsewhere in the ecological district, the co-existence of manuka and kanuka on the south side of Donald Stuarts Creek is of some ecological significance. These species were not recorded growing in close proximity elsewhere in the Dunstan Ecological district, at the time of the PNAP survey. In the absence of burning, this vegetation type would rapidly revert to a more natural state. These shrublands lack the diversity of other shrubland remnants in the ecological district; for example Shepherds Creek to the north of Cambrian pastoral lease (RAP Dunstan A1) contains larger, more intact and more diverse shrublands. However as part of a relatively intact altitudinal sequence these shrublands are considered to be of considerable conservation value. Intact altitudinal sequences are uncommon within the Dunstan Ecological District.

Halls totara groves are of ecological and conservation significance as they are uncommon, disjunct and restricted in extent. These groves represent an important relict of what may once have been a dominant plant community in this part of Central Otago" (Grove 1994).

Although the Donald Stuarts Creek riparian zone supports only a narrow strip of native shrublands for much of its length, this remnant provides a valuable insight into species which probably once formed the dominant cover in the area. Riparian vegetation is also an important factor in regulating the temperature and light environment of small streams. Maintaining quality riparian environments

in small streams will generally exert a relatively larger influence on stream functioning than alongside large lowland rivers. Improvements in lowland rivers are often achieved through riparian management upstream (Collier et al 1995). The riparian shrublands are particularly important in that they comprise the lower part of a relatively intact sequence of native vegetation which runs from approximately 500 m.a.s.l. to the upper boundary of the property and beyond to the Lauder Conservation Area.

Management and Boundary Issues

(i) Basin at Head of Donald Stuarts Creek below Lauder Pastoral Lease Boundary.

Fencing: It is recommended that this area be fenced and destocked. This will require approximately 2.2 km of fencing. The cost to be charged against the land tenure reform account.

Burning: The area has historically been burnt. Surrounding areas will continue to be subject to periodic burning. Exact boundaries of the area will require further careful consideration with input from the lessee. Some fire break construction may be required; however natural spurs and gullies should be utilised as much as possible.

Pests/Weeds: The area is not considered to be prone to pests or weeds.

Access: Access issues for this area are covered under section (ii) below.

(ii) Kanuka/Manuka, Totara and Riparian Shrublands.

Burning: It is considered that burning or clearance is the major threat to this community. Exact boundaries of the covenant area will require further careful consideration with input from the lessee. Some fire break construction may be required around the kanuka/manuka area on the south side of Donald Stuarts Creek; however natural spurs and gullies should be utilised as much as possible.

Fencing: Fencing is not considered necessary or practical. Regeneration of shrublands will occur regardless of stocking, as evidenced by the need to repeatedly burn the area for the past 100 years under a grazing regime. A dense cover of matagouri serves to minimise stock entry into the Halls totara shrubland.

Pests/Weeds: Although the woody weed component of these areas is not great, some briar spraying would be desirable. In time, shrubland cover will thicken and resist further weed invasion. Regular inspection of these areas will be required by field centre staff. Rabbit numbers are currently low over the entire area. Kanuka shrublands on the south side of Donald Stuarts could potentially harbour a significant rabbit population. Regular liaison with the owners of Cambrian will need to be undertaken. Given the location of the proposed conservation area, it is essential that DOC is willing to co-operate with the adjoining landowner on pest and weed issues.

Access: Public access and DOC access (for management purposes) into the conservation area will be available from the proposed access easement into Donald Stuarts Creek at the base of the area, and into the headwater basin at the top of the area. Recreational use of the proposed conservation area is likely to be low. The vast majority of recreational users will use the proposed access easement up the 4WD track to access the Dunstan Mountain tops.

4.2.2 Alpine Wetland Area - North Western Corner of Property

Recommendation:

That this area (approximately 10 hectares) be restored to full Crown ownership as a Conservation Area.

Justification

This wetland which is in virtually pristine condition, supports a virtually pure cover of *Oreobolus pectinatus* (comb sedge). Scattered throughout the wetlands are numerous insectivorous *Drosera arcturi* (sundew), while *Carex gaudichaudiana*, *Gnaphalium spp*, *Coprosma perpusilla* and *Sphagnum* moss occur at the margins.

The area is a valuable habitat for native invertebrates; especially bugs, flies, moths, beetles and dragonflies.

Although very small, recommendation for protection is largely on the basis that the wetland eventually stands to become an important component of a much larger conservation area, following tenure review on Lauder pastoral lease.

Management and Boundary Issues

Fencing: Given the potentially fragile nature of this area, it is recommended that the wetland is fenced from the balance of Cambrian.

Access: As the area is very small and isolated, there is little to be gained from establishing formal public access. Access for DOC staff can be formalized through registering an easement on the title allowing entry over the property for management purposes.

Pests/Weeds: The wetland is currently weed and pest free. It is considered that the area is not vulnerable to weed invasion or damage by pests.

4.3 ACCESS

Recommendation:

That legal public foot, mountain bike and horse access and vehicle access for DOC management purposes be secured up the main farm track from Loop Road to the upper margin of Cambrian pastoral lease.

The possibility of extending the route through Lauder pastoral lease to the Lauder Conservation Area should be explored with the lessee of that property and the Commissioner of Crown Lands.

This track will be an important access route to the Lauder Conservation Area, and in time to a much larger area of conservation land. Provided that access can be formalized through neighbouring Lauder Station, the route should be established as soon as possible.

Means:

Section 7(2) Conservation Act (1987) easement. Easements will also be required on 2 freehold titles held by the current lessees which lie between Loop Road and Cambrian. These are section 34 Blk IV Blackstone SD (CT 14A/837) and section 30 Blk IV Blackstone SD (CT 9C/765).

Justification:

Attaining legal access to the Lauder Conservation area (land locked) has been considered a high priority since the time the block was purchased. The purchase of the block with no public access attracted criticism at the time. DOC is vulnerable to a non co-operative future landowner/lessee not granting access to the department to land which it administers.

Management Issues:

- Signage informing users of their rights and responsibilities will need to be erected at the top and bottom of the route.
- A number of styles will need to be erected (6-7).

4.4 OTHER MATTERS

- **DOC DISPOSALS - LS 175**

The lessees of Cambrian occupy 4.65 hectares of Conservation Land under a DOC grazing licence (LS 175). The area lies between Donald Stuarts Creek and freehold land owned by the lessees of Cambrian Station and is described as Crown Land opposite Section 30 and 34 BLK IV Blackstone Survey District. This licence was recently renewed and runs from 1 January 1994 to 31 December 1998. Annual rental is \$45 plus GST. The area is a long narrow strip which is part of several larger paddocks. One side of the area is unfenced and another only partially fenced. To fence the area as an entity would create an impractical paddock.

A report compiled by the Alexandra Field Centre dated 8 October 1993 concluded that the area does not have any 'special conservation values'. There is an existing marginal strip surveyed on the adjacent section of Donald Stuarts Creek.

The Conservation Management Strategy Land Inventory identifies the area for possible disposal and describes the area as having nil conservation values.

RECOMMENDATION:

That the licensees are offered the opportunity to freehold the area at a nil purchase price, provided they meet associated costs. Such costs include clearance under section 40 of the Public Works Act, Ngai Tahu clearance, public advertising as required under sections 16 and 26 of the Conservation Act, the cost of survey and title issue.

PART V: ATTACHMENTS

Illustrative Maps

Map 1	-	Cadastral/Topographic Map
Map 2	-	Conservation Values
Map 3	-	Recommendations

REFERENCES

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