

## **Crown Pastoral Land Tenure Review**

**Lease name : CAMBRIAN**

**Lease number : PO 375**

### **Conservation Resources Report - Part 1**

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

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

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

**May**

**07**

**CONSERVATION RESOURCES REPORT**  
**FOR THE COMMISSIONER OF CROWN LANDS**  
**CAMBRIAN PASTORAL LEASE**

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## PART 1

### 1.1 INTRODUCTION

The lessee of Cambrian pastoral lease has applied to the Commissioner of Crown Lands for a review of the property's pastoral lease tenure.

Cambrian pastoral lease (982 hectares) is located on the eastern flanks of the Dunstan Mountains, below the Lauder Conservation area. The lease was formed in 1981 when Lauder Station was split into two units. The area is now farmed in conjunction with 505 ha of adjoining freehold land on which the homestead is located. Part of the pastoral lease adjoins Loop Road which runs between Becks (SH85) and St Bathans. A separate 5 ha parcel of land located at the intersection of Beatie and Lauder Station Road is also part of the pastoral lease. The property is 10 km from Becks and 50 km from Alexandra. The extent of the area and pastoral lease boundaries are depicted on Map 1 (appendix).

Cambrian pastoral lease has been farmed as an independent unit since 1981 when two brothers formed separate farming operations. Formal consent for subdivision was granted in 1986. For a detailed account of subsequent land transactions relating to this subdivision and the purchase of part of Lauder pastoral lease by the Department of Conservation refer to section 2.7.2(d) - Easements. The larger of the two leases, containing a substantial tract of high altitude land, retained the name Lauder Station (now P376). The newly formed Cambrian pastoral lease comprises low and mid altitude country. Part of Lauder Station comprising the upper reaches of the Dunstan Mountains, is subleased back to Cambrian on an undivided basis (jointly stock high altitude area).

The majority of the property is situated in the Cambrian Land System which is within the Dunstan Ecological District. A small area of highly modified flats at the base of the property is situated within the Maniototo Ecological District. A Protected Natural Areas survey (PNA) of the Lindis, Pisa, and Dunstan Ecological Districts was carried out during the summer of 1984/5. A final report was published in November 1994. A Protected Natural Areas report was compiled for the Maniototo Ecological District in 1994 - primarily from existing resource information but supplemented with limited additional field work. No 'Recommended Areas for Protection' were identified on Cambrian.

A variety of specialists from the Department of Conservation have visited this property as part of this tenure review exercise.

## **PART 2**

### **CONSERVATION RESOURCE DESCRIPTION AND ASSESSMENT OF SIGNIFICANCE**

#### **2.1    *LANDSCAPE***

A landscape survey and assessment of the Dunstan mountains was undertaken in 1989 as an adjunct to the PNA programme. The Dunstan Mountains were divided into 7 Landscape Management Zones and a number of Landscape Priority Areas. Cambrian pastoral lease is located within the Eastern Slopes Land Management Zone. No identified priority areas affect Cambrian pastoral lease. Landscape values are primarily associated with the contribution of this property to the total Dunstan Mountain Range entity and as an integral element within the Manuherikia Basin landscape.

#### **Significance of Landscape**

The eastern slopes of the Dunstan Mountains comprise a semi natural landscape setting for the developed farmland and settlements of the Manuherikia Valley. Remnant shrublands and tussock lands contribute to the landscape character of the range as a whole.

#### **2.2    *LANDFORMS AND GEOLOGY***

##### **(a)    Topography**

The lease lies on the eastern slopes of the Dunstan Mountains between 500 and 1100 m.a.s.l. The lease can be divided into four broad topographic components.

1.    The lower portion (approximately 300 hectares) of the lease is situated on flat to rolling toe slopes.
2.    Sunny north facing moderate slopes on the south side of Donald Stuarts Creek.
3.    Shady south facing steep slopes on the north side of the Donald Stuarts Creek characterised by a number of steep rocky outcrops.
4.    A narrow relatively deeply incised catchment floor of Donald Stuarts Creek.

## **(b) Geology**

During the Cretaceous period, erosion and weathering of a schist landscape led to the formation of a peneplain of low relief of highly weathered material. The underlying rock is Otago schist, a metamorphic derivative of older marine sediments. During the Oligocene and Miocene epochs the schist basement has been warped and dislocated by major faulting to create the modern topography of north-east trending fault block ranges. The low rolling hills are underlain by a mixture of Miocene and Pliocene deposits. Post glacial deposits are present on the river terrace at the front of the property.

