

Crown Pastoral Land Tenure Review

Lease name :Simons Hill

Lease number :PT 046

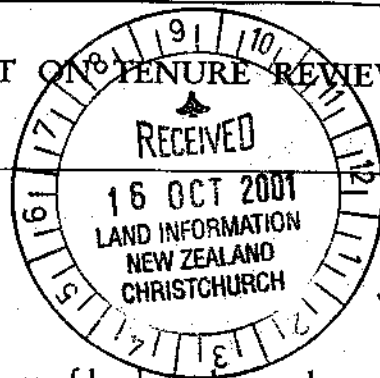
Conservation resources report

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

The report attached is released under the Official Information Act 1982.

Copied October 2002

DOC CONSERVATION RESOURCES REPORT ON TENURE REVIEW OF
SIMONS HILL PASTORAL LEASE



PART 1

1.1 INTRODUCTION

Simons Hill pastoral lease consists of 6,426 hectares of land on the southern side of State Highway 8 mid-way between Twizel and Tekapo. The lease includes all of House Hill and part of Camp Hill as well as most of the flats between House Hill and State Highway 8 (SH8). The lease then extends south to include an area around Simons Pass, all of Simons Hill, and the flats between the hill and the Pukaki River. The Mary Burn forms the eastern boundary, merging with the Tekapo River on the eastern side of Simons Hill.

Land adjoining to the north and north-east of Simons Hill is freehold in a mix of titles and Maryburn pastoral lease, to the north-west is Simons Pass pastoral lease, to the west is Pukaki Riverbed and to the east is Maryburn pastoral lease and the Tekapo Riverbed.

The property lies in the Pukaki Ecological District. This district was surveyed as part of the Protected Natural Areas Programme in 1982/83 and three RAPs (known in the report as priority natural areas) were identified on the property - Pukaki 9 (Tekapo-Pukaki River flats), Pukaki 10 (Simons Hill) and Pukaki 11 (Simons Hill wetland).

There are no protected areas within the boundaries of Simons Hill lease.

PART 2

INHERENT VALUES: DESCRIPTION OF CONSERVATION RESOURCES AND
ASSESSMENT OF SIGNIFICANCE

2.1 LANDSCAPE

2.1.1 Landscape Context

Simons Hill lies in the middle of the Mackenzie Basin, the "most extensive outstanding natural landscape in the Canterbury Region" and "one of the most investigated, painted, written about, visited, eulogised and argued over landscapes in New Zealand" (BMP and LA 1993¹).

This 1993 study and a 1992 study on landscape change in the Mackenzie Basin looked at the Basin's landscape values, primarily visual values (BMP 1992²). These studies identified a range of key attributes to support its significance making

¹ Boffa Miskell and Lucas Associates - Canterbury Regional Landscape Study, Vol. 1 & 2

² Boffa Miskell Partners Ltd - Landscape Change in the Mackenzie/Waitaki Basins

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particular note of the variety, the huge scale and clear expression of landforms as well as the basin's visual character particularly the openness, vastness, and strong horizontal emphasis, the notable absence of trees, overwhelming dominance of landform, tussockland character, and overall unity, simplicity and coherence of the landscape and high apparent naturalness.

Other attributes described in the study include the way the Basin is so clearly recognisable as a large basin, due to the strongly defined enclosing ranges, and the ability to see right across the basin floor, particularly in clear light conditions. The absence of features across the plains gives the impression of vast open space and distance.

Most of the Basin is seen as a highly "natural" landscape. From an ecological perspective, much of it is in fact considerably modified, with hieracium and exotic grasses widespread throughout the basin. However, the Basin retains very high "natural" qualities because of its overwhelming dominance of natural landform and extensive presence of short grassland which still retains a component of native species and continues to support a diversity of indigenous insects, lizards and birds. It is still regarded overall as one of the region's, and arguably, the nation's, largest outstanding natural landscapes.

It is also a highly visible landscape. A major tourist highway (SH8) passes through the middle of the basin and much of it is able to be viewed from the highway, along with views from the Canal roads which are popular for recreational driving. Several minor shingle roads afford "back-country" experiences of other parts of the Basin, such as Mackenzie and Hakataramea Pass.

2.1.2 Other assessments of landscape character - landscape compartments

Within the Mackenzie Basin there are several smaller distinct landscapes. The 1992 landscape study recognises these distinctions by dividing the Basin into "landscape compartments"³. Simons Hill pastoral lease straddles two of these compartments with the summit of the Mary Range and of Simons Hill forming the visual watershed between the Mackenzie Landscape Compartment to the east and the Twizel compartment to the west.

The Mackenzie compartment is an expansive flat basin, a large fluvio-glacial outwash plain bisected by the braided Tekapo River that has formed large, but simple terraces and floodplains. It is dominated by open grassland, giving the whole area a fine textured cohesion and simplicity that is very striking. There are very extensive views of the Basin across and from within this landscape. Simons Hill is one of the hill ranges enclosing the southwest end of this compartment.

The Twizel compartment has similar qualities to the above, but lacks the overall unity and simplicity of the Mackenzie compartment. There is more development

³ A landscape compartment is a visually discrete area. They differ from land systems or other classifications (such as landscape units) in that their emphasis is on the perceived landscape. Landscape characteristics within each compartment are generally similar, in BMP 1992 pp.14,16

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(eg. Twizel township, the canals) and greater variety in landforms. The Pukaki Flats within the lease are a large part of the Pukaki River outwash plains, a local landscape that has the same qualities as that in the Mackenzie compartment. The west side of Simons Hill encloses part of the east side of this area.

2.1.2 Landscape Description

For descriptive purposes the property has been divided into four landscape units - Pukaki/Maryburn Flats, Simons Pass and Homestead Area, Simons Hill, and House Hill and Camp Hill. A map and description of the landform, vegetation and human features of these units appears in Appendix 1 of this report.

