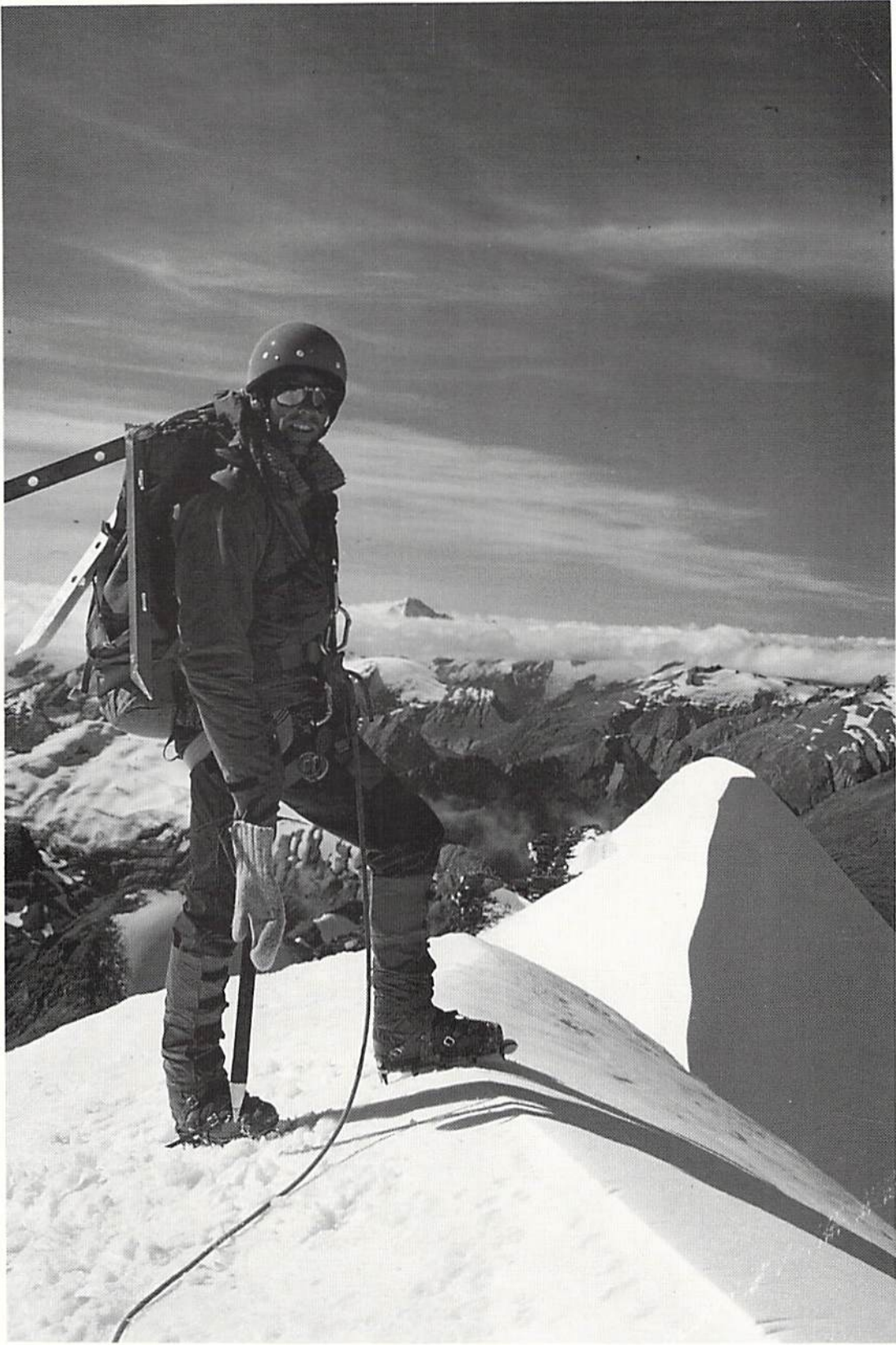


OUTDOOR RECREATION in OTAGO

A Recreation Plan

Bruce Mason



Volume Two:
**SILVERPEAKS
& OTAGO'S ALPS**

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Photo: Bob Entwistle



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Mt Aspiring from the West Peak of Earnslaw.