### **Significance of Landform and Geology**

Landforms and geological features on the property are not of international, national or regional significance.

## **(c) Soils**

**Cluden Soils.** These soils occur on the lower flats at the front of the property and are formed over alluvial schist fan material.

**Pigburn Soils.** These are fine sandy loams on terraces at the base of the property.

**Arrow Hill and Steepland Soils.** These generally occur on shady mid altitude faces.

**Dunstan Steepland Soils.** These occur on steep slopes and have formed on schist, schist detritus, colluvium and solifluction debris.

### **Significance of Soils**

The above soil types are widespread throughout the Dunstan and Maniototo Ecological Districts.

## **2.3 CLIMATE**

Average rainfall is 600 mm per annum. At the base of the property, a moisture deficit is generally experienced over spring, summer and autumn. Rainfall increases with altitude. Summers are warm and winters cold with snow common although not generally lying for long periods. Frosts may occur in any month. Prevailing winds are from the north west.

## 2.4 *VEGETATION*

Vegetation on most of the property is highly modified, with the majority of the lease having been cultivated or AOSTD. However a significant area does retain a predominately natural character or is exerting a strong tendency to revert towards shrublands dominated by native species. Vegetation composition of six distinct topographic units identified on the property are described below.

### (a) **Flat to rolling toe slopes at base of pastoral lease.**

Vegetation in this zone (~300 ha) comprises exotic pasture (approximately 65 hectares cultivated) and highly modified AOSTD pasture.

#### **Significance of Vegetation**

Vegetation in this zone has low inherent conservation values.



**Photo 1. Highly Modified Farm Land on Rolling Country at the Base of the Pastoral Lease**



**(b) Sunny north facing moderate slopes on the south side of the Donald Stuarts Creek.**

The uppermost corner (south-west) of this topographical unit comprises a relatively intact mixed *Chionochloa rigida* (narrow leaved snow tussock) / *Festuca novae-zelandiae* (hard tussock) grassland. Other native species present in this high zone (1000-1120 m.a.s.l.) include *Bulbinella angustifolia* (Maori onion), *Aciphylla aurea* (golden Spaniard), *Raoulia subsericea*, *Anisotome aromatica*, *Leucopogon fraseri*, *Anaphalis bellidioides* and *Discaria toumatou* (matagouri). Common exotic species include *Hypochaeris radicata* (catsear), *Anthoxanthum odoratum* (sweet vernal) and *Hieracium lepidulum* (tussock hawkweed). *Leptospermum scoparium* (manuka) seedlings are present up to or near to the upper property boundary, indicating that on warm aspects the entire property is below the historic bush/shrub line.

One *Griselinia littoralis* (broadleaf) tree grows near the ridge crest immediately below this zone near the Lauder pastoral lease boundary. Broadleaf is known to form communities where former dominants are removed or fail to regenerate (Grove 1994); indicating that forest was more important.

Midslopes represent a transition zone between modified pasture / short tussock grassland / regenerating shrubland at lower altitudes and relatively intact *C. rigida* grasslands described above.

From valley floor to ~ 1000 m.a.s.l. there is a strong tendency for vegetation to revert from AOSTD grassland towards a woody state. Fire is used as a farm management tool to clear shrublands. Regular use of fertiliser appears to have accelerated growth of woody species. Woody vegetation in this zone is predominantly kanuka with a secondary component of manuka; most of which is suffering from manuka blight. Other common native shrub species include *Discaria toumatou* (matagouri), *Olearia bullata*, *O. lineata*, *Corallospartium crassicaule* (coral broom), *Carmichaelia petriei* (native broom) and *Coprosma propinqua*. In some areas *Coriaria plumosa* (feathery tutu) forms a dense ground cover in places amongst woody vegetation. Kanuka shrublands have probably developed and expanded to replace the original forest vegetation of the Dunstan Ecological district. The mosaic of shrublands/induced pasture in this zone is depicted in Photo 2.

A small area of kanuka/manuka is also present in a minor tributary of Woolshed Creek near the western extremity of the pastoral lease.