2.1.3 Visual Values

Much of Simons Hill pastoral lease is visible to the public. *Simons Hill* is a high, prominent "island" hill rising abruptly out of the flat floor of the Basin. It is clearly visible from many viewpoints in the Basin including from many sections of SH8. It is one of the hill range "layers" seen in the distance across the Mackenzie Basin floor from the north-east, between Burkes Pass and Tekapo. As you travel closer attention is focussed on Simons Hill and the gap between Grays Hills and Simons Hill travelling down the Mary Burn straight, as it is directly in front and forms the skyline. However, House Hill, particularly the north-east end overlooking the Mary Burn, increasingly screens the larger hill behind as drivers draw closer to and pass the entrance to Simons Hill station. The north-western slopes of Simons Hill are also clearly visible from a short section of SH8 travelling east, as drivers emerge from the moraines south of Lake Pukaki and just before the road passes the Simons Pass station entrance where road-side shelter belts prevent views across to the south.

Simons Hill has high visual qualities in moderate to long distance views - it is a distinct, sharply-defined natural landform, it has a highly natural appearance from a distance with no obvious modifications or scars, the interplay of light across the gullies and ridges is fascinating under certain light conditions. Its form and structure is highly apparent with no taller vegetation or modifications to obscure or confuse the perception of it.

Close-up dramatic views of the steep eastern slopes are gained from the Tekapo River road which is used for recreational fishing access. This is the only hill range along the road in an otherwise flat open landscape and therefore it contributes significantly to the landscape experience from the road. Excellent 360 degree panoramic views of the Basin can be obtained from the summit.

Visually *The Pukaki Flats* are highly typical of the Basin floor outwash plains. These plains are one of the most defining elements of the Basin's distinctive visual character - vast open, exposed spaces with strong horizontal emphasis, the low uniform fine-textured grassland cover accentuating the scale and flatness and giving a very simple appearance, and also allowing the subtle sinuous landform patterns created by water and wind to show. It is the sheer scale and openness of the plains that allows the extensive uninterrupted views right across the Basin that is so

memorable. The juxtaposition of wide flat plain and steep mountain slope is also vivid because of the strong and often sudden visual contrast, each accentuates the form of the other.

To some the plains appear bleak, hostile and lifeless, to others they are a special landscape feature and landform phenomena, or home to particular indigenous plant and animal species. Whatever the perception, the plains are fundamental to the character of the outstanding landscape of the Mackenzie Basin.

An extensive view right across the Pukaki flats to the distant eastern Basin ranges and Lake Benmore area is possible from the section of SH8 east of Pukaki described above.

The *tussock flats between Simons and House Hill* are of similar visual quality. When looking east across the flats, they appear to be part of the very large plains areas to the north-east, seemingly never ending until they reach the Two Thumb Range some 20-25km distant.

An extensive view to the eastern side of the Basin is also possible from the highway across the *large open paddock east of the homestead*, the first view east after the enclosure of Simons) Pass (the road). However much better views are possible a little further up the road, once past Mary Burn station.

Visual vulnerability

The 1992 landscape change study assesses visual vulnerability⁴ of different areas of the Basin. All of Simons Hill, the Pukaki flats, the top of Camp Hill and the north side of House Hill and a portion of the flat east of the homestead are identified as being areas of High Visual Vulnerability.

These areas are highly sensitive to visual change - the hills because they are so clearly visible, the flats because of the notable absence of vertical elements, such as trees, and development to fragment them and reduce their scale and simplicity, and also because of their role in allowing extensive views across them. The basin floor between Camp Hill and House Hill was attributed Medium Vulnerability status although this is questionable. This is a highly developed area and further change could occur without changing its current character. Tree planting could however screen views of the hills behind.

The south side of House and Camp Hill and the Simons Pass area is accorded Low Visual Vulnerability as it is removed from view largely and is not really part of the wider Basin landscape. The study does state however that visual vulnerability is largely in respect of views from the highways and there may be localised areas with

⁴ Visual vulnerability is a measure of the degree to which a defined landscape can accommodate change in a visual sense. High Visual Vulnerability (HVV) indicates very little change could occur without changing the qualities of the landscape and being highly noticeable. Low Visual Vulnerability (LVV) means substantial landscape change could occur without changing the basic character or qualities of the landscape. Medium vulnerability indicates some change can occur but has to be sited and designed carefully (BMP 1992, p.45)

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different ratings. The tussock flats in Simons Pass are considered in this assessment to be highly vulnerable to visual change.

2.2 Landforms & Geology

There are two main geographical features represented on Simons Hill - the isolated hills of Simons, Camp and House Hill and secondly the basin floor gravels which make up most of the flatlands surrounding these hills.

Simons Hill is a large isolated hill range around 5km long rising abruptly from the basin floor. The basement rocks are composed of greywackes and argillite of the Torlesse supergroup, the dominant rock type of much of the Southern Alps of Canterbury. Altitude ranges from 440 to 969m asl with an overall broadly convex form trending north-south. Well-dissected by fluvial action, the ridges tend to be narrowly rounded to rolling, with steep to very steep slopes on the east side and gentler colluvial and fluvial fan landforms merge the hill slopes with the surrounding plains on the western side. The Twin summits are rolling with flat tops. On the east side there are old talus and scree surfaces and a lot of bare ground and rock. Rock outcrops are widespread.

Camp and House Hill are two distinct rolling hard rock hills, joined by a low rounded saddle with Camp Hill being a southern extension of Mary Range. They are made from a similar basement material but are much lower than Simons Hill with altitude ranging from 500 to 700m asl. Fluvial dissection of the rather steep side slopes is shallower, with gentler colluvial/alluvial surfaces joining the hills imperceptibly with the surrounding terraces and plains. Summits are broad and rounded. There are numerous small rock outcrops with some small bluff areas facing into the Mary Burn.