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Dedicated to the Memory

of

Peter Child

1923 – 1986

Tramper, mountaineer, naturalist

and

Peter Mitchell Chandler

1927 – 1989

Tramper and historian

PREFACE

This work is the second of two volumes to cover the high country and upland recreational resources of Otago, east of the main divide. The first volume, dealing with Central Otago's block mountains, was published by FMC in March 1988.

The rationale and approach adopted in Volume One carries over to this volume. Reading of the Preface and Introduction to Volume One is essential for an understanding of this work, and in particular for explanation of FMC's zoning and Recreational Opportunity Spectrum (ROS) approach.

The purpose of *Outdoor Recreation in Otago* is to identify land/recreation management needs from the perspective of one major user group—foot and ski orientated recreationalists. The work also provides a documented basis for creating understanding of the needs and relationships of the 'FMC user group,' with the natural resources of the land, its management, pastoral occupiers, and other recreational groups.

The vigorous media coverage that Volume One generated, both before and after release, indicates that public debate on many of the issues raised was overdue. Responses have been both considered and reactionary, overall being strongly supportive. Perhaps because the explicitness and breadth of approach of Volume One some critics read offence into what was neither intended, or even printed. All responses, in hindsight, have been appreciated as nothing would be worse for me, and the backers for this project, to see years of effort gathering dust on departmental shelves. Its function as a reference for land manager, educationalist and recreationalist should hopefully ensure that this will not be the case.

The challenge ahead for all parties, with either monetary or emotional attachments to the high country, is to publically express their needs and perceptions for these important lands in an explicit and reasoned manner. It is only with community participation in the many official decisions that *are* being made on the public behalf that any meaningful planning and valid decision making can be made. The completion of *Outdoor Recreation in Otago* will provide another challenge (if such is needed!) for this to happen.

The views expressed are intended to either reflect FMC's position to date, or likely future position based on past policy. As author I accept responsibility for the interpretation of the Federation's objectives and policy, and for the views expressed.

Acknowledgements

This publication would not have been possible without the financial support of the following organisations. Research, editorial and printing costs have been variously met by FMC, and by grants from the N.Z. Lottery Board and the Minister for the Environment. My sincere thanks.

Special thanks to Les Molloy for conceiving the project and editorially guiding me through the formative stages. Subsequently Brian Turner acted as editor and adviser. His practical guidance and good humour is appreciated.

The production assistance of the following has been greatly appreciated:

Pat Tristram for typing initial drafts before the word processor era, followed by Ann Morrison of the Mountain Safety Council, Wellington. The Otago Acclimatisation Society made their laser printer available to me. Marjorie Mason acted as proof reader.

Hughes Lithographics, Dunedin scanned the photographs, with admirable results. The Department of Survey and Land Information produced base maps (Licence No. 1989/44). Martin Connell completed map draughting. Many thanks also to Barbara Larson and her team at John McIndoes, printers.

Numerous people provided information and comments over an extended period. Most are acknowledged in Vol One or are directly accredited in each chapter reference. Apologies for any omissions. My thanks to various Department of Conservation staff who supplied information on request, or at some inconvenience to themselves, provided me access to archival material. No contributor had any control over what, or how information was used. No responsibility for its treatment can be fairly placed at their feet. All photographs are accredited to their authors, except those by myself.

Special tribute is due to the late Peter Chandler. Much of the historical information, especially goldfields history, is the result of Peter's tireless research over many years.

Sincere thanks to the FMC Executive, my family, friends, and sympathisers for their interest and support during this project.

B.J.M. June 1989.

