

Crown Pastoral Land Tenure Review

Lease name : Ben Ohau

Lease number : Pt 128

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.

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DEPARTMENT OF CONSERVATION RESOURCE REPORT
TO KNIGHT FRANK LIMITED ON TENURE REVIEW
OF BEN OHAU STATION PASTORAL LEASE

PART ONE: INTRODUCTION

Ben Ohau Station is located a few kilometres from Twizel township. It is primarily flat country that extends from the Pukaki River through to the lower slopes of the Ben Ohau range to a small high point called The Pyramid (856 m). The property is split by State Highway 8 and the Pukaki Canal.

Ben Ohau Station lies within the Pukaki Ecological District (E.D.). This E.D. was surveyed in 1983 as part of the Protected Natural Area Programme (PNAP) and two recommended areas for protection (RAPs) were identified on the property. These were: Pukakai RAP 6, Ben Ohau Swamp, and RAP 8, Pukaki Flats. Negotiations for protection had occurred over a period of time, but were deferred pending review of this Land Act. Ben Ohau Station forms part of a nationally and regionally outstanding Mackenzie/Waitaki Basin landscape.

PART TWO: CONSERVATION RESOURCE DESCRIPTION

2.1 Landscape

The Mackenzie - Waitaki Basin is New Zealand's largest intermontane basin. It is nationally unique and retains a number of predominantly natural values, including:

- the scale, diversity and extent of its glacial topography
- a number of geopreservation sites
- characteristic inland intermontane basin micro-climate
- it constitutes its own Ecological Region
- habitat to a number of endangered and rare fauna species
- scenery
- location and setting of Mount Cook
- highly valued natural setting and location for a range of tourist attractions and recreation pursuits.

These natural features are highly valued for visual and scenic reasons. Many of the pastoral leases in the basin are visible from State Highways, canal and minor roads, settlements, tourist destinations and flight paths. The combination of physical features, diversity and distinctiveness of the area all contribute to the high inherent scenic and visual values.

Ben Ohau Station has 3 distinct landscape features.

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(i) The Pyramid

- baserock of chlorite-schist elevated above and surrounded by moraine outwash gravels.
- area oversown and topdressed with clover, pasture and tussock grassland mixes favouring different aspects, some woody shrubs on western slopes.
- visually prominent area (together with other isolated higher parts of property) in surrounding outwash plains
- takes on added visual value when sunbathed, highlighting its rounded form and especially against a backdrop (due to local weather/cloud and aspect effects).

(ii) Mt Ostler and Related Elevated Areas

- regional unconformity of weathered moraine greywacke gravel and minor sand and silt
- from outwash plain and canal roads, as raised areas, these provide visual focus and orientation reference points (value in uniform land use over entire area, provide visual coherence of form).

(iii) Flats

- remnant moraine feature, tarns and wetlands
- highly visible outwash plain.

2.2 Land Form and Geology

The broad flats are primarily a thick layer of free draining *Pleistocene fluvioglacial* outwash gravels overlying tertiary sediments. The overlying soils are shallow, stony and have a relatively low fertility.

The Pyramid which flanks the Ben Ohau Range is the only hill of significance on the property and is an outlying area of folded greywacke. This hill rises from 600m to 856m, while the flats lie between 460m and 560m. Small streams, wetlands, and terraces break the topography of this broad land form.

2.3 Vegetation

The vegetation of Ben Ohau Station is comprised of developed grasslands, short tussock grasslands, riparian matagouri shrublands, a beech remnant, deep water wetlands and flushes, red tussock and scattered snow tussock, and *Cassinia* shrublands. These seven broad communities are described below:

i) *Modified Grasslands*

The majority of dry gravelly soils to the east of Fraser Stream are modified, dominated by exotic species such as sweet vernal, browntop, some hawkweed (*Hieracium* sp.) and locally, brier. Locally, some hard tussocks (*Festuca novae*

zelandiae) are found, such as in Dry Creek Block. Native species diversity tends to be better where the soils are stonier and drier.