The flatlands are made up of deposits of glacial till and fluvio-glacial outwash, as well as alluvium derived from these deposits. These deposits are associated with a series of late Pleistocene ice advances and recessions that occurred during three main ice advances named from oldest to youngest as Balmoral, Mt John and Tekapo formations. Correlated with the glacial history is the formation of a series of fan and terrace surfaces - older fans and terraces can be correlated with the Balmoral Formation and intermediate fans and terraces with Mount John and Tekapo formations. Young fans and terraces are of post-glacial age and their deposits either overlie glacial outwash or have cut into these deposits. These geomorphic features are reflected in a soil pattern (see the attached soil map).

2.3 Climate

The Mackenzie Basin has a continental like climate with hot summers and cold winters. Simons Hill sits at the drier end of the basin with around 300-500 mm of rainfall. According to climate records from the NZ Met Service, rainfall is normally evenly spread throughout the year, but there is a wide seasonal and annual variability from year to year. On average, snow falls on 6-12 days each year, the

months May through to September having more than one day of snow per month. However, snow may fall during any month (NZ Met. Service, 1983).

The continental character of the Basin is reflected in annual, diurnal and extreme ranges in temperature. The nocturnal radiation-cooling characteristic of intermontane basins and the influx of cold air by downslope drainage at night from neighbouring mountains leads to the likelihood of low night temperatures at any time of the year and accounts for the large mean daily range in temperature. In addition to the marked diurnal range in temperature, there is clearly defined contrast between summer and lower winter temperatures.

The basin enjoys high sunshine hours, averaging 2000-2300 per year (cf. Christchurch which averages 1950). There is no season which may be called frost free, and the months of April to November have, on average, more than 10 days with frost.

2.4 Vegetation

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Introduction

Exotic grasses, clovers and forbs are the dominant cover on Simons Hill pastoral lease. There are, however some areas of semi-natural vegetation with a component of indigenous species, particularly on the southern part of the property. The main plant communities are described below. Particular emphasis has been given to those with natural values.

Sparse short tussock grasslands and herbfields

This is a common community on Simons Hill pastoral lease, on dry river terraces and outwash plains, and hillslopes. The density of short tussock varies greatly and in many areas tussock itself is absent. On the Pukaki Flats for instance, where a RAP was identified in the Mackenzie PNA survey, the tussock cover is up to 20% in places, interspersed with sites of little or no tussock cover. Some fescue tussocks are up to 60 cm tall, although average height would be closer to 30 cm. Small/juvenile tussocks (< 30cm in height) are also abundant and make a significant contribution to the overall tussock cover. Approximately 40% of the 'cover' is bare soil. The moss *Polytrichum juniperinum* forms approximately 10% cover, as does the lichen *Chondropsis*. Other lichens contribute about 5% cover. Inter-tussock vascular plant cover, however, is dominated by several adventive species: the hawkweeds *Hieracium pilosella* and, to a lesser extent, *H. praealtum*, sheeps sorrel (*Rumex acetosella*) and the grasses sweet vernal (*Anthoxanthum odoratum*) and *Aira caryophylla*. Cover of hieracium and, in particular, sweet vernal is patchy and variable and appears, like the cover of fescue tussock, to be related to variations in microtopography and soil (more discussion on hieracium cover appears later in this section). Other common exotic species are St Johns wort (*Hypericum perforatum*), browntop (*Agrostis capillaris*), dandelion (*Taraxacum* sp.) and catsear (*Hypochoeris radicata*).

Amongst the native inter-tussock vascular species, the mat daisy *Raoulia parkii* and the sedge *Carex breviculmis* are both abundant here. Also common are the grasses *Poa colensoi*, *P. maniototo* and *Rytidosperma pumilum*, the prostrate mat-forming shrub *Muehlenbeckia axillaris*, the orchid *Thelimytra longifolia* and the mat daisy *Raoulia australis*.

A number of small wilding radiata pine trees are present, widely scattered through the area. Also occurring across the flat are occasional sweet brier (*Rosa rubiginosa*) shrubs and seedlings.

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Hill crest short tussock grasslands

The broad, undulating ridge crest and upper slopes of Simon's Hill, which was identified as an RAP, supports an extensive fescue and silver tussock grassland. Tussock cover is variable throughout the unit, more than 50% cover in some places but scattered or absent from other sites that are dominated by hieracium and/or exotic grasses. Overall, however, tussock cover is 25-30%, with fescue tussock by far the more abundant of the two species.

Between the tussocks is dense plant cover of native and exotic species. The exotics are more abundant overall, in particular sweet vernal, *Hieracium pilosella*, *H. praealtum*, browntop, white clover (*Trifolium repens*), and *Rumex acetosella*. However, several native species are also abundant in the inter-tussock ground cover, and even dominant at some sites: the grasses *Deyeuxia avenoides*, *Elymus solandri*, the herb *Anisotome aromatica*, the sedge *Carex breviculmis*, the prostrate shrub *Coprosma petriei*, and moss. Other common native species are *Rytidosperma pumilum*, *Luzula rufa*, *Leucopogon fraseri*, *Pimelea oreophila*, *Viola cunninghamii*, *Acaena caesiiglauca*, *Oreomyrrhis colensoi*, *Geranium microphyllum*, *Raoulia subsericea* and *Prasophyllum colensoi*. Less common, but also present, are *Raoulia parkii*, *Leucopogon muscosa*, *Craspedia lanata*, *Helichrysum filicaule* and *Scleranthus* sp.

