

## **Crown Pastoral Land Tenure Review**

**Lease name :The Lakes**

**Lease number :PC 073**

### **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 "THE LAKES" CROWN PASTORAL LEASE

### PART 1: INTRODUCTION

The Lakes Crown Pastoral Lease is located in North Canterbury, in the upper Hurunui River catchment. The lease covers 4280 hectares and is 50km north-west of Hawarden and 120km from Christchurch.

An area of freehold (1590 ha) in the north branch of the Hurunui River held by The Lakes Station is included in this report. Two areas of land administered by the Department of Conservation and grazed under licence by The Lakes Station are also included. The grazing licences include an area of 482ha in the north branch of the Hurunui River above Lake Sumner and an area of approximately 600ha on the true left of the river below Lake Sumner.

The property lies between Lake Sumner, the Hurunui River and Lake Taylor Pastoral Lease. The shores of Lake Sumner or areas of public conservation land alongside Lake Sumner form the northern boundary. The eastern boundary is the Hurunui River. The southern/southwestern boundary is the valley floor between the Sisters Stream-Hurunui River confluence and Loch Katrine. Public conservation land on the Crawford Range forms the western boundary. The property adjoins Lake Taylor Station to the southwest and areas of public conservation land, including Lake Sumner Conservation Park, on the other boundaries.

The area of freehold land forming part of The Lakes Station and included in this report covers an extensive area of valley floor beech forest, shrubland and grassland in the upper Hurunui River valley above Lake Sumner. Other freehold owned by The Lakes Station includes an area of valley floor pasture-land south of the homestead, and a smaller area of valley floor grassland and wetland at the head of (northern end) of Lake Taylor.

Areas of public conservation land included in this review are an area on the south side of the Hurunui Valley above Lake Sumner (around Lake Sumner Hut) and an area of low-lying land between Loch Katrine and Lake Sumner. Also included are the Gabriel Flats (at the southeastern end of Lake Sumner), and the valley floor of the Jollie Brook.

Most of the land covered by the report is in the Sumner Ecological District of the Puketeraki Ecological Region. This district is characterised by moderately glaciated jagged mountains to 1898m a.s.l., intermontane basins, valleys, Lake Sumner and several smaller lakes. The freehold land in the north branch above the lake is in the Hope Ecological District of the Spenser Ecological Region. This district is characterised by low mountains to c. 1500m a.s.l. There has not been a Protected Natural Areas survey of either of the Ecological Districts.

## PART 2: INHERENT VALUES: DESCRIPTION OF CONSERVATION RESOURCES AND ASSESSMENT OF SIGNIFICANCE

### 2.1 Landscape

#### 2.1.1 Landscape Context

The Lakes Station lies in the middle of a large area known as the "**Hurunui Lakes**". This encompasses Lakes Sumner, Marion, Sheppard, Taylor and Mason and Loch Katrine and the surrounding ranges and valleys. Much of this area has been identified as "**Outstanding Natural Landscape**" at **regional** and **district** level. The Hurunui Lakes area has "*the best examples of... classic mountain landscapes within the region - a landscape of mountains with bushclad slopes and clear mountain lakes and rivers ...exceptionally beautiful*" (Boffa Miskell and Lucas Associates 1993).

Like many South Island landscapes, the Hurunui Lakes area has been significantly shaped by glacial processes. The array of clearly visible glacial landforms tells a rich and dramatic story of the area's natural history. Many such distinct landforms are within or adjacent to The Lakes station.

Biogeographically the Hurunui Lakes area is a transitional area between the drier eastern hills and ranges and the more mountainous and wetter main divide. The area also represents the limits of more recent glaciation, and the effects of glaciation get stronger closer to the Main Divide. This transition is also reflected in the forest cover with a presence of red and silver beech in the wetter western areas as well as the ubiquitous mountain beech.

The Hurunui Lakes area is one of the real "back country" areas of Canterbury's high country. A certain degree of adventure and effort is required to access the area via the winding and sometimes steep shingle road with its fords and potholes. A sense of discovery and anticipation of wild remote areas is associated with the trip. The landscape of the Hurunui lakes does provide this but future development could weaken the experience. Conversely, sensitive management of the area with a focus on conserving areas of natural landscape could do much to enhance this experience.

The landscape of The Lakes Station can be considered with respect to **four different local landscape contexts (Map One)**. This relates to its physical structure and to the way it is experienced, largely relating to visual catchments:

#### 1. *Hurunui river valley downstream of Lake Sumner*

The east and north-east aspects of Little Sisters, The Sisters and The Brothers enclose the river corridor on its true right side, forming the skyline. The river itself is the central dominant element of the valley landscape, which provides the setting for the river. The elevated remnant outwash surfaces and alluvial terraces on the true right form the smaller and less natural part of the valley floor. The large spectacular terraces on the true left form the larger part of the valley floor and are a significant natural feature, visually continuous with the adjacent highly natural forest and shrub-clad hillsides. Smaller suites of terraces and moraine

line the river further downstream. This valley is a popular tramping route to the Lake Sumner Forest Park, and the river is a significant fishing river.

The whole area has a very natural character and is notable for its visual/physical continuity from riverbed to mountaintop.

### *2. Lake Sumner and the upper Hurunui valley*

The north face of The Brothers Range is a significant part of the landscape setting for Lake Sumner, the biggest lake in the Hurunui Lakes area. The Gabriel Stream fan and moraine area adjacent is also part of the lake setting as is the northwest end of Woolshed Ridge, adjacent Conservation Area and the mid and upper slopes of the Crawford Range. These areas are both the backdrop to Lake Sumner and the subject of views from the Kiwi-Harper Pass tramping route.

The freehold flats above the lake form the large valley floor between the high mountain ranges of the Forest Park, with the Hurunui River its central feature. Visually they appear to be a natural part of the park and complete the natural continuum from valley floor to mountaintop. Much of the flats area is beech forest.

### *3. Lake Mason Valley*

A small area of the lease forms part of the catchment/visually enclosing hills for Lake Mason in the South Branch Hurunui valley. The route from the Forest Park to Lake Mason passes through the middle of the area.

### *4. Sisters and Brothers Valley*

The isolated ranges of The Brothers, The Sisters, Little Sisters and Conical Hill are the very distinctive and visually dominant elements of the self-contained valley landscape enclosed by the Oronoko/Woolshed Range and the isolated ranges themselves. The Lakes leasehold area forms about half of this landscape and holds the most distinctive elements. The valley is also memorable for its lakes and wetlands - two of the lakes (Mary and Sheppard) and the biggest wetlands in the valley (Sisters Stream wetland, Lake Mary wetland and Raupo Pond) are contained within the property. The enclosing hill and mountain ranges are important for the settings for the lakes and wetlands.

## **2.1.2 Landscape Units**

At a district scale, the station comprises three main **types** of landscape - "Main Divide", "Mountain Range" and "Major River valley". These types are synonymous with Ian Lynn's Land Type classification. Each type is described in the next section.

At the scale of the **property**, the landscape types can be further divided into "landscape units" (*Maps Two, A & B*). These are individually described below under their landscape type.

## MAIN DIVIDE LANDSCAPE TYPE

These are glaciated mountains with high rainfall, extensive scree and bare rock, but little permanent snow and ice. Beech forest dominates the lower to mid slopes, to a tree line of around 1200-1300m a.s.l (Lucas Associates LA 1995).

### Unit: *Crawford Range*

A small part of The Lakes falls within this type i.e: the north-east end of the Crawford Range. Area of very steep, deeply dissected, mountain slopes of east to north aspect and rising to a summit at 1400-1500m a.s.l. The dominant rock type is greywacke-argillite. There is a volcanic intrusion forming the bedrock east of and curving around the top of Taylors Stream. There are numerous rock outcrops and bluffs but not much scree. The scree of the volcanic area has a reddish colour. Slopes have been strongly glaciated in the past resulting in sheer planar slopes with many rounded knobs where the ice has scraped over resistant rock.

Although clearly modified by fire and grazing this area still is highly natural in character and has the potential given freedom from disturbance to regain its natural state ie, progression towards beech forest and shrublands. There are no cultural features such as fences or tracks.

## MOUNTAIN RANGE LANDSCAPE TYPE

Steep mountain ranges with narrow rounded ridges, outcrops and scree. Snow tussock and beech forest (LA 1995).

### Unit: *Woolshed Ridge*

The northwest-most 2 km or so of Woolshed Ridge lies within the leasehold, ranging from around 1100m to 750m a.s.l. along the summit. Unlike the rest of the ridge it has a well-vegetated, rounded summit, smoothed by ice and steep sides, also ground smooth by ice giving a rather rounded topography with numerous hard-rock knobs and bulges. The ridge has been fenced into 5 grazing blocks (some lines have been bulldozed). A 4WD track zig zags up to the Taylor Stream Saddle and 2 others traverse the slope towards the Lake Sumner Hut.

## MAJOR RIVER VALLEY LANDSCAPE TYPE

Low angle, gentle valleys with wide, braided, active riverbeds, terraces, fans, lakes, moraine and glacier-shaped, steep, isolated mountains, and enclosed by mountain ranges (LA 1995).

### Units:

#### *The Brothers*

A very steep, rugged greywacke-argillite mountain range some 10km long and trending in a northwest-southeast direction. Slopes are over 30 degrees over much of the range and the

highest altitudes are between 1200-1400m asl. There is very extensive rock outcrop and scree particularly on the upper slopes and summit. Deeply dissected by steep-sided stream gullies - the south-west side particularly has several basins. The north-east side appears to be more heavily glaciated as a larger ice body would have moved through the wider Lake Sumner valley. The north-west end of the range has a smoother rounded form from ice action, similar to the end of Woolshed Ridge.

The range has an highly natural character with vegetation changes (such as beech to kanuka or grassland) being the only visible, but not significant effect of cultural use. The range is fenced along its base on the southwest side from a point about 1km southeast of Loch Katrine to the southeast corner by the Hurunui River. A small Oregon plantation exists adjacent to the range on moraine landform at the southeast end of the range.