FMC's Objectives

In addition to FMC's national role in the promotion of active recreation and mountain safety practices, the Federation actively promotes public access to mountain lands and the conservation of these environments. FMC's particular goals in the South Island high country are:

- the protection and improvement of public recreational opportunities;
- the conservation of natural landscapes and ecological values, as important components of the recreational setting.

To achieve the above goals, the Federation seeks:

- the removal from pastoral leases and licences of high land unsuitable for grazing, and the making available of these lands for public recreation through more appropriate tenures;
- the evolution of tussock landscape management systems, and the identification, for protection, of typical and special landscapes throughout the high country;
- completion of the PNA programme to achieve a representative network of protected areas, with reserve status where significant opportunities for public recreation exist;
- improved public access through leasehold land to public land within or beyond. Where recreational use is random and of low intensity, the Federation generally considers that informal arrangements are adequate. For regular access routes, and areas of regular recreational activity, formal arrangements for public use are sought;
- allocation and management of recreational resources through local and regional planning, by application of the Recreational Opportunity Spectrum (ROS) concept.

A RECREATIONAL OPPORTUNITY SPECTRUM FOR THE OTAGO HIGH COUNTRY

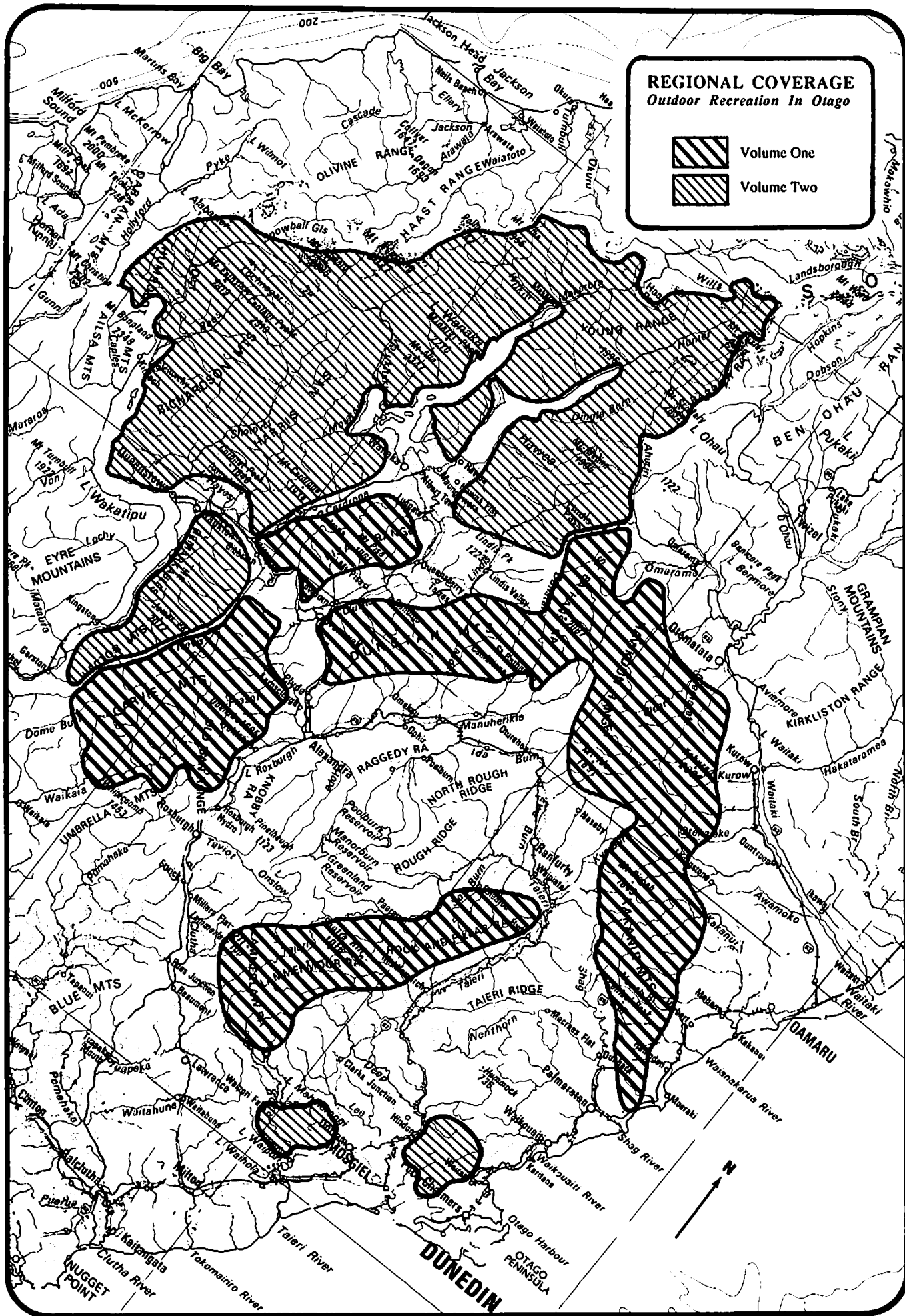
RECREATIONAL EXPERIENCE ZONING					
	WILDERNESS	REMOTE	NATURAL	OPEN SPACE	CULTURAL
SETTINGS					
NATURAL-CULTURAL SETTING	Large tracts of unoccupied land, native forest and grassland; alpine, lakes, rivers.	Settings and activities same as for wilderness, but with minor incompatibilities. eg. smaller size, presence of a hut, less adequate buffering etc.	Unoccupied native forest and grassland; alpine, lakes, rivers.	Semi natural grasslands.	Facility orientated. May have natural landforms, but be highly modified. In mountain, forest, grassland, rural, coastal situations.
PREDOMINANT LAND USE	Wilderness recreation.		Nature conservation.	Extensive grazing.	Farming, forestry, hydro lakes, recreational facility areas/skifields.
ACCESSIBILITY	Physically inaccessible with unroaded buffer zone. No defined routes within. No recreational air access.		May have foot tracks, bridges, road/vehicle tracks. May have legal restraints on public use, but generally available. Variable air access.	Roads, off-road vehicles, foot tracks, horse trails. Aircraft use.	Roads throughout, defined walking and vehicle tracks.