On upper side slopes there are shrubs of matagouri, *Olearia odorata*, *Carmichaelia petriei* and brier 0.5-1.5m in height, widely scattered amongst extensive tussockland. Brier seedlings are also common and several wilding contorta (*Pinus contorta*) are present. There is almost no bare ground, but several widely scattered rock outcrops support clusters of shrubs: porcupine scrub, *Carmichaelia petriei* and *Muehlenbeckia complexa* as well as local abundances of native grasses *Elymus solandri*, *Dichelachme crinita* and *Poa colensoi*.

Hillslope shrublands

Dry shrubland communities occur on moderate-to-steep hillslopes characterised by greywacke rock outcrops and a range of coarse and fine gravel and soil screes. Overall shrub cover is c. 20-25% at these sites, with denser shrub thickets common in the vicinity of rock outcrops and the more stable, coarse boulderfields. A variety

of native shrub species, along with adventive sweet brier, are present. Most shrubs are 0.5 - 2 m tall, but some individuals reach 3-4 m in height.

Porcupine scrub (*Melicactus alpinus*) and the vine *Muehlenbeckia complexa* are generally the most abundant species, but *Olearia odorata*, *Coprosma rigida*, *C. propinqua*, *C. tayloriae*, prostrate kowhai (*Sophora prostrata*) and matagouri (*Discaria toumatou*) are all common and/or locally abundant. Sweet brier dominates the shrubland on the lower slopes of the hill's eastern flank, near the Tekapo River. Height and cover of brier decreases with increasing altitude, although it is still scattered throughout the shrublands of the mid- and upper-hillslopes.

Native grasses are also abundant in these communities. Most prominent are fescue tussock and silver tussock (*Poa cita*). Rock outcrops and the shrubs themselves have afforded palatable native grass species some protection from grazing: plume grass (*Dichelachne crinita*), *Elymus solandri* and *Deyeuxia avenoides* are abundant with some *Poa colensoi* present also. Cushions of *Raoulia australis*, *R. parkii*, *R. hookeri* and *Scleranthus* sp. grow on and amongst rocks and boulders. The shrubland on the south east hillslope has several patches of bracken (*Pteridium esculentum*), with other ferns *Blechnum pennamarina*, *Cheilanthes humilis* and *Polystichum cystostegia* growing on boulderfields and in cracks on rock outcrops.

Adventive herbs and grasses are common. Woolly mullein (*Verbascum thapsus*), vipers bugloss (*Echium vulgare*), storksbill (*Erodium cicutarium*) and *Hieracium* spp. are all abundant, for example, as are grasses sweet vernal, *Bromus tectorum*, cocksfoot (*Dactylis glomerata*) and *Agrostis stolonifera*.

Prostrate Kowhai Shrubland

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A moderately steep, north-west facing hillslope on the eastern flank of Simon's Hill supports a shrubland community characterised by an abundance of prostrate kowhai. This site is separated from the larger area described above by rough pasture of sweet vernal, hieracium and storksbill with scattered fescue tussocks, and brier/exotic grass shrubland. Areas of prostrate kowhai also occur on the main spurs of Simons Hill at its northern end.

Approximately 20% of the site is exposed rocks and stones, with larger rock outcrops present on the upper slopes, while cover of bare soil is c. 5-10%. Native shrubs and brier are scattered throughout the site with overall shrub cover approximately 25%, but rock outcrops tend to be surrounded by denser shrub thickets.

Porcupine scrub and brier are the most abundant shrub species, but prostrate kowhai, *Muehlenbeckia complexa* and *Coprosma rigida* are also very abundant, with matagouri, *Carmichaelia petriei* and *Coprosma propinqua* all common. Height of these shrubs ranges from 30 cm to 2.2 m, most are 0.5-1.5 m in height. Abundance of brier decreases upslope while *Coprosma* spp. and *Carmichaelia* become progressively more abundant.

Aside from the shrubs, plant cover is a mixture of native and exotic species. Fescue tussock and plume grass are both abundant, the latter growing amongst low prostrate kowhai and porcupine scrub. Other common native herbaceous species are silver tussock, *Elymus solandri*, *Carex breviculmis* and *Raoulia australis*. *Poa colensoi* grows amongst rock outcrops. Prominent exotic species are woolly mullein, *Hieracium pilosella*, *Bromus tectorum*, sweet vernal, storksbill and browntop. Also common are yarrow (*Achillea millefolium*), Scotch thistle (*Cirsium vulgare*), red clover (*Trifolium pratense*) and cocksfoot. Abundance of native herbaceous species also increases further upslope.

Mary Burn Riparian Vegetation and Wetland

Mary Burn, on the eastern boundary of the Simon's Hill property, has a narrow (1-3 m wide) band of riparian vegetation that follows the stream's southerly course along a terrace of the Tekapo River. A wetland at the base of the north east corner of Simons Hill is the source of a small creek that flows south to join the Mary Burn.

Riparian vegetation

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Mary Burn riparian vegetation is predominantly composed of exotic plant species. Shrubs of sweet brier and matagouri, 0.5-1.5 m in height, are scattered throughout. An open canopy of taller (30-70 cm) herbaceous species includes silver tussock, Scotch thistle, and patches of *Carex coriacea*, with scattered swamp sedge (*Carex virgata*) and shrub tutu (*Coriaria sarmentosa*) overhanging the stream banks. A dense ground cover is mostly composed of exotic grasses and herbs: Chewing's fescue (*Festuca rubra*), browntop, smooth meadow grass (*Poa pratensis*) lotus (*Lotus pedunculatus*), sheeps sorrel, red clover (*Trifolium arvense*), suckling clover (*T. dubium*) and yarrow. Prominent native species are native bidibid (*Acaena* sp.) and creeping pohuehue (*Muehlenbeckia axillaris*). The native grass *Elymus solandri* is also not uncommon here.