### *The Sisters*

A smaller, generally less rugged, and steep hill range some 3km long trending west-east and rising to 1044m asl at its highest point. It tends to have more planar, pyramidal to rectilinear slopes mostly between 21 and 30 degrees, smoothed by ice and subsequently dissected by streams. There are numerous rock outcrops and patches of scree and bare ground including linear slips and small gullies. However the extent of this is generally much less than on The Brothers, with the exception of the southwest end above Lake Sheppard, and is mostly confined to the summit and upper slopes.

The range is fenced off from the valley floor and is grazed extensively as one large block. A 4WD track passes around the southwest corner and along the bottom on the southern side.

### *Little Sisters*

This is a still smaller, steep hill range forming basically a large pyramid shape, rising to 878m a.s.l. It too has ice-smoothed planar slopes with relatively little dissection and very little scree and bare ground. There are still numerous rocky outcrops and "bulges". Benched areas exist on the lower south side, probably being moraine or kame terraces left by the glacier.

Like The Sisters, the hill is extensively grazed as one block, fenced off from the lower country to the west and north but not fenced from the flax swamp that adjoins on the south side. There are no vehicle tracks or fences on the hill, the effects of burning and grazing are the only obvious cultural modifications. There is a footbridge across the gorge by the road, providing public foot access to a foot track that leads to the swingbridge on the Hurunui.

### *Conical Hill*

A long, ice-smoothed hill lying between Lakes Taylor and Sheppard, rising to 854m at its eastern end. Its pear-shaped outline reflects strongly the passage of ice over and around it. Viewed from the east it has a very distinctive cone shape rising abruptly from the valley floor. Side slopes are steep to moderately steep, and their surface is comparatively smooth with the numerous rock outcrops being quite subdued.

A fence line divides the western end off and there is also a summit fence along the western end. A shingle road traverses the lower northern slope, and a 4WD track climbs the hill about half way along and runs along the summit to the western end.

#### *Sheppard Spur/Hill 766*

This is a low ridge of hard rock less than 800m a.s.l., also shaped by glacier ice to form a 3.5km long northwest-southeast trending, thin, steep-sided ridge. It has a low, flat-topped, pyramid shaped hill at the northwest end (Hill 766). It is breached in the middle by the stream draining from Lake Mary into Lake Sheppard, and separated by a low saddle from The Sisters. It has rounded to planar topography and numerous rock outcrops.

The area is fenced off into small semi-extensive grazing blocks. Sheppard Spur forms one block on it's own, Hill 766 is divided into 3 small blocks, with bulldozed fence lines. A 4WD track runs along the summit of Sheppard Spur and over Hill 766, and around the northern lake shore to Lake Mary stream.

#### *Undeveloped Moraine Country*

There are three small areas of rolling moraine that have not been cleared and cultivated - at the south end of Loch Katrine; between The Brothers and The Sisters; and between The Sisters and Little Sisters. A fourth area of moraine is also effectively within the lease. This is the scarp face along Sisters Stream.

- (i) The Loch Katrine moraine is a small area of bouldery, hummocky valley floor moraine and alluvial material to the southeast of the lake, responsible for damming it. A stream drains west into the Loch, forming a steep-sided gravel gully. An airstrip has been formed within this area, and a pine shelter belt marks the eastern edge of this area. A 4WD track passes through the area, parallel to the Lake Sumner road just over the property boundary. To the west it adjoins the recreation reserve at Loch Katrine with its squatter baches.
- (ii) An area of rolling moraine rising to just over 700m a.s.l., which was left by glaciers between The Brothers and The Sisters. Streams have subsequently cut a shallow valley through the middle. A 4WD track passes through the shallow valley and down to the terrace below.
- (iii) A large wetland covers most of the moraine area between Little Sisters and The Sisters. There is a set of stock yards and a 4WD track passes through it.
- (iv) A long, remarkably even-sloped, smooth scarp face forming the true right of Sisters Stream formed by the stream cutting down through the deep moraine deposits to get to the Hurunui River. There are no subdividing fences, tracks, etc. to scar its surface.

#### *Wetlands*

Two large wetland areas exist on the leasehold - Lake Mary wetland and Sisters Stream wetland. These appear to largely retain their original extent although parts of the Sisters Stream wetland closer to the homestead has been replaced with exotic pasture, willows, etc.

- (i) *The Sisters Stream wetland* starts at Raupo Pond (an isolated, protected area of open water, raupo and willows within the freehold homestead paddocks fed by Lake Sheppard) and runs down to the Sisters Stream gorge around the south side of Little Sisters, parallel to the Lake Sumner road.
- (ii) *Lake Mary wetland* covers an area of about 500m<sup>2</sup>, formed in a depression between The Brothers range and Sheppard Spur and Hill 766. It has a shrub and flax-lined outlet stream that has cut through the low spurs finding its way into Lake Sheppard some metres lower down. Lake Mary itself is situated along the upper edge in the middle. A matagouri-lined watercourse in the centre of the fan above Lake Mary is one surface water source. Another surface stream meanders west along the north side of Sheppard Spur, its origin being the last big basin and fan on the southeast end of The Brothers range. Both streams pass through cultivated paddocks before they reach the wetland.

There is also a very small triangular area of *swampy alluvial plain as yet undeveloped at the head of Lake Taylor*. The bulk of the plain is on Lake Taylor Station. It retains a natural-looking grassland cover but is well-grazed by stock and has an abundance of exotic species.

#### *Hurunui River Flats (below Lake Sumner)*

This is a large area of terraced river flats on the true right of the Hurunui River. The flats are undeveloped but have been well grazed, with a low, open, green-hued surface cover of exotic grasses, short tussock, patches of mostly low grey scrub and some kanuka/manuka. There are numerous grassy wetlands and kowhai, pittosporum, kanuka and grey scrub line the river's edge. The flats are grazed in large blocks, fenced off from adjacent hills. A bulldozed fence line cuts straight across the middle of the large area to the rivers' edge.

#### *Developed Alluvial Fans, Outwash and Moraines*

Most of the gently sloping to rolling fans and moraines have been cultivated and sown in rich green pasture grass, lucerne or grassland. Thistles are locally extensive. Coniferous shelter belts divide these into large generally rectilinear paddocks. Elsewhere the boundaries follow the changes in landform. Occasional patches of native scrub and tussock remain, eg, in seepages or a bouldery area, and where gullies and gravelly water courses cross there are ribbons of grey scrub, tussock, etc. Watercourses in places are reduced to the actual stream only, entrenched between green turf banks, with the occasional remnant tussock stump about. A deeper, steep-sided gully filled with tall kanuka bisects an outwash surface between The Brothers and The Sisters. There is also a small lake on cultivated rolling moraine country at the Lake Sumner outlet. It is tucked against the steep forested mountainside of The Brothers but only a thin border of kanuka forest buffers it from the grassland on its east side, and stock including cattle have free access to it.



Around towards Loch Katrine, there are small hills of moraine left like islands within the developed paddock at the far western end of the arable area. These are part of the Loch Katrine moraine.

### *Lake Mason Valley*

This is a small valley area between Woolshed Ridge and the Crawford Range, representing a finger of the South Branch Hurunui valley containing Lake Mason. It rises to the low Taylor Stream saddle, at around 800m a.s.l, overlooking the North Branch Hurunui valley and the top of Lake Sumner. It is of similar appearance to Woolshed Ridge with ice-smoothed knolls and a kanuka/grey scrub/grassland cover. The tops of the knolls are quite surprising as from a distance the vegetation cover looks to be a very low, grey, rather dead cover but close inspection reveals a variety of mosses and small herbs. A large low angle alluvial fan forms a plain spreading across the valley at the head of Lake Mason. A stock fence runs along the western side of the valley. Most of the valley is part of a Woolshed Ridge grazing block.

The saddle/valley is a well-used route by horse-trekkers, trampers and mountain-bikers giving easy access between the Forest Park and Lake Mason/South Branch Hurunui. There is no formal track although an inconspicuous 4WD track winds down the valley.

### **Freehold Area**

#### *Upper Hurunui Valley Floor*

This is a very large area (almost 1600ha) of extensive alluvial river flats, terraces and low angle alluvial fans from 520-620m asl, and small areas of very steep, ice-smoothed mountainside between Landslip Creek and McKenzie Stream. Two large and one very small roche moutonnee rise out of the valley floor as very distinctive features. The braided gravel riverbed of the Hurunui forms the southern edge of the area, and smaller braided beds run across the area (McMillan and McKenzie Streams). A major alpine fault, the Hope Fault, passes through the area.

Cattle graze the area, prevented from going beyond the western boundary by a stock fence. A 4WD track winds up the flats but is insignificant in the large scale of the landscape. The Kiwi Pack Track, a popular tramping track, passes along the flats from Lake Sumner almost to McMillan Stream. Here it turns to run south across the flats via the 4WD track to a footbridge across the Hurunui River. The track runs up the true right of the river from here. There are also recognised tramping routes up McKenzie and McMillan Streams and up Macs Knob.

### **Adjoining Conservation Areas**

#### *Crawford Range, Hurunui River Flats (true right) and The Canal Area*

These areas, connected by a thin strip of lake shore margin some 300m long, comprise steep, cleared mountain side, alluvial fans and an area of alluvial flats on the true right of the Hurunui River between Lake Sumner and the footbridge where the river sweeps in against the Crawford Range. Also included are the valley floor, subdued moraine and swampland that form an isthmus between Loch Katrine and Lake Sumner.