SOCIAL SETTING	Very low density use. Minimum impact practices. No, or at most, very brief inter-group contact. No visible or audible contact with motorised craft. Legal rights of use.		Low to high use and inter-group contact. Density depends on degree of resource protection required. Minimum impact practices encouraged. Variable rights of use.	Low to moderate use and inter-group contact. Some sharing of space and facilities. Few rights of public use.	High density use. Heavy social and technological interaction. Use actively encouraged. Variable legal rights.
COMMERCIAL RECREATION	Very low density/negligible. Only under one-visit permits to avoid over-promotion and over-use; under the same physical limitations as other users. ie. no facilities, aircraft or vehicle access.		Nil to moderately high intensity/highly variable. Activities and facilities excluded from some areas; otherwise under licence, subject to protection of environment and other users' rights.	Generally low intensity. With landholders, and official consents where required.	High to very high intensity. No restraints, other than land ownership and planning controls; official consents on lands of the Crown.
DEVELOPMENT & FACILITIES	None, except temporary facilities for management.		Variable; depending on management priorities, or policies to maintain diversity of recreational opportunities.	Some; confined to specific activity sites.	Considerable developments; sophisticated facilities.
MANAGERIAL SETTING	No discernible management presence. Pre-entry education. No overt promotion of use. Free-ranging, unconfined use.		Management may be obvious; signs, rangers, but generally low-key. Some user group conflicts. Zone may be subdivided in to different intensities of use and management.	Informal use. No recreational management. User group conflicts.	Obvious signs of use, control, and promotion. Emphasis on visitor services. Separation of activities within defined areas.
ACTIVITIES	Mountaineering, ski mountaineering, cross country skiing, deer stalking, tramping, rafting without air access, fishing.	As in wilderness.	As in wilderness plus: Primitive camping, walking, canoeing, rafting, sailing, fishing. Variable use of recreational aircraft.	Heli-skiing, cross country and ski touring, tramping, walking, horse riding, fishing, game bird hunting, off-road vehicles, informal camping, picnicking, sailing, rafting, power boats, aircraft.	Outdoor education and accommodation centres, camping grounds, picnic areas, skifields, walkways, horse riding, off-road vehicle trails, power boating, sailing. May be constraints on recreational aircraft.