Small backwaters and other periodically flooded sites near the stream have aquatic and semi-aquatic vegetation, again a mix of native and exotic species. Native species present include spike sedge (*Eleocharis acuta*), red pondweed (*Potamogeton cheesemanii*), silverweed (*Potentilla anserinoides*), and *Carex virgata*. Prominent exotic species are jointed rush (*Juncus articulatus*), monkey musk (*Mimulus guttatus*) and water forget-me-not (*Myosotis laxa* ssp. *caespitosa*).

Wetland vegetation

The wetland's outer margins (a low terrace riser) have an open canopy of silver tussock, shrub tutu (*Coriaria sarmentosa*) and *Carex coriacea* over a dense sward of Chewing's fescue, white clover, browntop and yarrow. Scattered patches of bog rush (*Schoenus pauciflorus*) occupy seepage zones at the base of the terrace riser. The silver tussock - *Carex coriacea* community grades into a band of denser *Carex coriacea* with Yorkshire fog and dock (*Rumex* sp.). This in turn grades into the wetland proper - a mosaic of rushland and sedgeland vegetation with a mixture of native and exotic species.

The sedgeland component of the mosaic is characterized by taller (c. 1m) *Carex virgata* scattered over a dense sward (20-30 cm in height) of *Carex sinclairii*, *Eleocharis acuta* and Yorkshire fog. There are several sites within the wetland where the adventive sedge *Carex ovalis* forms dense, monospecific stands 20-30 cm in height. The rushland component has scattered *Juncus gregiflorus* above a dense cover of adventive jointed rush with some *Carex sinclairii*. However, these rushland and sedgeland communities, while distinct at some sites, intergrade at others, and the proportions of their constituent species continually varies.

Other common species in the wetland mosaic are *Carex buechananii*, dock, water forget-me-not and lotus. Towards the southern end of the wetland system, the water table rises and several pools of open water are present. Here, several streamlets join and the wetland gradually narrows into a spring-fed creek with riparian vegetation similar to that described for the margins of the Mary Burn.

Discussion

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During the summer of 1983/84 the natural values on Simons Hill were assessed as part of a much wider Mackenzie Basin Protected Natural Areas Programme (PNAP) survey. The survey identified three RAPs (known in the report as priority natural areas) on the property - Pukaki 9 (Tekapo-Pukaki River flats), Pukaki 10 (Simons Hill) and Pukaki 11 (Simons Hill wetland) (Espie *et al.* 1984).

The Tekapo-Pukaki River Flats RAP (Pukaki 9) was chosen as a representative example of an extensive area of dry fescue tussock grassland on a basin floor. The precise location of this area and its boundaries were left open for discussion. The area mapped in the report was determined arbitrarily as a grid square on a 1:63,000 scale map. The Protected Areas Scientific Advisory Committee (PASAC) inspected the site and recommended that the area be extended if possible to include the lower river terrace. It suggested that a minimum area of 100-200 ha be protected, the exact size and location to be left to the negotiating Department. After consultation with Peter Espie (the survey team leader) in the early 1990s the boundaries of the priority natural area were expanded to take account of PASAC recommendations and the new boundaries were submitted to the Mackenzie District as part of consultation on Scheme Change 21 (forestry proposals). The site was then re-inspected in about 1995 by Dr Marta Treskanova to re-evaluate the PASAC and Espie recommendations during consultation on the Mackenzie District Plan. Treskanova's recommendations reduced PASAC's extensions by removing the lower river terraces and the south westerly extent of the area because of the extent of modification and the dominance of introduced plants.

Note: There have been some significant reported changes on the Pukaki Flats. Fescue tussock density is low in many of the plots (with "good" tussock cover reaching 10-20%), and many grey - dead or dying tussocks. Bare ground is on average about 20-40% and hieracium cover varies between around 30-50%. That in itself is not atypical for the Mackenzie basin. However, records from the early 1990's show very low percentages of Hieracium on this flat - (i) reports from the

Regional Council written in 1990 refer to Hieracium on the flats as being largely absent from the vegetative cover. (ii) the only PNA plot sheet from this flat records hieracium having a cover of "2" which is between 1-5%. (iii) Figures from the Mackenzie Basin grazing trial figures for the early 1990s show an average of 0.03% cover of hieracium in 1991, and 0.4 % cover in 1993. A big change occurs after these dates, however. The Mackenzie Basin trials show an average of 27% hieracium cover in 1998 and 32% in 2000 in the ungrazed sites and an average of 35% cover of hieracium in 2000 for the grazed areas.

The summit and northern face of Simon's Hill were identified in the Mackenzie Ecological Region PNA survey report as the best example of a hill crest stand of fescue and silver tussock grassland in the ecological region and a good example of dryland shrubland on hillslopes (Pukaki 10 Simons Hill). As a result of PASAC recommendations the original RAP was extended at the south-eastern end to include eastern slopes of the hill down to the Tekapo River, to incorporate another area of shrubland on rock outcrops and a range of and coarse and fine rock/soil screes. The shrublands were inspected by Bill Lee at about the same time as Marta Treskanova's visit and he comments that this area is of moderate importance, as these shrub areas are under-represented in protected natural areas in the Ecological District.

2.4 Fauna

2.4.1 Birds

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As a result of a faunal survey undertaken in January 2001 and from previous visits a total of thirty-eight species of birds have been recorded on this property. This comprises seven endemic, sixteen native and fifteen introduced species. Appendix 2 has a list of these species which include black stilt (kaki), black fronted tern, banded dotterel and New Zealand falcon. Kaki as well as other wetland species use this wetland for feeding and nesting. The wetland is especially important as a refuge to these species when the Tekapo River is in flood as a result of Meridian energy spilling water out of Lake Tekapo.