The more fertile soils, e.g. between the Fraser and Dry Streams, and close to the homestead, have been cultivated for hay production and have no native species component.

ii) *Short Tussock Grasslands*

The most extensive area of hard tussock found on the flats of Ben Ohau Station (and indeed the Ecological Region), is found in the Pukaki Block, to the east of State Highway 8. Tussock cover varies, but can be 25-45% of ground cover in the denser areas. Here, native species diversity is moderately good with mat daisies (*Raoulia australis*, *R. parkii*), geranium *sessiliflorum*, *Carmichaelia petriei*, blue tussock (*Poa colensoi*), blue wheat grass (*Elymus rectisetus*), *Rytidosperma pumilum*, harebell, (*Wahlenbergia albomarginata*), native daphne, (*Pimelea oreophilla*) and *Celmisia gracilentia*. Exotic plants are present and include mouse eared hawkweed (*Hieracium pilosella*) (1-20%), sweet vernal (*Anthoxanthum odoratum*), brown top (*Agrostis capillaris*), sheep sorrel (*Rumex acetosella*), and a grass, *Aira caryophyllea*. Tussock cover and health are good.

There are areas within this block, e.g. near the aerodrome, close to the road, and at the southern boundary at the old DSIR plots, where the tussocks are very depleted, or are no longer present. Tussocks here often have dead centres. Exotic species dominate, with sheep sorrel (30%), mouse-eared hawkweed (25%), *Aira caryophyllea*, and haresfoot trefoil present. Native species present include mat daisy and *Epilobium* species.

Patches of hard tussock grassland are also found elsewhere on the flats, such as Dry Stream Block, where cultivation hasn't taken place. Sweet vernal and brown top dominate this grassland.

Hard tussock grasslands are also extensive on the hillslopes, terraces and river flats at the back of the property, on the Knobbies and The Pyramid, and Darts Bush Flats. Here they are associated with matagouri and *Cassinia* shrublands, wetlands and flushes. The exotic species browntop, sweet vernal, clover and hawkweeds are common, but some native species are also present such as blue tussock. *Celmisia gracilentia*, *Luzula rufa*, *Raoulia subsericea*, *Helichrysum filicaule*, and the occasional narrow-leaved snow tussock (*Chionochloa rigida*). Tussock health is good. Matagouri is most common as a component of the hard tussock grasslands on the north face of The Pyramid, and between the Knobbies and Omahau Station.

An area of some 300 hectares of fescue tussock was identified as RAP 8 in 1983. This area is part of a larger 1,407 hectare block.

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iii) Wetlands

Deep water wetlands are found on Ben Ohau Station at Ben Ohau Swamp, Lake Merino, and Lake Poaka. Other wetlands include the mossy hollow associated with The Pyramid, and stream flushes, are common throughout the hard tussock grasslands on hill slopes.

The Ben Ohau Swamp is the largest natural deep wetland. It was formed in the 1920s from a stream meander. The deeper water is dominated by *Carex secta*, *C. maorica*, *C. diandra* and *Juncus acuminatus*, whilst *Carex gaudichaudiana*, *C. echinata*, *Juncus articulatus*, and *J. effusus* are common in the shallows. The wetland margins are surrounded by *Carex coriacea*, *Schoenus pauciflorus*, mosses, Yorkshire Fog, (*Holcus lanatus*), and native willowherbs (*Epilobium* spp.) in moist sites, merging into hard tussock grassland in drier areas. Cracked willow trees, with matagouri shrubs (>3m tall) and brier area present further north, closer to the Fraser Stream. This swamp was identified as RAP 6 during the PNAP survey and is of significance in the Pukaki E.D.

Lake Poaka is a man-made lake, set against the northern side of the Pukaki Canal. Most of the lake has been planted with exotic species (e.g. poplars, birch, rowan). However, at the head of the lake, native wetland plants, including *Carex secta*, *C. maorica*, *C. diandra*, *Juncus effusus*, and *Schoenus pauciflorus*, are found.

Another artificial lake, Lake Merino, is spring fed, having flushes of wetland plants. *Eleocharis acuta* and the willowherb *Epilobium komarovianum*, are the only native species found. Exotic species dominate the fringes as well as the drier stony banks. A few tussocks of *Carex secta* are found at the lake's margins.

A natural wetland ("Mossy Hollow") occurs in the Pyramid dark face block, where a seepage drains into the Ben Ohau Swamp. a report by Peter Johnson indicates that this wetland has similar species as the Ben Ohau Swamp, without the *Carex secta* component, i.e. *Carex diandra* and *Sphagnum* moss. Some exotics are present such as *Carex ovalis*, *Juncus conglomeratus* and *Stellaria graminea*. Where there are stable flows into the mossy area, cushion bogs occur. These are dominated by *Oreobolus pectinatus*, with moss, bladderwort (*Utricularia monanthos*), *Ranunculus gracilipes*, *Epilobium brunnescens*, *Luzula pumila*, sundew (*Drosera arcturi*), *Gnaphalium* sp, *Festuca rubra*, *Gonocarpus aggregatus* and *Mimulus guttatus*. Exotics are present in small quantities and include browntop, sweet vernal, Yorkshire Fog, *Prunella vulgare* and king devil hawkweed. Other stream flushes have similar vegetation, and are associated with the hard tussock and *Cassinia* shrublands, especially on gently sloping surfaces.