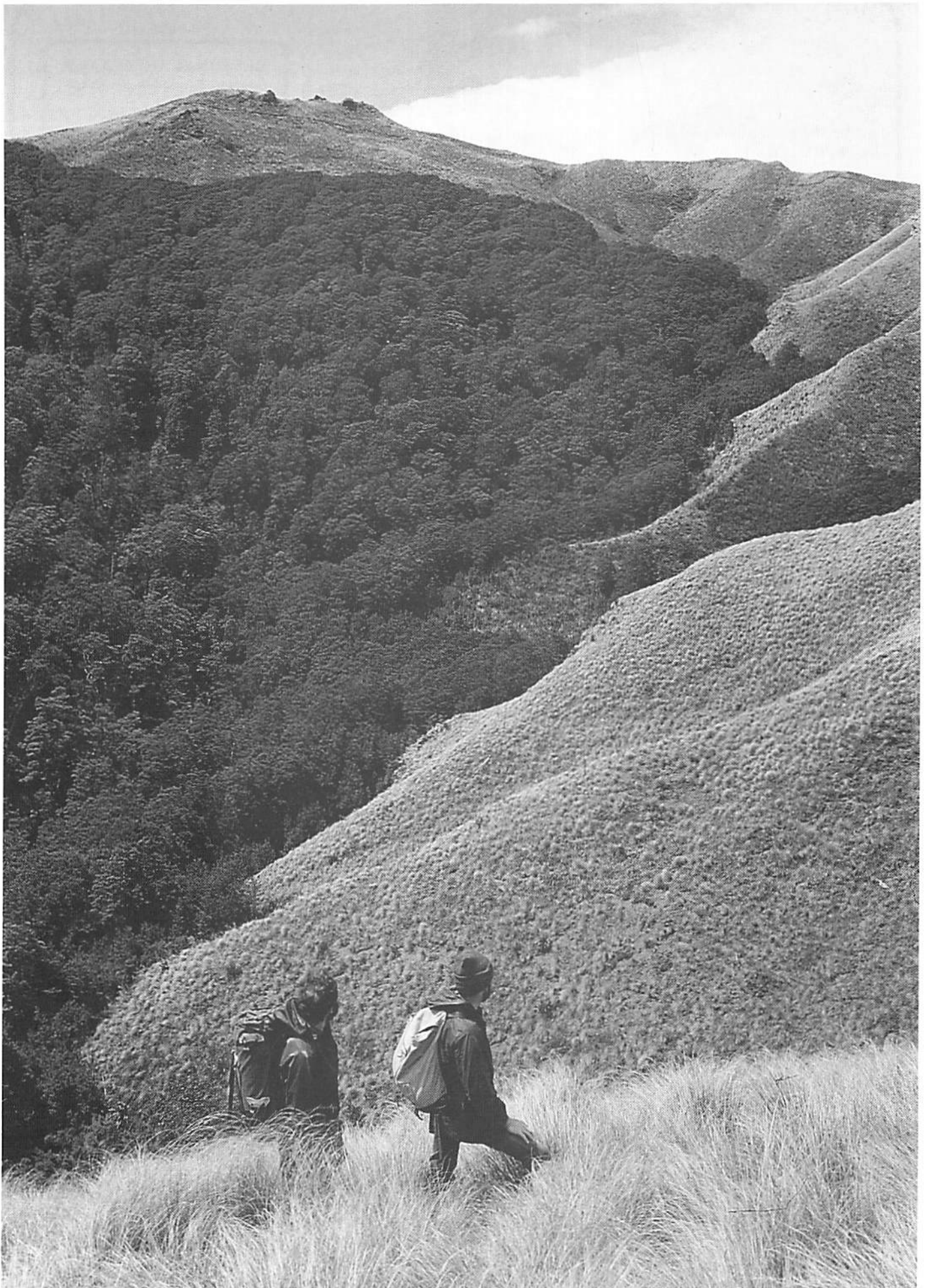
REGIONAL COVERAGE
Outdoor Recreation In Otago