Other areas used by wildlife are the shallow soil-edged pond in the middle of a developed paddock near Simons Pass with no known native vegetation around the edge. However it is extensively used by a variety of wetland birds including black stilts and is probably an important feeding site for these species, especially in late spring and into summer. In some years this pond probably becomes dry.

2.4.2 Reptiles

The sampling of reptiles was carried out by visual searching of likely habitats on Simons Hill station. This information was supplemented with existing data collected over a number of years by various people. Although not comprehensive, it is probably a good indication of the reptile species found here. These species are common, and with the habitat that exists and altitude they are typical for this area. There are some historical records of large skinks from the eastern slopes of the hill bordering the Tekapo River. These animals are probably spotted skinks, as they

typically use this type of habitat. It is possible that Scree Skinks do exist here, but recent surveys have so far, failed to locate them.

Three species of endemic reptiles have been recorded from this property. (i) Macanns skink (*Oligosoma maccanni*). This species is widely distributed throughout this property but is generally nowhere common, probably due to the intensive farming that has occurred here, including burning. They are generally found in the grasslands and stony ground, including rock outcrops. (ii) Spotted skink (*Oligosoma lineocellatum*) This species has only been found on the eastern side of the hill in the scree slopes bordering the Tekapo River, and does not appear to be very common. (iii) Common gecko (*Hoplodactylus maccaulatus* sp: southern alps). This species is commonly found throughout the property especially in rock outcrops. The taxonomical status of the common gecko has recently been reviewed and the species has now been divided up into a variety of subspecies/new species, with the Mackenzie basin animals being assigned as the Southern alps variety.

2.4.3 Freshwater fish

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Sampling of freshwater fish was carried out by using an electric fishing machine at selected sites in the Maryburn wetland and stream in January 2001. No fish species were found in the wetland, although this was really no surprise with some of these ponds periodically drying up, and there being very little continuous water of any note connecting the ponds together with the river below.

The Maryburn Stream was more fruitful with four species being found - long finned eel (*Angullia deffinbachii*), Canterbury galaxiid (*Galaxias vulgaris*), upland bully (*Gobiomorphus breviceps*), and the introduced brown trout (*Salmo trutta*). This stream is a permanent water body with a gravely substrate, an average width of 2m for the water body and the stream bed 4 meters, a average depth of around 500mm and a variety of fish habitat, including riffles, runs, shady over-hanging banks, and quiet backwaters.

This stream is well known for its excellent trout fishery, and spawning area. Of note was the catching of two large long finned eels, which are probably very old and may pre-date the building of the hydro dams. This is because there is no workable fish passage up the Waitaki valley that would provide any recruitment of young into the population. The other species found are considered to be representative of the species inhabiting this kind of river at this altitude in the Mackenzie basin.

2.4.4 Invertebrates

Entomological values were assessed between 15th and the 17th of January 2001. Light trapping was carried out on Mary Burn on the night of the January 16th. The weather for light trapping was cold and windy. The weather on the 15th was warm and partly-cloudy and the weather on both the 16th and 17th was cold and very windy. A cold southwest airflow cover both main islands, a large southerly storm in Wellington and new snow on the tops of the mountain near the pastoral lease. With

these weather conditions assessment of invertebrates of this pastoral lease was difficult.

There are two main notable invertebrate communities on the lease. They are the Lower Mary Burn Stream and Wetland and the Simons Hill.

It should be noted that the larger open area southwest of 'Simon Hill' - the Pukaki Flats was looked at but the weather was totally unsuitable to carryout any type of invertebrate assessment. It was very cold and very windy.

Lower Mary Burn Stream and Wetland

The lower Mary Burn Stream and wetland area is located on the eastern side of both 'Simons Hill' and House Hill. The Mary Burn Stream flows into the Tekapo River next to 'Simons Hill'.

The damselflies, *Xanthocnemis zealandica* (Redcoat) is commonly found throughout this wetland. The Tussock ringlet butterfly (*Argyrophenaga* sp.) was also seen flying when the sun was shining.

The grasshopper *Phaulacridium marginale* was establish on the wetter area of the pastoral lease and the grasshopper *P. otagoense* was establish on the dry region.

This area has a rich aquatic invertebrate community - damselflies, dragonfly, stoneflies, caddisflies, mayflies, dobsonfly and beetles were all collected. The margins of the wetland and streams were undisturbed, with vegetation growing down to the water edges. This margin provides suitable habitat for breeding and refuge for the aquatic insects.

'Simons Hill'

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Because of the unsuitability of weather very few invertebrates were seen. The low number of insects seen should not be taken out of context, as this area would hold large and numerous invertebrates communities. This is because within this small area three different habitats are found.

A very dry open shrublands is found on a northern facing slope (site A). An open tussock grassland is found along the tops of 'Simons Hill' (site B) and a rocky scree shrublands is found on a east facing slope (site C). All three habitats would hold very different invertebrates each specialising to take full advantage of it habitat.

The Spider Wasp *Priocnemis monachus* was common along the ridge line. This wasp hunt for funnel-web and trapdoor spiders which it catches and paralysis. It then drags the spider back to it nest and lay a egg on it. *P. monachus* is the largest endemic species of the family Pompilidae (Harris, 1987).

Other observations

Four type localities for moths are either within or near the pastoral lease, *Eudonia gyrotoma* (Meyrick), *Orocrambus fugitivellus* (Hudson), *Scoparia parachalca* Meyrick and *Kiwaia lenis* (Philpott). Two other moth species were also recorded on the pastoral lease *Diasemia grammalis* and *Pterophorus innotatalis*. *D. grammalis* is a diurnal moth and *P. innotatalis* is a plume moth which the larvae feed on *Dichondra*. Both moths are small and prefer open areas.