iv) Red Tussockland

Dry red tussockland (*Chionochloa rubra*) occurs on a terrace on the true left of the Lower Darts Bush stream. Narrow leaved snow tussocks, *C. rigida* of relatively good stature are more common where it is drier, with red tussock occurring closer to the boundary fence with Rhoboro Downs Station. Comb sedge bogs are

present, but appear to be drying out, and are being invaded by exotics such as browntop and sweet vernal.

(v) *Narrow-Leaved Snow Tussock*

Most of the narrow leaved snow tussock grassland have been modified through OSTD. A small pocket of low density snow tussock exists at the head of the valley above Mossy Hollow (>660m), and on the north side of The Pyramid. It is associated with regenerating matagouri shrubland, and modified hard tussock grassland.

(vi) *Shrublands*

Matagouri shrubland occurs along the streambeds of Darts bush and Fraser Streams, especially above the Ben Ohau Swamp. These riparian shrublands tend to be dense, and are dominated by matagouri, which reaches 3m in places. Other shrub species include *mingimingi* (*Coprosma propinqua*, porcupine shrub (*Melicytus alpina*), *Coprosma rugosa* and *Olearia odorata*. *Hebe subalpina* is locally present on the banks of the stream which drains the red tussockland on Rhoboro Downs and joins Darts Bush Stream just above the confluence with Fraser Stream. Brier (<5-15%) is scattered throughout, with willow trees occupying the upper Fraser Stream. Ground cover tends to be dominated by exotic grasses and herbs. By contrast the Twizel River has poor density matagouri, which is dominated by brier and exotic grasses.

Regenerating matagouri shrubland, induced by OSTD, is spreading into hard tussock grassland and narrow-leaved snow tussocks, especially in the Knobbs Block, at the head of the valley above the Mossy Hollow, and on the northern face of The Pyramid in the Darts Bush catchment. Shrubs are small and of low density. *Cassinia leptophylla* shrublands are common on Ben Ohau Station, there being four main areas. They are a distinctive feature of the gently slipping toe slopes and fans, associated with the north-west - south-east trending faultline, between 540-560m altitude. The shrubs reach 1.5m in height, and the groundcover tends to have moderate native species diversity, including *Raoulia subsericea*, *Celmisia gracilentia*, harebell, *Praesophyllum colensoi*, orchid, native daphne, blue tussock, *Viola cunninghamii*, matagouri and hard tussock. Exotics are not prominent, though browntop, sheep sorrel, sweet vernal and catsear are present. Where it occurs on very dry, stony soil, there is more bare ground, hawkweed and Gentians present. Wetland flushes, hard tussock grasslands, and matagouri shrublands are also found in conjunction with the *Cassinia* shrublands.

viii) *Forestlands*

One small mountain beech (*Nothofagus solandrii*) remnant (>6 mature trees) is located by the Darts Bush Stream, at the upper reaches on Ben Ohau Station. It is contiguous with mixed matagouri shrubland located in this stream bed. Ground cover is negligible, with little sign of regeneration.

2.4 Fauna

The braided waterways, swamps, wetlands, dry streams and open ponds are an important habitat for a variety of birds. In total, some 43 bird species have been observed on the property, of these 17 are endemic species. The property plays a key role in the survival of the black stilt populations and is also important for Pied Stilt, Bittern, Marsh Crake and the occasional White Heron. Water fowl such as Black Swan, Shoveler Duck, New Zealand Scaup, Grey Duck and Grey Teal have been observed on Omahau.

Shrublands host Pied Fantail, Grey Warbler, Silvereye and Finch, while the tops have Skylark, Pipit and the occasional New Zealand Falcon.

While no in-depth survey of insects has been carried out on Ben Ohau, three species of butterfly and grasshopper were recorded, along with wetland insects. No rare or unusual insects are known.

The common skink and common Grey Gecko were found on Ben Ohau. The latter around rock outcrops or rock piles, while the skink is widespread.