The mountainsides are steep and rectilinear but with many "bulges" of rock and rounded knolls, the result of the passage of glacier ice. The lower slopes have extensive areas of grey shrublands, kanuka, and bracken. The upper part of the river flats, fenced off as a large holding paddock, have been cleared of shrubs and have a short, dense, green exotic turf cover, with the occasional hawthorn tree and a small isolated stand of tall pine trees. A series of deep ruts mark the passage of 4WD vehicles over the area, which clearly gets very soft in wet conditions. Stream courses wind through the lower flats to Lake Sumner. Marker poles also guide trampers.

The isthmus area, bisected by The Canal - a stream connecting Loch Katrine to Lake Sumner enlarged to allow boat passage - comprises low rolling morainic knolls and flat valley fill areas of swampland. Cover is a mix of grassland, with thickets of kanuka, kowhai, flax and wetlands. Three fences cross the area as it is grazed in conjunction with the Woolshed Ridge blocks, and the 4WD access track winds through the elevated rolling moraine around the lakeshore.

#### *Hurunui River and Jollie Brook Valley (below Lake Sumner)*

From Lake Sumner to Jollie Brook some 10km down river, comprises the extensive and spectacular river terraces and elevated remnant outwash surfaces, moraines and piedmont alluvial fans along the true left of the Hurunui River. These highly natural areas appear indistinguishable from the rest of the Forest Park, with extensive areas of kanuka/manuka, grey scrub, bracken, sedge wetlands, and short tussock grassland continuing unbroken over the mountain slopes and across the valley floor landforms. A main tramping route to Lake Sumner and Gabriel Hut passes up through the area, starting at the swingbridge by Sisters Stream confluence.

The lower Jollie Brook valley from The Forks Stream to the Hurunui is a steep, dissected greywacke/argillite mountain slopes rising to 1150m a.s.l at the highest point. There are a number of rocky outcrops and bluff areas but little visible erosion. This area is a mix of natural vegetation from beech forest to riparian vegetation. A tramping route passes up the valley, starting at a swingbridge across the Hurunui about 1km downstream of Jollie Brook confluence.

### **2.1.3 Visual Values**

#### *Leasehold Area*

Most of The Lakes Station leasehold is visible, often at moderately close to close range, from the Lake Sumner Road. This is the only public 2WD road into the area culminating at the Lake Taylor reserve. Parts of the Hurunui valley below Lake Sumner, and the Brothers and Sisters Valley forms the road corridor experience.

Much more of the leasehold and the freehold river flats above Lake Sumner are readily visible from the public 4WD track which continues inland from Lake Taylor to Loch Katrine, from Loch Katrine itself and its reserve and from within the Lake Sumner Conservation Park. Some areas are very important to the landscape experience gained from such areas as Lake

Sumner itself and the well-used Kiwi-Harper tramping track. Tramping routes also pass the Hurunui River from Sisters Stream to Lake Sumner, up Jollie Brook and down Gabriel Stream, and up over Taylor Stream Saddle and through the Lake Mason valley.

The only areas of the lease that are not publicly visible from either the road or main recreation routes are areas of valley floor between The Brothers and the Sisters; valley floor to the north of Hill 766 and Sheppard Spur (including Lake Mary and wetland); the north side of Conical Hill, Hill 766, and Sheppard Spur; and some of the valley floor between The Sisters and Little Sisters. Raupo Pond, a crown land area within the freehold paddocks by the homestead is also a feature not readily visible from public areas.

### *Conservation Areas*

A good part of the true-left Hurunui valley terraces, fans, etc, downstream of Lake Sumner and the Jollie Brook valley are easily viewed from the road. A well-used tramping route passes through the area itself, from the Sisters Stream to Lake Sumner, and a route also passes up the Jollie Brook.

The isthmus area about The Canal is closely viewed from the 4WD access track and more distantly from the tramping routes across the lake. The track passes through the true right river flats at the head of the lake, and the north faces of the Crawford Range are clearly viewed from both the track and from the tramping route on the other side of the river.

### *Freehold Area*

The valley floor above Lake Sumner up to Landslip Creek is a visually integral part of the whole upper Hurunui valley landscape enjoyed by trampers, pleasure drivers, etc, using the Conservation Park. The Kiwi-Harper Saddle track passes along the flats for the first 4km or so, and the 4WD track passes right through the area too. There are frequent views of the flats from the Kiwi-Harper Saddle track on the south bank of the Hurunui.

There are twelve areas that are considered to be of particular significance

#### *1. Hurunui River Corridor*

The Hurunui River can be likened to a jewel in a crown, which requires an appropriate setting to give it its beauty. The flats and terraces, and to a slightly lesser extent, the surrounding hill and mountain slopes along both sides of the Hurunui River are critical to its visual character. They determine the experience of the river corridor landscape, which is easily accessible from the road and well-used by fishers, trampers, sightseers etc., as "wild and natural". The array of natural landforms unscarred by tracking and fences; the mosaic of native vegetation, in particular the riparian kowhai forest; and the virtual absence of obvious cultural features give the area a highly natural appearance and high aesthetic quality. Although exotic grass and herb species are present, and the impact of burning and grazing is obviated by the presence of grassland and seral kanuka shrubland, the colours, and visual patterns, are of overall natural appearance. There is a marked consistency of landscape character from Jollie Brook to Lake Sumner, which adds to the visual quality of the area.

One of the visual highlights of the area is the extensive suite of very well defined terraces and elevated remnant outwash surface between Gabriel Stream and Nurse Stream. This is a visually spectacular landform set, especially when there are strong, clear, light and shade conditions emphasising the short, sharp scarps with their smoothly curving shape and constant height. In these conditions the landforms can be seen with remarkable clarity.

Because of their steepness, planar nature and close proximity to the river, the side slopes of Little Sisters, The Sisters and The Brothers ranges are highly visible and are also a significant part of the river corridor landscape. They lend an atmosphere of drama and wilderness, especially The Brothers. The absence of fencing and tracking is visually important on these faces, as the natural integrity of the landform is retained even though the vegetation has been obviously modified on The Sisters and Little Sisters especially. The Jollie Brook face has similar visual value. It is directly viewed from the road at moderately close range and is perceived as visually integral with the wider Forest Park mountain range landscape.

Enclaved within this river valley landscape is an area of cultivated rolling moraine at the foot of The Brothers Range by the Lake Sumner outlet. Its visually even, seasonally green pasture cover with sharply demarcated edges contrasts strongly with the natural patterns and colours. Visual contrast is sometimes regarded as a positive attribute but here the area appears somewhat out of place so far removed from the other farmed areas. As well it no longer visually matches the "natural" moraine on the other side of the river and the integrity of the landform as a whole is compromised.

A small lake is situated in this area, in against the mountainside. Although it is surrounded by kanuka forest, there is only a very thin margin left around the north and east side, and a track has been cut through and forest removed immediately to the north.

## *2. Little Sisters, The Sisters, and Conical Hill*

These isolated hills are amongst the most memorable and character-defining elements of the Sisters and Brothers valley landscape and of the wider Hurunui Lakes area. They provide a dramatic visual setting for the several lakes in the valley and also give a distinctive three-dimensional quality to the landscape as different views of the hills are gained in a short space of time as you move about the landscape. This is due to their large scale, their sheer sides, and the way they rise abruptly from the valley floor as very well-defined landforms. They are highly visible, dominant landscape elements.

Little Sisters and The Sisters are visually significant elements of the Hurunui River corridor as described earlier, and frame views up river to the mountains. Little Sisters is also the first isolated range that looms into centre view on the road approach, forming a bulky skyline element. The road passes around the base of the hill giving clear detailed views of its slopes.

Conical Hill has a particularly distinctive, symmetrical cone form viewed from the road. Its beech and kanuka -forested south side is especially important as the backdrop and setting for Lake Taylor. Its north side is a major part of the setting for Lake Sheppard.

Whilst the vegetation cover on these hills has been clearly modified, they still have a natural appearance (natural colours, patterns) and with the virtual absence of track and fence scars, tree planting, etc, the overall integrity of these hills as natural landforms remains. A visually interesting, mixed native shrubland cover is visible over the south side of The Sisters, in contrast to the sparse, burning/grazing induced grass cover on Little Sisters.

### *3. Sheppard Spur (south side)*

This low spur retains a natural appearance and high aesthetic quality with its clumps of beech forest, flax communities and native shrub cover. It is visually important as part of the setting for Lake Sheppard in conjunction with the western end of The Sisters, and the north side of Conical Hill. It is the backdrop to the only view of the lake from the road.

### *4. Hill 766*

Whilst not visually spectacular in any way and on a smaller scale, this low isolated hill is nevertheless a notable visual landform feature within the valley floor. It is clearly visible from the 4WD track to Loch Katrine. It is also part of the setting for Lake Sheppard. It retains a reasonably natural appearance with remnant clumps of beech and kanuka forest, and cassinia shrubland.

### *5. Sisters Stream Wetland*

This is a significant natural linear feature in the landscape mainly due to its size stretching at least 3km from The Sisters swingbridge to the base of The Sisters, and the visual impact of large areas of flax. The road passes right by the edge of the swamp along its length with large flax plants growing over the road itself. The presence of native vegetation right next to the road is regarded as a positive attribute of the area, adding significantly to the landscape experience. Its overall extent appears fairly intact, at least for the section downstream of The Sisters, with little visually obvious interference. The beech-lined gorge at the far downstream end is a dramatic landscape feature right on the property boundary. There is a small car park here and a footbridge across, being the start of the tramping route up to Lake Sumner.

### *6. Lake Mary Wetland*

This too is a visually significant natural landscape feature due to its size (around 500m<sup>2</sup>), its natural shape and apparently intact extent, its large area of flax, and its central lake. It is not visible from any public viewpoint but this does not lessen its visual value.

### *7. The Brothers Range*

Whilst in fact it is an isolated range, The Brothers does not gain its visual drama from a distinctive form so much as from its very rugged, visually diverse and highly natural appearance. The visual mix of extensive rock outcrop; scree; beech forest; colourful mixed shrublands; grey scrub; cassinia/olearia dominant scrub; and kanuka forest combined with the very steep, rugged, deeply dissected nature is of high aesthetic appearance and is visually dramatic. This is exaggerated by its contrast with the highly developed farmland on the adjacent valley floor from which it rises abruptly with no transition.