The pastoral lease has a very rich grasshoppers fauna with five lowland species recorded. The grasshopper *Phaulacridium marginale* is common throughout New Zealand and is found in the wetter areas of the lease. *P. otagoense* is commonly found on the dryer areas of the lease. The grasshopper *Sigaus 'bigelowi'* was found on and around 'Simons Hill'. The other two grasshopper and *Brachaspis robustus* are New Zealand's rarest grasshoppers. Both are found on the boundary of the pastoral lease, and *Sigaus minutus* is known from the Tekapo River, but were not seen at the time of survey as the weather was unsuitable.

2.5 Historic

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Simons Hill was originally part of Simons Pass station, which was first settled in 1856. Simons Hill as a separate entity was balloted in about 1911 by William George Hosken. The Hosken family ran Simons Hill until about 1992/93???. There are four areas that are of historic interest on the property - the rabbit fence, Simons Hill plantation, rabbiters cottage and the bullock track.

The rabbit fence was built in 1888 and extended from Lake Pukaki to the Hakataramea Valley. It was built following concerns by the then Commissioner of Crown Lands that rabbits had eaten out a lot of country around Omarama and they would soon move north and over-run all Crown Lands in the Rangitata and northern Waitaki. Men and huts were placed at 10-mile intervals along the length of the fence to keep it in good condition. There is one known remnant of this fence - under the pylons on the Pukaki flats of Simons Pass station just to the north of Simons Hill. This remnant may extend south onto Simons Hill, but was not investigated at the time of the field survey.

The foundations of one of the rabbiters cottages associated with the fence remains in behind the Simons Hill plantation, half way along the western edge of "Simons Hill".

The plantation itself is possibly the oldest plantation of its kind in the Mackenzie, although this is hard to substantiate (Whelan 1989⁵). It probably dates from the late 1880's or 1890s and contains a wide range of exotic trees including stands of Corsican pine, Douglas fir, Norway Spruce, *Pinus radiata*, silverbirch, Ash, Balsam, Poplar, Larch, Inland redwood and Robinia. In the centre of the plantation is an early 20th century rabbiters cottage, on land administered by the Mackenzie District Council.

⁵ Chris Whelan, 1989. An Inventory of Historic and Archaeological Sites in the Mackenzie Ecological Region

The "Bullock track" is the original road through the Mackenzie and goes from Burkes Pass and travels in a direct line south-west across at least four properties through Simons Pass to the Pukaki River. The remnants are very difficult to see from the ground, but are visible from the air.

2.6 Public Recreation

2.6.1 Physical Characteristics

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According to the FMC guidelines Simons Hill would be mainly within an "open space" recreational experience zoning. For open space the descriptors are semi-natural grasslands under extensive grazing, accessible by roads, off-road vehicles and foot tracks.

According to DOC's recreation opportunity descriptors Simons Hill has the primary characteristics of a back-country environment - primarily "4 x 4 drive in". This means that the property is a modified environment but one that is generally dominated by natural vegetation or landscapes and is natural looking. It is accessible to all terrain vehicles and is traversed mainly by ungravelled roads, or 4 x 4 access. Obvious elements of modification include roads and areas of farming or forestry.

2.6.2 Legal Access

There are 5 legal access ways into Simons Hill pastoral lease - (i) State Highway 8 along the northern boundary of the property, (ii) a legal road along the western bank of the Tekapo River from Tekapo township to the Maryburn confluence (which does not always follow the formed road), (iii) a legal road which comes off this western Tekapo road and cuts through the middle of the property east to west across Simons Pass, (iv) a legal road which goes between SH8 near the Simons Pass homestead and the north-western corner of Simons Hill (the hill), and a legal road that follows the Maryburn Stream from SH8 to half way along the eastern edge of House Hill.

2.6.3 Activities

The main recreation use of Simons Hill is fishing, particularly along the Maryburn Stream, but also along sections of the Tekapo and Pukaki River banks which border the property. The Tekapo and Pukaki River roads are used by anglers, people looking for camping sites along the river or exploring in 4 w.d. vehicles. Occasionally, trampers or walkers climb up on to Simons Hill for the expansive view out across the Mackenzie Basin and the Southern Alps.

PART 3

CONSULTATION AND OTHER PLANS

3.1 Consultation

Meetings were held on 12 December 2000 in Christchurch and 13 December in Timaru with representatives from the Canterbury Landrover Club, NZ Deerstalkers Association, Federated Mountain Clubs, Peninsula Tramping Club, NZ Mountain Bike Association, Friends of the Lewis, Forest and Bird, Canterbury Botanical Society and Over 40s Tramping Club, Geraldine Tramping Club, South Canterbury Fish and Game, New Zealand Alpine Club and Public Access New Zealand (PANZ).

Issues raised at the meeting with regard to Simons Hill were the requirement for continued access on the road around the Pukaki and Tekapo Rivers including access across the Iron Bridge, as there was good fishing in both these rivers or the road gave access to other streams for fishing. The Mary Burn Stream was talked about as being an important stream for fishing. Also noted was the desire to be able to get continued access to the informal camp site at the willow trees where the Maryburn joins the Tekapo River, a popular area for fishing and camping.

3.2 District Plans (Matters of National Importance)

Simons Hill pastoral lease lies within the Mackenzie District. Their proposed plan, as amended by Council decisions, was notified in September 1999.

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Under this plan Simons Hill is zoned Rural. The plan identifies two areas on its schedule of sites of natural significance on Simons Hill pastoral lease - site 41c and 42, both named Simons Hill in the schedule. One (41c) is the wetland near the Maryburn Stream at the base of Simons Hill and the other is Simons Hill (Pukaki 10), with the extension of shrublands on the faces above Tekapo River. Note the Tekapo-Pukaki Flats RAP (Pukaki 9) no longer appears on District plan maps, and it is uncertain why.