Six species of freshwater fish were recorded in the streams and ponds. The Brown Trout was common in the lower reaches of the Fraser and Twizel Rivers, as well as in Lake Poaka. The upland bully and common Galaxid was common throughout, while the Alpine Galaxid is found only in the Fraser and Twizel Rivers and Long-Jawed Galaxid were found only in the Fraser. Both these species have limited distribution in New Zealand. Koaro (*Galaxias brevipinnis*) was found in Darts Bush Stream and the upper Fraser. This is a C species for conservation purposes.

2.5 Historic Values

Ben Ohau (run No.87) was first applied for by High and Samuel Fraser in April 1857 and named "Ben Achiu" gaelic for "Hill of the Dog". The run included all the land between the Pukaki and Ohau rivers and in 1856 a further 12000 acres of the Ben Ohau range was added, making the total area 80356 acres.

In 1867 this was sold to Messrs Ostler and Dawson for 7500 pounds. Ostler died after straining himself trying to stop a bale of wool falling off a wagon and into the Ohau River. Mortgagees Godsborough and Company took over the property and Ben Ohau had three different managers until a sale in 1889. There was no bid due to the rabbits. In 1891 James Preston bought the property for 7700 pounds which included all the 16800 sheep. Preston lost 6000 sheep in the great 1895 snow. Because of the devastating rabbit plague and a salt and lime deficiency, Preston considered it to be a bad risk run and made an effort to abandon it, eventually succeeding in 1897 when his manager nephew, J.E.P. Cameron was granted a lease at a special rental due to the rabbit depletion.

In 1911 Ben Ohau was reduced in area to 57277 acres.

In 1920 J.E.P. Cameron rescinded 41806 acres to the Crown for soldier resettlement, retaining 15471 acres of the original Homestead Block as a small grazing run.

In 1982 Ben Ohau was reduced to 14359 acres (5811 hectares) following hydro electric power development.

The historic sites of interest on the property are, sites of the older rabbit hutches, the old Glen Lyon Road along the southern boundary, and the homestead that was built in 1904-1905 after the original homestead, burnt down in 1903.

No information is known on Maori cultural values on the property.

2.6 Existing Land Status

Ben Ohau Station is divided into several different blocks, because of State Highway 8, small roads and the Pukaki Canal. The Fraser Stream, Dry Stream, Dart Bush Stream and the Twizel river all have marginal strips on both sides of the creeks for their entire distance through the property. The eastern boundary of Ben Ohau Station adjoins a marginal strip that runs along the Pukaki River.

The Twizel Airport is a separate parcel of land near State Highway 8, as is the homestead area. Some of the side roads through this property are formed and on the legal line, while in other places farm tracks lie on or close to the legal lines. The unformed legal road up Darts Bush Stream off Rhoboro Downs Road over the range to Lake Ohau is a case in point.

The Mackenzie District Scheme became operational in 1986. This scheme identified all of Ben Ohau Station as a Rural 1 zone. This is a general farming zone allowing agriculture and pastoral farming and some forestry. This plan is now a Transitional District Plan due to local government restructuring. A new plan is to be publicly advertised in October 1996.

2.7 Recreation/Access

Access

Marginal strips, roads and unformed paper roads have been dealt with in 2.6 above. Ben Ohau is very accessible from all directions via these legal access points.

Uses

The rivers and wetland areas are the main focal points on the property for fishing or passive recreational activities. Some of the tracks on Ben Ohau are key access routes onto the Ben Ohau Range and currently permission is required to use them.

Potentially these existing tracks could formalise through routes onto the Ben Ohau tops, providing linkages with other tracks. The streams, and wetland areas have considerable potential for recreational use, as the Mackenzie Basin develops.

User Issues

Managing recreational use of the flats so that it does not conflict with farming activities and fauna management is a challenge for the future. Some controls will be required and need careful consideration. Access points for walkers, mountain bikers and horse riders will be required with appropriate signs and styles. Road maintenance if vehicle access is available is a concern.

Existing Management

Management issues affecting conservation values will largely centre around the wetlands and RAP 8, Pukaki Flats. The wetlands and riverbeds have willow trees and briar surrounding them. These areas are prime bird habitat and control or removal of the willows will be required to protect or enhance the areas. Fencing would be required to ensure that stock damage does not occur around the fringes of some of the wetlands. Siting of the fence lines will require careful consideration so that floods do not destroy the fences. Public access could also conflict with habitat requirements.

Continued stock grazing on RAP 8 and the management of these hard tussock grasslands will be a challenge. Rabbits are also a management problem in these grasslands and around the fringes of the shrublands.

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PART THREE: CONSULTATION

On 28 November 1996 an NGO meeting was held in Timaru. This meeting was attended by representatives from Forest and Bird, Public Access New Zealand, tramping clubs, deerstalkers associations and Aoraki Conservation Board.