The range is very important as the setting for Lake Sumner, where it encloses virtually the whole south side of the lake. This is an example of the "classic" mountain-lake scenery referred to in the BMP and LA 1993 study, and is of major importance to the district (LA 1995). It is the backdrop to views across the lake from the Kiwi-Harper tramping track, and from the track between Gabriel Hut and the Kiwi-Harper track. It is also the setting for Loch Katrine, forming the northeast side of the 1.5km long lake. Its southeast aspect is a significant part of the Hurunui river corridor as described earlier.

#### *8. Loch Katrine moraine*

The small area of tussock and matagouri covered moraine damming the south end of Loch Katrine might in itself not have high aesthetic value. It is however part of the natural landscape setting for the lake, responsible in part for its existence, and is a part of the glacial history of the area. It also is a natural landscape link between Woolshed Ridge and The Brothers.

#### *9. Loch Katrine-Lake Sumner Isthmus*

This area is visually important because of its immediate visual association with both water bodies. Its relatively natural appearance is important in creating the natural settings for the lakes, especially the shoreline kowhai forest. It is also a natural landscape link between Woolshed Ridge and The Brothers. This area is clearly viewed from the 4WD access track which runs around above it.

#### *10. Lake Mason Valley*

The significance of this area lies mainly in its visual association with Lake Mason. The western side of Woolshed Ridge is part of the landscape setting for the lake seen from the hut area, and is also contiguous with the forested area on the boundary. The valley with its knolls and alluvial fan at the head of the lake is part of the setting too as seen from the track around the lake, and is also the foreground to first views of the lake on coming down from Taylor Stream Saddle.

The Crawford Range provides a highly natural, visually dramatic backdrop to the lake when viewed from the east. Its steep, rugged, rocky nature and vegetation cover of beech forest, richly coloured mixed shrublands, and dense mature matagouri presents a scene of high aesthetic quality. Visually, the leasehold area is indistinguishable from the rest of the range apart from perhaps a predominance of tussock grassland over some areas instead of forest and shrubland.

#### *11. Woolshed Ridge - northeast side*

The east side of Woolshed Ridge is part of the backdrop and setting for Lake Sumner, as seen from the Kiwi-Harper tramping track, and is a visually integral part of the wider outstanding upper Hurunui valley landscape. It is also the setting for Loch Katrine on the western side. It is visually continuous with Woolshed Ridge on Lake Taylor Station. Although the overall appearance is natural, the extent of short tussock grassland is not in keeping with the rest of

the valley where beech forest and to a lesser extent shrubland are overwhelmingly the vegetation cover on the slopes.

## 12. Upper Hurunui Valley

This whole valley is of high visual significance, being of huge scale with a highly natural appearance. The array of landforms including the distinctive roche moutonnees of Isolated Hill and Dinner Hill; the simple patterns of vegetation on a large scale; the limited range of colours; the presence of river and lake; and the virtual absence of intruding cultural features (give the scale of the landscape) makes this an area of high aesthetic quality. Most of the area is part of the Conservation Park, and the freehold area appears as a natural extension of it, completing the visual continuum of landform and vegetation communities from riverbed to mountaintop. There is visually very little to suggest it is a separate area.

### 2.2 Landforms and Geology

The Lakes Pastoral Lease covers a large part of The Brothers range, the northern end of Woolshed Ridge, The Sisters ranges (The Sisters and Little Sister), and areas of valley floor between. It covers mostly steep terrain on The Brothers, and on the southern and upper slopes of The Sisters. The small area of the lease on the eastern end of the Crawford Range, northwest of Lake Mason, is also steep. These steeper slopes are mapped as erosion-prone land (Class VII and VIII) with severe limitations for land use. Other parts of the property cover low roches moutonnées and valley floor alluvium, with areas of wetland and lake margin. The property lies between approximately 500m altitude at the confluence of the two branches of the Hurunui River and 1400m altitude on The Brothers.

The station largely comprises minor, isolated, greywacke/argillite mountain range and hills and associated valley floor lowlands. Major valley glaciers once filled the base of the two main valleys either side of the Woolshed/Oronoko Range, steepening and sculpturing the sides of the range, particularly at its northern end, forming the smooth, rectilinear mid-to lower slopes. At least two successive ice advances are evident on The Lakes – the Poulter and Blackwater. The youngest of the major glacial advances, the Poulter advance, which occurred 13,000 and 16,000 years ago left morainic deposits between Loch Katrine and Lake Taylor, at the north and south ends of Lake Sheppard, and immediately below Lake Mason in the South Branch of the Hurunui. Down-valley from the glacier's terminal, extensive outwash gravels were formed when water was abundant with glacial melt and the glacier-eroded material was carried downstream by rivers, building up gravels below the terminal moraines. These outwash gravels form the terraces around the Sisters Stream. Downcutting by rivers followed the retreat of the glaciers, resulting in river terraces on which alluvial fans of more recent origin have been deposited.

Soils are predominantly Tekoa Steepland soils with some Craigieburn, Tasman, Katrine and Cass silt loams in the valleys. Most of the higher parts of lease are classified as Class VIII or Class VII while the valleys are Class VI with some Class IV land.

## 2.3 Climate

The climate on the Station is strongly influenced by the proximity to the main divide and is characterised by a rainfall gradient related to distance from the main divide, prevailing north-west rain-bearing winds and altitude. Precipitation increases from around 1200mm at the Seaward River just downstream from Lake Taylor Station to around 1500mm at the homestead and to 2000mm in the upper valley of the North Branch. At the homestead and further down valley south-westerly winds contribute to this overall rainfall figure. The rain is normally evenly spread throughout the year, although there is a wide seasonal and annual variability from year to year.

On the tops there is usually a brief winter snow cover. Freeze-thaw conditions occur all year round. Most winters are cold with generally cool summers. In summary the climatic conditions are variable and unreliable.

## 2.4 Vegetation

### 2.4.1 Vegetation History

McEwen (1987) described the former (pre-European) vegetation of the Lake Sumner Ecological District as predominantly extensive beech forest and alpine plant communities, with "prominent tarn and lakeside communities around the lakes". It is likely that all parts of The Lakes Pastoral Lease formerly supported beech forest, except for the high summits, scree and rock slopes, wetlands, lake and river margins, and some areas of valley floor.

### 2.4.2 Plant Communities

#### A1 Mountain Beech Forest:

Mountain beech (*Nothofagus solandri* var. *cliffortioides*) forest is the most extensive forest community remaining on the leasehold part of the property. It covers a considerable area on The Brothers, smaller areas in gullies on the Crawford Range and Woolshed Ridge, and isolated remnants near Lake Sheppard.

This forest community frequently grades to kanuka or manuka scrub (community B2) or *Coprosma*/matagouri scrub or shrubland (B1), representing areas where vegetation is recolonising after fire. At some low altitude sites it grades to mixed beech forest (A2). At higher altitudes mountain beech forest grades to snow tussockland/herbfield (C3). Otherwise it adjoins areas of grassland (C1 or C2).

The forest **canopy** is dominated by mountain beech (*Nothofagus solandri* var. *cliffortioides*) with the occasional presence of broadleaf (*Griselinia littoralis*). Mistletoes (*Peraxilla tetrapetala* and *Alepis flavida*) are present but rare. **Subcanopy** trees include broadleaf, *Coprosma linariifolia*, and occasionally putaputaweta (*Carpodetus serratus*), kohuhu (*Pittosporum tenuifolium*) and lancewood (*Pseudopanax crassifolius*). The latter three species, and mountain totara (*Podocarpus hallii*), fuchsia (*Fuchsia excorticata*), kowhai (*Sophora microphylla*) and *Clematis paniculata*, are commonly present in lake shore beech forests.



**Understorey** is generally sparse. Species present include *Pittosporum divaricatum*, *mingimingi* (*Cyathodes juniperina*), *Coprosma microcarpa*, *Coprosma linariifolia*, bush lawyer (*Rubus cissoides*), lancewood, kohuhu, and occasionally three-finger (*Pseudopanax colensoi*), korokio (*Corokia cotoneaster*), *Coprosma propinqua*, *Coprosma parviflora* (sp. "t"), *Coprosma rhamnoides*, *Gaultheria antipoda*, *Pseudopanax simplex*, weeping matipo (*Myrsine divaricata*), *Clematis forsteri* and *Rubus schmidelioides*.

Along streams or lakeshores within the forest *Olearia avicennifolia*, *Hebe traversii*, koromiko (*Hebe salicifolia*), shining karamu (*Coprosma lucida*) and mountain ribbonwood (*Hoheria lyallii*) are occasionally present. Likely to be present at higher altitudes are *Coprosma pseudocuneata*, *Coprosma ciliata*, *Olearia nummularia*, snow totara (*Podocarpus nivalis*), and occasionally *Olearia lacunosa* and celery pine (*Phyllocladus alpinus*).

**Ground cover** is generally sparse. Species present include hawksbeard (*Crepis capillaris*), wall lettuce (*Mycelis muralis*), *Coprosma depressa*, *Ranunculus foliosus*, *Blechnum penna marina*, *Blechnum procerum*, necklace fern (*Asplenium flabellifolium*), *Asplenium terrestre*, *Grammitis billardieri*, *Carex* sp., mosses (notably *Dicranoloma robustum* and *Dendroligotrichum dendroides*), orchids (*Chiloglottis cornuta* and *Corybus* sp.), and occasionally *Cyathodes empetrifolia* (in the east), *Hebe canterburiensis*, *Libertia ixioides*, *Anisotome filifolia*, *Blechnum fluviatile*, *Hypolepis millefolium*, *Histiopteris incisa*, hound's tongue fern (*Microsorium pustulatum*) and prickly shield fern (*Polystichum vestitum*).