For the sites of significance, riparian areas¹⁰ and high altitude areas (areas above 900m) the District Plan has a number of rules:

- No clearance of indigenous vegetation (in the case of riparian areas - no vegetation) to exceed 100m² per hectare in any continuous period of 5 years, except for declared weed pests or for the purpose of track maintenance or habitat enhancement
- No pastoral intensification to exceed 5% of any site of natural significance, except where that activity is provided for under a consent under the Crown Pastoral Land Act, or other management plan or covenant ratified by the District Council
- No earthworks to exceed 20m³ (volume) or 50m² (area) per hectare in any continuous period of 5 years, except for the purpose of track maintenance
- No tree planting in sites of natural significance or above 900m, but forestry up to a maximum of 2 hectares per Certificate of Title is a controlled activity within a wetland and riparian areas

¹⁰ within 100m of a lake, 20m of a bank of a river and within 50m of a wetland

3.3 Conservation Management Strategies

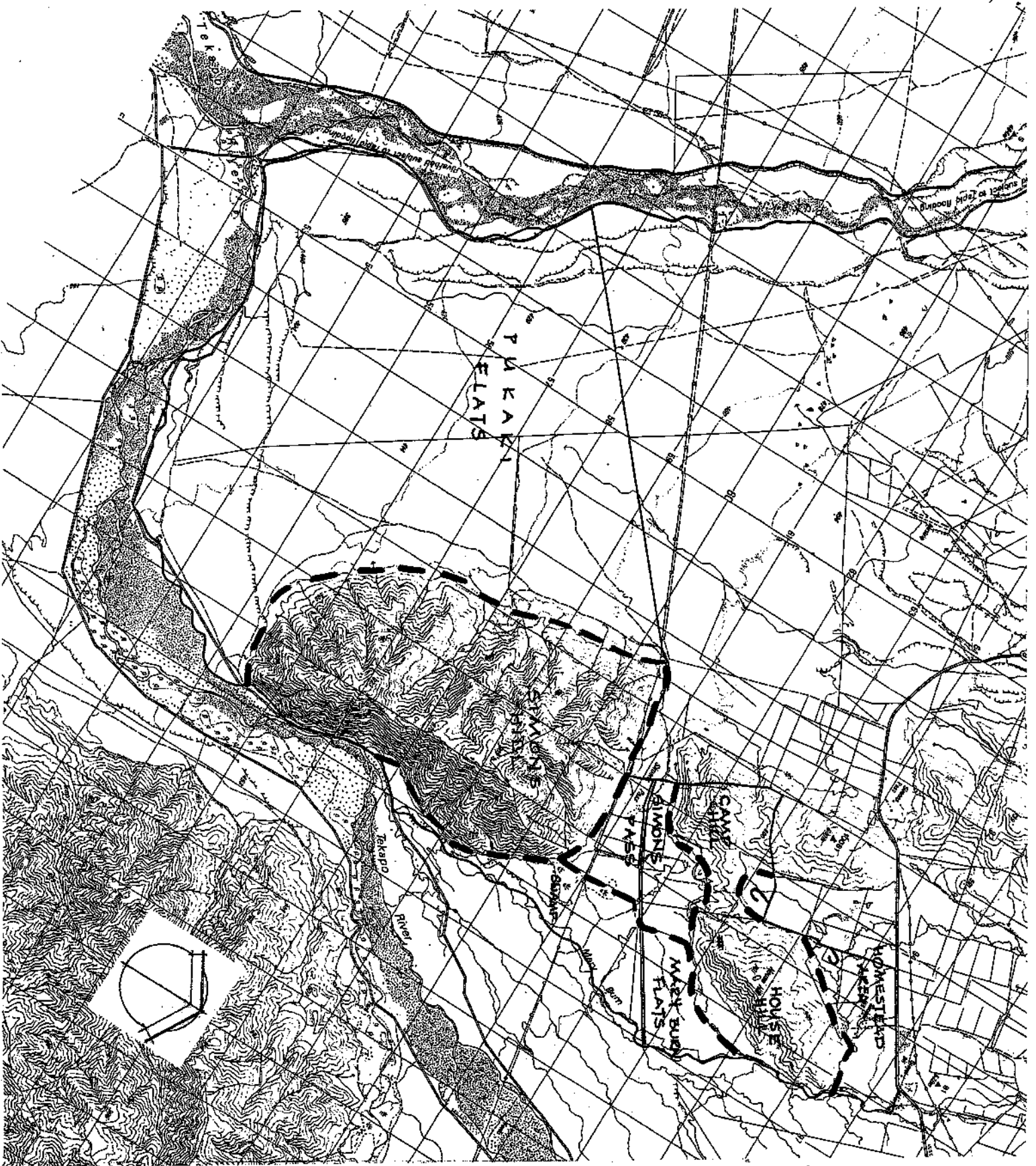
The Waitaki section of the CMS has several sections relevant to tenure review on Simons Hill. Under Waitaki Ecosystems and species an objective is to protect a representative range of indigenous biodiversity of the Waitaki unit, and to negotiate with landholders to protect areas of native vegetation/wildlife habitat. For Project River Recovery the objective is to improve the range of viable riparian habitats for indigenous species and to implement this they have recommended seeking the gazettal of key areas of Crown riverbed with high wildlife value as conservation areas. Relevant recreation objectives include providing new facilities where natural and historic resources are not compromised and to liaise with adjacent landowners to help resolve conflicts regarding access to land managed by the Department of Conservation for recreation.

PART 4

MAPS

- 4.1 Topo/cadastral
- 4.2 Landscape units
- 4.3 Soils
- 4.4 Values

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Legend



Simons Hill Lease Boundary



Landscape Units



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MAP TWO

SIMONS HILL
PASTORAL LEASE

LANDSCAPE DESCRIPTION