The questions/issues arising from discussion on Ben Ohau Station were:

- protection of Pukaki fescue tussock and PASAC recommendations
- property was crucial for recreational use of Ben Ohau Range
- protection of Merioa Swamp
- questions of marginal strips to protect bird life and public access
- concerns about lifestyle units
- protection of Ben Ohau Swamp is desirable
- access along Pukaki Canal needs to be protected.

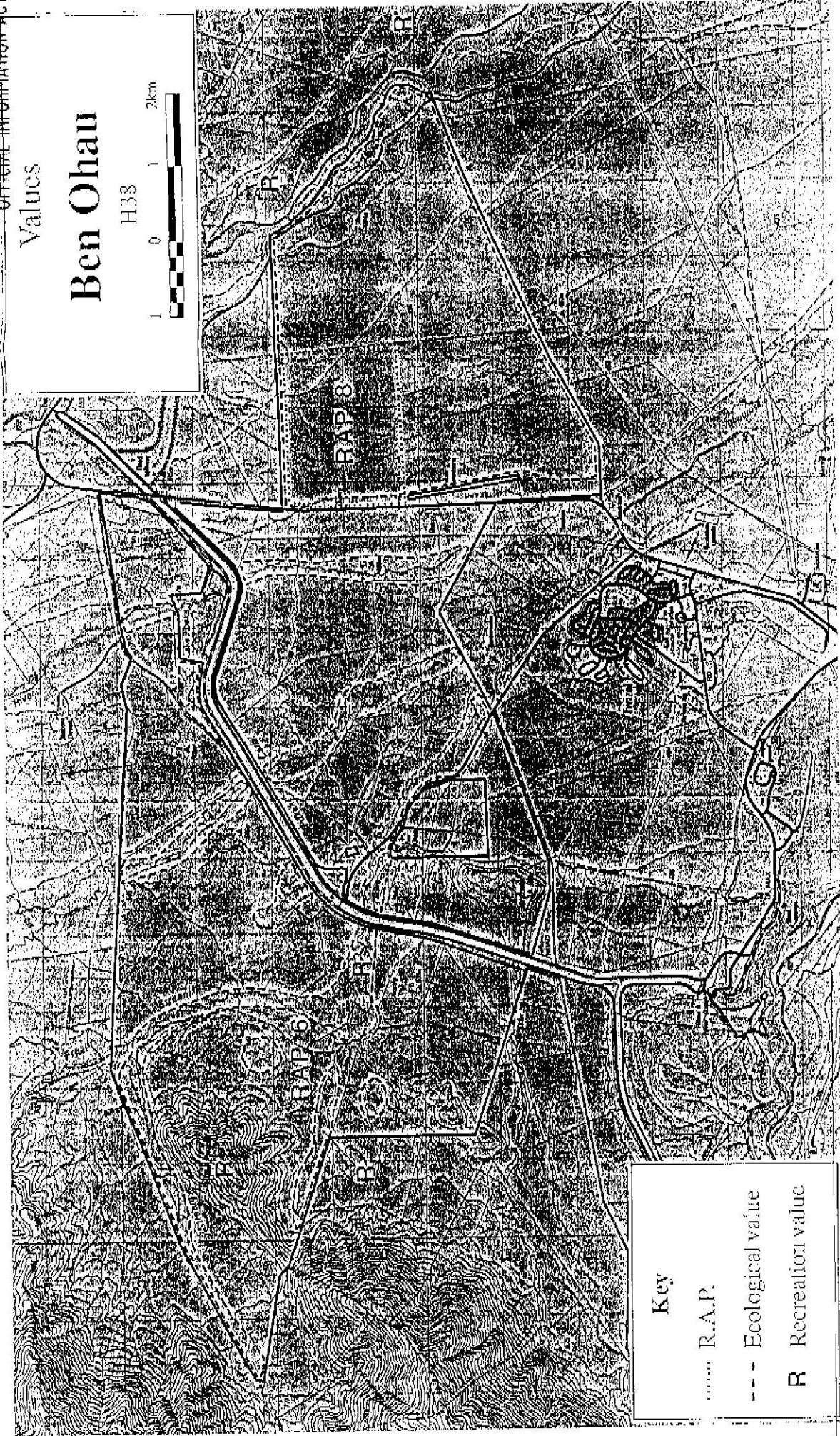
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Values

Ben Ohau

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Key

- R.A.P.
- Ecological value
- R Recreation value