This forest community is generally in good condition, except at unfenced forest margins where the forest floor has been damaged by stock (notably at isolated low-altitude remnants). Feral animals are likely to have caused, and continue to cause, the loss of palatable species such as broadleaf and mistletoe. No significant weed species were observed within the forest.

Mountain beech forest is representative of the vegetation that formerly covered a large part of the ecological district. The most extensive remaining stands on the property are on The Brothers, contiguous with areas of protected forest on public conservation land. Mountain beech forest is regenerating rapidly at some undisturbed sites.

## A2 Mixed Beech Forest:

Mixed beech forest is present at only a few lower-altitude sites on the leasehold part of the property, usually at warmer sites on valley floors or low-altitude gullies. It is present on the lower colluvial slopes of The Brothers, alongside Lake Sumner, along the shores of Loch Katrine, and in the main gully at the southern end of The Brothers. On valley sides, this forest community grades to mountain beech forest (A1), and occasionally manuka or kanuka scrub (B2).

Dominant **canopy** species are red beech (*Nothofagus fusca*), silver beech (*Nothofagus menziesii*) and mountain beech (*Nothofagus solandri* var. *cliffortioides*). Important **subcanopy** trees are broadleaf, putaputaweta and *Coprosma linariifolia*. Mountain totara, kowhai, lancewood and kohuhu are present in regenerating lakeshore beech forests. Important **understorey** species are *Coprosma rhamnoides*, *Coprosma microcarpa*, *Pittosporum divaricatum*, prickly shield fern, *Blechnum penna marina* and bush lawyer (*Rubus cissoides*).

and *R. schmidelioides*). Occasionally present are *Gaultheria antipoda*, *Coprosma colensoi*, mingimingi, weeping matipo and three-finger. **Ground cover** species present appear similar to those found in mountain beech forest.

The small localised areas of mixed beech forest on the hill country are representative of a forest community formerly more widespread on colluvial fans and lower slopes. The potential for restoration of this forest type on the property is probably limited to low altitude colluvial fans. The best example of this forest community on the lease is the area of forest alongside Lake Sumner, at the northeastern corner of The Lakes Pastoral Lease.

A substantial area of mixed beech forest is present on the freehold part of the property west of Lake Sumner. This area of red-silver-mountain beech forest is one of the most extensive areas of valley floor mixed beech forest remaining in Canterbury, and certainly the most extensive unprotected remnant. The composition of this plant community varies depending on site. It grades to mixed beech or mountain beech forest (A1) on valley-sides, or to grassland (C1) and matagouri shrubland (B1) on the valley floor.

Dominant **canopy** species are red beech and silver beech, with some mountain beech. Mountain beech is more dominant at poorly-drained sites. Important **subcanopy** trees are broadleaf, putaputaweta, *Coprosma linariifolia*, lancewood, weeping matipo, and occasionally mountain ribbonwood. Important **understorey** species are *Pseudopanax simplex*, *Gaultheria antipoda*, *Coprosma rhamnoides*, *Coprosma foetidissima*, *Pittosporum divaricatum*, prickly shield fern, *Blechnum penna marina* and bush lawyer (*Rubus cissoides* and *R. schmidelioides*). A diverse assemblage of **ground cover** species is present.

The valley floor mixed beech forest on the freehold part of The Lake Station is representative of valley floor forests that were once more common in the North Canterbury mountains. This area of forest is one of the best examples of this forest type remaining in North Canterbury.

### A3 Mixed Hardwood Forest:

Mixed hardwood forest is largely confined to riparian sites along river and lake margins on the property. The most extensive areas of this forest community are along the Hurunui River at the eastern edge of the lease, although some of this area of forest is beyond the unfenced lease boundary. Other, smaller, areas of mixed hardwood forest are present on the pastoral lease along the eastern shore of Loch Katrine. Other areas are on public conservation land between Home Bay and Shoal Bay along the southwestern shore of Lake Sumner.

This forest community is present as a narrow strip of vegetation between the river or lake and shrubland (B1 or B2) or grassland (C1), except at Loch Katrine where the mixed hardwood forest grades to mixed beech and mountain beech forest.

Important **canopy** species include kowhai, broadleaf, kohuhu, *Coprosma linariifolia*, lancewood, kanuka (*Kunzea ericoides*), putaputaweta and occasionally fuchsia. **Understorey** or **forest margin** species include *Olearia avicennifolia*, *Hebe traversii*, matagouri (*Discaria toumatou*), koromiko, mountain wineberry (*Aristotelia fruticosa*), *Coprosma rugosa*, *Coprosma propinqua*, korokio, *Meliclytus alpinus*, bush lawyer (*Rubus schmidelioides*), scrub

pohuehue (*Muehlenbeckia complexa*), and occasionally *Coprosma crassifolia* and native broom (*Carmichaelia* sp.). Shining karamu was observed in forest on the shores of Loch Katrine. Important **ground cover** species include prickly shield fern, necklace fern, tutu (*Coriaria sarmentosa*) and bracken (*Pteridium esculentum*).

This is a variable plant community, and is characterised by the dominance of hardwood species other than kanuka or beech. It is vulnerable to disturbance: both natural disturbance such as stream bank erosion, and induced disturbance such as browsing and trampling by stock, especially cattle.

Mixed hardwood forest is representative of the riparian forest communities formerly present alongside most major rivers and lakes in the ecological district. The best examples on the pastoral lease are along the main Hurunui River between the outlet of Lake Sumner and the confluence of Sisters Stream.

#### **A4 Mountain Totara Forest:**

Mountain totara (*Podocarpus hallii*) forest is present as a low forest or woodland on steep montane slopes. It is present on stable scree and talus the lower southern slopes of The Brothers, where it is associated with open scree, bluffs and patches of mountain beech forest. Small areas of mountain totara woodland are also present on the higher southwestern slopes of The Sisters, associated with *Hebe*-dominated shrubland. The community is dominated by mountain totara, occasionally in dense pure stands with a canopy height of only 2 to 4 m. Other species present include broadleaf, *Hebe glaucophylla*, matagouri, tauhinu (*Ozothamnus leptophylla*), *Coprosma linariifolia* and *Asplenium richardii*.

This plant community is presumably representative of the forest or woodland present at exposed sites on montane slopes in the ecological district, and was probably more common during periods of drier climate. There is no known area of mountain totara forest or woodland of this extent elsewhere in the ecological district, although it is present at other scattered locations in the eastern South Island high country.

#### **B1 Coprosma/Matagouri Scrub/Shrubland:**

*Coprosma*/matagouri scrub is present on valley floors and lower slopes at scattered locations throughout the pastoral lease. The most extensive areas are on the valley floor and adjoining colluvial fan just north of Lake Mason, on moraine surfaces southeast of Loch Katrine, and on terrace risers (scarps) along Sisters Stream. On other parts of the pastoral lease this plant community is localised on lower slopes, gullies and terrace risers (scarps). It is present as dense 1 to 2 m-high scrub in some areas and as a scattered shrubland in other areas.

This plant community most commonly grades to grassland (C1 or C2) or occasionally to other scrub communities (B2 or B3).

On terrace risers or along streams, this plant community is often relatively diverse. The shrubland **canopy** is usually dominated by matagouri (*Discaria toumatou*) or *Coprosma propinqua*, with one or more of the following species: *Coprosma parviflora* (sp. "v"), *Coprosma rugosa*, tauhinu, *Hebe glaucophylla* and *Melicytus alpinus*. Other species

commonly present include *Olearia bullata*, *Olearia cymbifolia*, mountain wineberry, korokio, native broom, *Hebe traversii*, sweet brier (*Rosa rubiginosa*), flax (*Phormium tenax*), bush lawyer (*Rubus schmidelioides*), scrub pohuehue and *Clematis forsteri*. Occasionally present are *Clematis afoliata* (Sisters Stream) and *Olearia virgata* (near Lake Mason). **Ground cover** is as described for grassland communities (C1) with bracken, prickly shield fern, tutu, golden spaniard (*Aciphylla aurea*), creeping pohuehue (*Muehlenbeckia axillaris*) and slim snow tussock (*Chionochloa macra*) occasionally present.

This plant community is representative of scrub and shrublands that would have formerly covered recently deposited river gravels on valley floors and colluvial slopes. The best examples of *Coprosma*/matagouri scrub are north of Lake Mason and along Sisters Stream. The best example of *Coprosma*/matagouri shrubland is on the moraine surface southeast of Loch Katrine.

An extensive area of matagouri shrubland is present on the freehold part of The Lakes Station on the valley floor above (west of) Lake Sumner. This plant community is dominated by an even canopy of matagouri 2 to 3 m high, with occasional *Coprosma propinqua* and *Melicytus alpinus* bushes. Ground cover is dominated by pasture grasses with *Leucopogon fraseri*, creeping pohuehue, *Brachyglottis bellidioides* and mouse-ear hawkweed (*Hieracium pilosella*). However, most areas of matagouri shrubland at this location appear to have been recently sprayed with herbicide, resulting in widespread dieback.

This plant community is representative of scrub and shrubland that occupied recent or disturbed sites in the ecological district, such as valley floors or colluvial fans. It is substantially depleted throughout the district. The extensive matagouri shrublands on the freehold portion of the property were probably the best example in the Hope Ecological District. However, the future of the shrublands in that area is now uncertain, and their conservation value unclear, after the application of herbicide.

## **B2 Manuka and Kanuka Forest/Scrub:**

Manuka (*Leptospermum scoparium*) and kanuka (*Kunzea ericoides*) dominate two plant community types: dense low scrub; a community that is frequently induced by fire, and a low forest with tall kanuka as the dominant canopy species. Manuka scrub covers relatively extensive areas throughout the property, notably on north-facing hill slopes. Kanuka forest is present along river and lake margins and on terrace risers.

Both communities grade to grassland (C1 or C2), bracken fernland (C2), or to other scrub or forest communities.

Manuka scrub/shrubland: This is a seral community and ranges from dense manuka scrub to scattered manuka shrubland with open ground. Manuka dominates, with the following species occasionally present: tauhinu, korokio, matagouri and *Olearia cymbifolia*.

The ground cover is similar to that described for grasslands (C1).

Kanuka forest: The forest **canopy** is dominated by kanuka, with the occasional presence of kohuhu, kowhai or lancewood. Important **understorey** species are korokio, matagouri, *Coprosma propinqua*, *Coprosma rugosa*, mountain wineberry, *Melicytus alpinus*, *Myrsine*

*divaricata*, *Hebe glaucophylla* and bush lawyer (*Rubus schmidelioides*). Ground species include *Cyathodes empetrifolia*, tutu, bidibid (*Acaena* sp.), prickly shield fern, necklace fern, *Blechnum penna marina*, kiokio (*Blechnum novae zelandiae*) and bracken.

These two plant communities represent seral scrub and forest that probably formed a relatively minor part of the former vegetation of the ecological district. However these communities will, if undisturbed, eventually regenerate to beech forest or mixed hardwood forest.

There is a relatively extensive area of tall kanuka forest on the lower eastern slopes of The Brothers, near the outlet of Lake Sumner. However, areas of this community have been removed to create pasture and other areas felled for firewood.

### **B3 Mid Altitude Mixed Scrub/Shrubland:**

Mid-altitude mixed scrub/shrubland is present at scattered locations throughout the property, but most commonly on the mid to upper slopes of The Brothers, and on south-facing slopes of The Sisters. It generally occupies gullies or sites on shaded slopes where it is less vulnerable to fire. It grades to mid-slope grassland (C2), tussockland/herbfield (C3), mountain beech forest (A1) and occasionally to patches of mountain ribbonwood in gullies.

It is a diverse community variously **dominated by** *Dracophyllum uniflorum*, tauhinu, *Olearia cymbifolia*, matagouri, *Hebe glaucophylla*, *Coprosma rugosa* and slim snow-tussock. Other **important species** are *Dracophyllum longifolium*, manuka, *Gaultheria crassa*, *Pernettya macrostigma*, golden spaniard, fescue tussock (*Festuca* sp.), bristle tussock (*Rhytidosperma setifolium*), blue tussock (*Poa colensoi*), *Raoulia subsericea*, *Blechnum penna marina*, cotton daisy (*Celmisia spectabilis*), *Lycopodium scariosum*, *Lycopodium fastigiatum*, bracken, snowberry (*Gaultheria depressa* var. *novae zelandiae*), moss and occasionally *Traversia baccharoides* and *Gingidia montana*.

Mid-altitude scrub/shrubland is a seral community, representing a transition from grassland to forest. Its component species are common in the area, and mostly present in other plant communities. The plant community is representative of mid-altitude seral shrublands in the ecological district.

### **B4 High Altitude *Dracophyllum* Scrub/Shrubland:**

*Dracophyllum* scrub/shrubland is present at higher altitude sites, at or about the upper forest margin. It dominates at high altitude sites formerly occupied by mountain beech forest, especially sites that have escaped recent burning. This plant community is most extensive on the upper slopes of the Crawford Range, at the western edge of the pastoral lease. It usually grades at its lower margin to mountain beech forest (A1) and at its upper margin to high altitude tussockland/herbfield (C3).

**Dominant species** are *Dracophyllum uniflorum*, *Dracophyllum longifolium*, *Dracophyllum* aff. *filifolium*, *Hebe pinguifolia* and slim snow-tussock. Also occasionally present are snow totara, tauhinu, golden spaniard, *Hebe rakaiensis*, *Hebe lycopodioides*, *Gaultheria crassa*, *Olearia nummularia* and *Coprosma pseudocuneata*. Important **ground cover** species are

*Dracophyllum kirkii*, *Coprosma perpusilla*, *Coprosma cheesemanii*, *Meliccytus alpinus*, blue tussock, cotton daisy, tutu, *Raoulia subsericea*, *Pentachondra pumila* and woolly moss (*Racomitrium lanuginosum*). Other species present include *Anisotome aromatica*, *Leucopogon fraseri*, *Pimelea oreophila*, *Pimelea traversii*, red woodrush (*Luzula rufa*), *Brachyglottis bellidioides*, *Lycopodium fastigiatum*, *Blechnum penna marina*, *Exocarpus bidwillii*, *Helichrysum bellidioides* and harebell (*Wahlenbergia albomarginata*).

This plant community is representative of subalpine scrub/shrublands in the ecological district. On the property it may even be present over a larger area than it formerly occupied, as it has successfully colonised upper-montane sites that formerly supported mountain beech forest.

#### **B5 Bracken Fernland:**

Bracken fernland occupies lower-altitude hill slopes at north-facing sites on the property. The most extensive areas on the property are on the north and east-facing slopes at the northern end of Woolshed Ridge, above Loch Katrine.

This plant community is **dominated** by bracken (*Pteridium esculentum*). Other common species include tutu, bush lawyer (*Rubus cissoides*) and *Coprosma propinqua*. Frequently present, as colonising plants, are broadleaf, manuka, kohuhu and putaputaweta.

This is a seral plant community, colonising hill slopes after disturbance such as fire. It is unlikely to have ever been very common in the ecological district; its extent has been increased considerably by burning associated with pastoralism. If left undisturbed it will regenerate relatively quickly to beech or hardwood forest.

#### **C1 Valley Floor Grassland:**

Valley-floor grassland occupies recent alluvial surfaces throughout the pastoral lease. In most parts of the lease it is highly modified, comprising a sward of introduced pasture grasses with varying densities of native and introduced herbs. Most gentle valley floor sites have been cultivated and pastures sown. The only substantial area of uncultivated valley floor grassland is on the flats between The Sisters and the Hurunui River, though even this area is highly modified. The most intact area of valley floor grassland on the pastoral lease is on the moraine surface southeast of Loch Katrine (with scattered low matagouri shrubland).

The largest example of valley floor grassland in the east of the area (Sumner Ecological District) is that present on the series of terraces that form Gabriel Flat, on public conservation land east of the pastoral lease. This grassland community is dominated by fescue tussock, low matagouri, *Raoulia subsericea*, blue tussock, mouse-ear hawkweed, sweet vernal (*Anthoxanthum odoratum*), moss and lichen, with a range of native herbs including *Helichrysum filicaule*, *Leucopogon fraseri*, *Celmisia gracilentia*, *Brachyscome sinclairii*, *Coprosma petriei* and *Pimelea* sp. It is likely that at least part of this area previously supported forest or shrubland. This grassland community is depleted, but has not been disturbed by cultivation. It is broadly representative of valley floor grasslands of the Sumner

Ecological District, and is probably the largest remaining example of such grasslands. If left undisturbed it is likely that these grasslands will eventually be colonised by scrub and then beech forest.

The most extensive areas of uncultivated grassland on valley floors in the west of the area are in the upper Hurunui River valley on the freehold part of the property. This plant community is variable, depending on location, rainfall and drainage. It is interspersed with areas of matagouri shrubland (though these shrublands may not survive the effects of recent herbicide spraying). These grasslands are dominated by sweet vernal, *Coprosma perpusilla*, *Polytrichum juniperinum*, *Leptinella* sp. (*doica?*), *Pratia angulata*, *Leucopogon fraseri*, with Yorkshire fog (*Holcus lanatus*), browntop (*Agrostis tenuis*) and mouse-ear hawkweed also dominant in places. The presence of introduced species and the effects of grazing modify this plant community. It is likely that, if undisturbed, shrubland would slowly colonise greater areas of this grassland. This plant community is a modified form of the grasslands that would have formerly occupied recent alluvial sites in the Hope Ecological District.

## C2 Mid-Slope Grassland:

Mid-slope grassland is one of the most variable plant communities on the property. It is an induced community covering montane sites that formerly supported beech forest. This community is present on the north end of Woolshed Ridge and the slopes of the Crawford Range and The Brothers.

It is a variable community with the following common species: sweet vernal, browntop, blue tussock, bristle tussock, fescue tussock, Yorkshire fog, cotton daisy, *Leucopogon fraseri*, snowberry, *Pimelea oreophila*, *Raoulia subsericea*. Also occasionally present are silver tussock (*Poa cita*), *Pentachondra pumila*, *Anisotome aromatica*, *Helichrysum filicaule*, mountain oat grass (*Deyeuxia avenoides*), *Geranium sessiliflorum*, creeping pohuehue, *Acaena caesiiglauca*, prickly shield fern and *Blechnum penna marina*. Shrubby species variously present in these grasslands include tauhinu, matagouri, tutu, *Coprosma rugosa*, *Coprosma propinqua*, *Coprosma parviflora* (sp. "t"), manuka, and (in the east) *Olearia cymbifolia*.

This plant community has been induced, and is maintained, by regular burning and continued grazing. It occupies sites that formerly supported forest, and would eventually regenerate to shrubland and then forest if undisturbed. These grasslands are not representative of the original vegetation of the ecological district, but have high potential for the restoration of shrubland and forest through natural regeneration.

## C3 High Altitude Tussockland/Herbfield:

High altitude tussockland/herbfield occupies sites above or near the natural timberline on The Brothers. This community frequently grades to high altitude scrub (B4), rockland (D) or, at modified sites, to induced grassland (C2).

The community is **dominated** by slim snow-tussock (*Chionochloa macra*) with varying densities of bristle tussock, fescue tussock, blue tussock and *Raoulia subsericea*. **Other important species** include *Hebe lycopodioides*, *Pratia macrodon*, cotton daisy, snowberry,

*Phyllachne colensoi*, woolly moss, *Kelleria dieffenbachii*, *Lycopodium fastigiatum*, *Harebell*, *Pentachondra pumila*, *Pimelea oreophila*, *Coprosma cheesemanii*, *Celmisia sessiliflora*, *Celmisia angustifolia*, *Raoulia grandiflora*, *Helichrysum bellidioides*, *Anisotome aromatica*, *Anisotome flexuosa*, and red woodrush. **Woody species**, such as *Dracophyllum uniflorum*, tauhinu, snow totara and *Dracophyllum kirkii*, are often present.

This plant community is representative of tussocklands that formerly occupied high altitude sites. At most sites the community is likely to be somewhat modified by the presence of introduced species.

#### **D1 Rock Ridge, Pavement, Bluff and Scree:**

These communities are present on The Brothers. Several distinct plant communities are present, though they are generally characterised by the following species.

**Rock ridge and pavement:** This is a variable and relatively minor community. It frequently grades to high altitude tussockland and herbfield (C3), or montane scrub or grassland communities. Typical species include *Hebe pinguifolia*, edelweiss (*Leucogenes grandiceps*), woolly moss, *Kelleria dieffenbachii*, blue tussock, *Poa novae-zelandiae*, *Acaena glabra*, *Helichrysum intermedium*, *Heliohebe raoulia*, *Colobanthus acicularis*, *Vittadinia australis*, *Pimelea traversii*, red woodrush, and sheep's sorrel (*Rumex acetosella*).

**Rock Bluff:** Lower-altitude rock bluff communities support the following typical species: *Hebe cheesemanii*, *Helichrysum intermedium*, golden spaniard, *Brachyglottis bellidioides*, *Pimelea traversii*, *Heliohebe raoulia*, *Asplenium terrestre*, snow totara, cotton daisy, *Colobanthus acicularis*, *Gaultheria crassa*, *Gingidia montana* and *Leucopogon fraseri*.

**Scree:** Scree communities are present on The Brothers. They support the following species: *Epilobium pycnostachyum*, creeping pohuehue, *Hebe epacridea*, *Anisotome filifolia*, *Poa novae-zelandiae*, *Acaena glabra*, sheep's sorrel and *Myosotis* sp.

#### **D2 Riverbed:**

There are no extensive areas of riverbed on the property. Smaller areas of riverbed edge and streambed are present in the upper Hurunui River valley, on the freehold part of the property.

This community comprises a sparse plant cover (c.10% cover) with the following **common species** *Raoulia tenuicaulis*, *Raoulia haastii*, *Raoulia australis*, *Epilobium melanocaulon*, creeping pohuehue, *Parahebe decora*, *Colobanthus strictus*, harebell, sheep's sorrel and suckling clover (*Trifolium dubium*).

This plant community is representative of the former plant communities on recently-deposited gravel. It is relatively intact, though vulnerable to invasion by a range of herbaceous and woody introduced species.



## E Wetland and Turf:

Relatively extensive areas of wetland are present on the pastoral lease, notably around Lake Mary and along Sisters Stream. Smaller areas of wetland vegetation are present in the valley between The Sisters and Little Sister, and at lake margins, notably around the shores of Lake Sheppard. Wetland areas are also present in the upper Hurunui River valley (on the freehold part of the property), along The Canal between Loch Katrine and Lake Sumner (on public conservation land), and on the lower terrace of Gabriel Flat (public conservation land).

Dominant species noted in wetlands include raupo (*Typha orientalis*), *Carex secta*, *Carex virgata*, *Schoenus pauciflorus*, flax (*Phormium tenax*), toetoe (*Cortaderia richardii*), *Blechnum minus*, *Juncus articulatus*, and soft rush (*Juncus effusus*).

The smaller wetland between The Sisters and Little Sister is modified by stock. Dominant species are *Schoenus pauciflorus*, sphagnum moss, *Carex* sp. (*virgata*?), *Carex secta*, flax, *Blechnum minus*, *Nertera scapanioides*, manuka and bracken.

Two main wetland areas are present on the freehold land in the upper Hurunui. The largest is an area known as The Park, and is dominated by red tussock (*Chionochloa rubra*), *Schoenus pauciflorus* and *Carex* sp. A smaller wetland area is present within the forest. This area is dominated by *Sphagnum cristatum*, *Carex pyrenaica*, *Carex* sp., *Oreobolus strictus* and *Dracophyllum oliveri*. This latter area is well buffered from stock and is in very good condition.

Wetlands on the pastoral lease are almost certainly the largest and most intact wetlands remaining in the ecological district. Most wetlands on the lease are modified at the margins by domestic stock, and support some introduced species. However, the wetlands at Lake Mary and along Raupo Pond-Sisters Stream are large and relatively well buffered, and therefore mostly in good condition.

### 2.4.3 Introduced Plant Species

Naturalised plants that have a potentially significant effect on indigenous plant communities on the property, and that can be controlled or contained, are listed and discussed below. Other ubiquitous naturalised species for which containment of control is probably impractical, such as mouse-ear hawkweed and naturalised grasses, are not discussed here but are listed in the vegetation descriptions.

#### **Broom (*Cytisus scoparius*)**

Broom is present as scattered infestations in eastern parts of the property. Isolated plants were observed along Sisters Stream. Denser infestations are present in the main Hurunui Valley, just east of the property, especially near the confluence of the Jollie Brook. The continued containment of broom is an important management issue. Eradication of broom from the area is unlikely to be feasible. However, containment to prevent any further spread of broom onto the property is feasible and probably essential.

### **Sweet brier (*Rosa rubiginosa*)**

This species is present as scattered plants in eastern parts of the property, usually within shrubland communities. It does not appear to be aggressive in this area; control is probably not necessary or justified.

### **Gorse (*Ulex europaeus*)**

Gorse was observed as scattered localised infestations throughout the property. The largest single infestation is on DOC-administered land grazed by Lakes Station between Lake Sumner Hut and the old No.2 Hut site. Scattered infestations are present on the valley floor below this infestation. Gorse has been sprayed at several locations on the property.

Eradication of gorse from most parts of the property is probably feasible though time-consuming, as the species is widespread. Containment, and the encouragement of shrubland or forest regeneration may be a more practical approach for the large infestation above Lake Sumner Hut.

### **Hawthorn (*Crataegus monogyna*)**

A large infestation of hawthorn is present on the colluvial fan near Lake Sumner Hut, on public conservation land grazed by The Lakes Station. The bottom edge of this infestation appears to have been recently sprayed with herbicide. Eradication of this infestation is probably feasible, though costly.

Elsewhere on the property hawthorn was observed along Sisters Stream and on Conical Hill. At both these locations removal of the infestations is feasible.

This species poses a significant threat to the property and surrounding areas, as its seeds can be carried a considerable distance by birds. Removal of existing infestations is probably feasible, so containment or control of this species is possible provided the seed sources are located and removed.

### **Apple (*Malus xdomestica*)**

Wild apple trees were observed near the huts at the north end of Loch Katrine (on DOC-administered land) and along Sisters Stream. This species does not pose a major threat, but is likely to continue to slowly spread. Removal of these isolated infestations is feasible.

### **Willow (*Salix* sp.)**

Willow is present at several locations on the property. The largest infestation is along Sisters Stream, spreading from a relatively dense infestation at Raupo Pond to scattered trees some distance down Sisters Stream. It would be practical to eradicate this infestation, provided all trees at the upper end of the infestation (near The Lakes homestead) were removed.

### 2.5.2 Invertebrates

The Lakes Station invertebrate population is very similar to the adjoining Lake Taylor Station.

Species present on short tussock grassland and old glacier terminal moraine include: *Phaulacridium marginale* (a lowland grasshopper), *Lycaena* complex (Copper Butterflies), Black Field Cricket, Cicada, *Uropetala chiltoni* (Mountain Giant Dragonfly), *Xanthocnemis zealandica* (Redcoat Damselfly), *Procordulia grayi* (Yellow Spotted Dragonfly) and *Austrolestes colenisonis* (The Blue Damselfly).

Species of damselflies, stoneflies, caddisflies and mayflies would be expected near the streams.

There are extensive wetlands on The Lakes which are rich in Odonata, three species being found *Xanthocnemis zealandica* (Redcoat Damselfly), *Procordulia grayi* (Yellow Spotted Dragonfly) and *Austrolestes colenisonis* (The Blue Damselfly). Drier open pans located near the wetlands are very rich for diurnal Lepidoptera (Moths and Butterflies) community, with five species of diurnal moths collected. The Copper Butterflies (*Lycaena* sp.) are in large numbers also.

Three species of grasshoppers *Phaulacridium marginale*, *Brachaspis nivalis* and *Paprides 'furcifer'* (Morris, Database unpublished) and the moths *Asaphodes clarata*, *Hydriomena deltoidata* and *Utetheisa pulchelloides* can be expected on the ridges.

The ground cover in the forest remnants is in good condition, providing deep leaf litter and suitable living habitat for ground living invertebrates. Five or six carabid (Ground Beetle) species have been collected. Other wood boring insects were seen, which indicate a very rich native boring invertebrate's community. Many other invertebrates were observed in this area:- Cockroaches, Earwigs, Darkling beetles, Crane Flies, Weevils Click Beetles and ants. They are all indications of a good functional community dominated by native insects.

### 2.5.3 Introduced Animals:

#### Red deer (*Cervus elaphus scoticus*)

Red deer sign has been observed in the area. This species appears to be present in reasonable numbers.

#### Feral pig (*Sus scrofa*)

Pigs are likely to be present on the property.

#### Brushtail Possum (*Trichosurus vulpecula*)

Possums and possum sign were observed at several locations throughout the property. This ubiquitous species is likely to be widespread in the area.

Other introduced animals include chamois, hares and rabbits.

## 2.6 Historic

The route through the Hurunui Gorge and over the saddle at the top of the Hurunui River was used frequently by Maori to traverse between the east and west coasts searching for greenstone. In 1857 Leonard Harper (son of the Bishop) and M. Locke, accompanied by Ihaia Tainui and two other Maoris, were the first Pakeha to cross the divide and the pass became known as Harpers Pass. When gold was discovered on the West Coast in the 1860s miners were lured across the divide using both the route through the Hurunui Gorge from Canterbury and the Kiwi Saddle route from Marlborough and Nelson. Enterprising Canterbury farmers drove thousands of head of stock through the Harpers Pass route to feed the hungry gold miners. All along the way accommodation houses sprung up, one of which was close to the eastern end of Lake Taylor.

Land was first taken up for grazing in 1855 when J.W. Mallock and E. Mason applied for "20,000 acres (8093 hectares) situated between the north and south branches of the Hurunui River, and bounded to the west by the Snowy Mountains" (Cresswell, 1952). H. Taylor and Mason took up land in 1857 and, although there is some confusion over whom had what initially, the land was then subdivided into two blocks. The subdivision fence ran between the Oronoko Range and the Woolshed Ridge across the north end of Conical Hill and from Lake Mary to the Hurunui River at the south end of the Brothers Range. To the west of the subdivision was "Lakes Station" run by Taylor and Mason with a homestead above Lake Sumner.

After Taylor's death in 1868 Archdeacon Mathias's sons (G. and V.M.) farmed Lakes Station until 1880 when it was sold to W. Parkenson. When Parkenson acquired the land to the east of the subdivision in 1885 the runs were amalgamated. In 1918 the Crown subdivided the property again, this time along east-west lines. Matson and Cunningham took over The Lakes in 1920 and in 1924 Mrs W Macfarlane became the owner. The farm stayed in the Macfarlane family for many years and was run by a series of managers. Today the farm is owned by a partnership.

## 2.7 Public Recreation

### 2.7.1 Physical Characteristics

As The Lakes is predominantly semi-natural grasslands under extensive grazing and is accessible by roads, off-road vehicles and foot tracks it would be mainly within an "open space" recreational experience zoning (FMC guidelines),

According to the Department of Conservation's recreation opportunity descriptors The Lakes 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.

### 2.7.2 Legal Access

The Lake Sumner Road borders the lease on its southern boundary. The road mainly follows the legal roadline and is a well-maintained gravel road as far as Lake Taylor. Around Lake Taylor the road is rough and suitable only for 4wd vehicles. Between Lake Taylor and Loch Katrine the road has recently been upgraded but from Loch Katrine onwards the road is very rough. A locked gate close to the western end of Loch Katrine prevents further access up the road apart from recreational users who obtain permission from the Department. The legal road continues through to the Hurunui River and there is an offshoot legal roadline that crosses over to Lake Mason and beyond. The 4wd tracks on this part of the lease and the grazing licence do not follow the legal roadline.

There is a legal roadline that comes in from the Hope River and follows up the northern bank of the Hurunui River above Lake Sumner. There is also a legal roadline that follows the eastern side of the Hurunui River below Lake Sumner. In one place this roadline crosses the river onto The Lakes lease and then back again to the eastern Conservation Park side.

A marginal strip follows the true right bank (The Lakes Station side) of the Hurunui River and there are marginal strips around most of Lake Taylor and Lake Sheppard. There is a marginal strip around Loch Katrine and on both sides of the canal out to Lake Sumner. Lake Sumner has marginal strips laid off except for where the lake is bounded by Conservation Park.

### 2.7.3 Activities

A wealth of recreational activities is carried out on, or immediately adjacent to, the lease.

At Lake Taylor there is a recreation reserve managed by the Department of Conservation immediately adjacent to the lease. Camping is allowed on the reserve and it is a popular area for water sports. There is a recreation reserve also at Loch Katrine occupied by a number of holiday homes. Motor and jet boats can use the canal to gain access to Lake Sumner from Loch Katrine

Fishing is a popular activity on the river and around the lakes. Access to Lake Sheppard is with the permission of the lessee. Access to Lake Sumner on the 4wd track beyond Loch Katrine is gained with the permission of the Department of Conservation. 4wd access to the eastern outlet end of Lake Sumner is gained with the permission of the lessee.

The track across the saddle from Lake Sumner to Lake Mason is popular with trampers, mountainbikers and horseriders, both commercial and private. Trampers, mountainbikers and horseriders also cross the lease and the grazing licence from Loch Katrine to the Hurunui River above Lake Sumner. Trampers can then follow the south bank of the river in the Conservation Park to gain access to the head of the river and Harper Pass. However trampers, mountainbikers and horseriders wanting to gain access to or from the Hope Kiwi Track and to the north bank of the river have to cross the freehold land held by the lessees.

Trampers wanting to gain access to Gabriel Hut at the outlet of Lake Sumner must first cross the lease from The Sisters swingbridge to the Hurunui River. The track crosses the lease for

approximately 1km before crossing over another swingbridge in to the Conservation Area. From Gabriel Hut trampers can cross over into the Jollie Brook or traverse around Lake Sumner to the Hope Kiwi Track.

Hunting on the property is also undertaken with the permission of the lessee. Hunting, tramping, mountainbiking and horseriding are carried out in conjunction with the use of adjacent Conservation Areas and Lake Taylor Crown Pastoral Lease.

### **PART 3**

## **CONSULTATION AND OTHER PLANS**

### **3.1 Consultation**

The Lakes Station was discussed with NGOs at meetings at Christchurch on 25 September 2001 and at Timaru on 26 September 2001. Matters raised included:

- Mountainbiking access across Munro's Saddle from Lake Taylor to Lake Mason would be good. Extending the track to create a circuit through The Lakes Station would also be an excellent asset.
- The highest values on the property are from the edge of Lake Taylor through to Loch Katrine, including the flats. It is an outstanding landscape in the District Plan.
- The wetlands/matagouri/ shrublands in the lease are very important.
- Foot access to Lake Sheppard, Lake Mary and Raupo Pond would be good.
- The freehold block in the upper Hurunui River should be purchased and protected.
- All areas above the head of Lake Sumner should be protected.
- Roads need better formation.
- Access between Little Sisters and Sisters Range should be opened up.

A comprehensive submission was undertaken by the Federated Mountain Clubs of New Zealand (Inc). In their submission they recommended that The Brothers, including the flats below the outlet of Lake Sumner, and the higher parts of the land above the western end of Lake Sumner and above Lake Mason, be protected. The freehold land in the Hurunui Valley above Lake Sumner was also recommended for protection. Easements recommended included foot and mountainbike access routes onto The Brothers, across from Lake Sumner to Lake Mason and from the lake Sumner Road over the saddle between The Sisters and Little Sisters to the Hurunui River. Covenants were recommended for The Sisters, Lake Mary and Conical Hill.

### **3.2 District Plans (Matters of National Importance)**

The Lakes Station is in the Hurunui District. The proposed Hurunui District Plan was notified in 1995 and was modified by decisions on submissions, minor amendments and Environment Court Determinations to November 2000. The Hokakura (Lake Sumner) and Hurunui Catchment, which includes the lease, is recognised as an area of outstanding landscape value (subject to reference). As an outstanding landscape area earthworks (including the construction of roads or tracks but excluding tracks providing foot access) shall be limited to cumulatively less than 1000m<sup>3</sup> within any three year period. Clearance of indigenous

vegetation (including by burning) shall be limited to clearance for (i) maintenance or construction of foot access less than 3 metres wide and (ii) maintenance of existing drains, ponds and vehicle tracks. There is also a restriction on the visibility of buildings from the Lake Sumner Road.

Lakes Sumner, Sheppard, Mary and Taylor, Raupo Pond and the Hurunui River are recognised as significant natural sites and there are a number of rules associated with this recognition including:

- No feature, tree or vegetation shall be damaged, removed or destroyed except for exotic vegetation.
- Any work or activity undertaken in accordance with a relevant Reserve Management Plan, covenant or other method of formal protection is permitted.
- Any new planting, habitat restoration or enhancement work shall use locally occurring indigenous plant species, soil and rock.
- The application of this rule will only apply for a period of two years.

The Hurunui Lakes Area is recognised in the plan as an environment of special concern and an objective is outlined for this area being "the maintenance and enhancement of the natural values of the Hurunui Lakes Area while providing for compatible activities". There are a number of policies associated with this objective that are relevant to the lease:

- To protect the special features of the Hurunui Lakes Area, including its natural landscape, ecological and habitat values and recreational amenity values from adverse effects.
- To promote the integrated and consistent management of the Hurunui Lakes Area.
- To avoid or mitigate the adverse effects of increased public access by providing for rubbish disposal and toilet facilities throughout the Hurunui Lakes area.

### 3.3 Conservation Management Strategies

The Lakes is in the Hurunui Unit of the Canterbury Conservation Management Strategy. The strategy includes a separate section on the Lake Sumner Forest Park and Hurunui Lakes Management and the objectives for this section are:

- To manage the natural and historic resources and recreation values of Lake Sumner Forest Park.
- To advocate to avoid adverse effects on the remote character and ecological values of the Hurunui lakes area.

In implementing the objectives the Conservancy will:

1. Support the findings of the Hurunui Lakes Working Party, which recognise the area's semi-wilderness and high ecological values.
2. Maintain a network of public recreation facilities, including tracks, huts, toilets and bridges.
3. Advocate to the Hurunui District Council for methods that avoid, remedy or mitigate the adverse effects of off-road vehicles on natural and historic resources and recreation values.
4. Liaise with The Lakes, Lake Taylor, Esk Head and Poplars stations over management issues in the area.

## **PART 4**

### **4.1 Maps**

**4.1.1 Landscape Context (Attached)**

**4.1.2 Landscape Units (Attached)**

**4.1.3 Cadastral (Attached)**

**4.1.4 Values (Attached)**

### **4.2 Acknowledgements**

I would like to thank Ted and Sandy Phipps for their assistance while having the survey undertaken on their lease. My thanks also to members of the survey team (Mike Harding and Anne Stevens) and to Geoff Speirs from the Area office for his input.