Volume One

Volume Two





SILVERPEAKS and Maungatua Range

Labour Day, 1923, saw a massive gathering on Silver Peak. Club weekend parties went by way of Whare Flat and Mt Allen, by Bendoran, and by Waitati-Red Hut; and on Monday they were joined on the Peak by another party of about 40 who had come by the Central Otago train to Mt Allen. About 70 Club members were joined on the top by some 30 others. The summit was crowded and the water supplies in the vicinity were severely taxed. Account of Otago Tramping Club trip.¹

1. Landforms

The Silverpeaks is an area of dissected hill country which has its coastal margins immediately inland from the City of Dunedin. The city's outlying hill suburbs flank Flagstaff Hill (668 m) which sits on the divide of the harbour-draining Water-of-Leith, and the Silver Stream catchment. Swampy Summit (739 m) lies to the north of Flagstaff.

These hills, and the isolated Mt Cargill to the north of the city, are remnants of the Dunedin volcanoes. The broad Silver Stream catchment drains southwards to the Taieri Plain. This, and the Waikouaiti River valley draining north and east, separate the volcanic Flagstaff-Swampy-Hightop-Double Hill chain from the schists characteristic of Central Otago.

The core area of the Silverpeaks consists of a dissected schist peneplain with sharp, narrow ridges of similar height and steep-sided V-shaped gullies between. A network of ridges radiate from Silver Peak (777 m) and Pulpit Rock (760 m) embracing most of the area. Tors occur along ridge crests and extensive rock outcrops provide a craggy western face along much of the central dividing ridge north of Silver Peak.

To the west of Christmas Creek, which drains the western faces of the central Silverpeaks, the terrain becomes gentler in relief, dipping westward from the broad Lamb Hill (764 m) towards the Taieri Gorge. The south-western sector of 'The Peaks' is lower dissected hill country, abutting the deeply incised Taieri River, before dropping to the Taieri Plain.

To the south-west, the Maungatua Range is the highest terrain in the vicinity of the greater Dunedin metropolitan area. It is an uplifted block mountain, with its scarp faces overshadowing the intensively farmed Taieri Plain which is almost at sea level. It is separated from the Silverpeaks by the Taieri River and Gorge. From a rounded summit plateau at 895 m the western flanks dip gently to the Verter Burn tributary of Lake Mahinerangi. Tors of schist dot the upper faces. The range is truncated by the deeply incised Waipori River to the south, and dissected along its northern extent by streams flowing into the Taieri Gorge.

2. Vegetation and Wildlife

2.1 Vegetation

The catchments east of Silver Peak are climatically dominated by the coastal environment with its prevailing southerly and north-easterly winds.

Within approximately 15 km of the coastline, coniferous-broadleaf forest once grew from the shoreline up to 600-700 m on the hills. The remaining forest is confined to the city flanks of Flagstaff and Swampy, and the Silver Stream and Waikouaiti catchments. Many areas have been modified by clearance for farming, and by milling for timber and firewood. Many such areas have regenerated to a kanuka or manuka woodland.

Mountain cedar lingers on higher faces where north-easterly fogs provide heavier precipitation. Changing climate, with increased effect of desiccating nor'west winds is considered to be causing a decline in this species,² with extensive die-off occurring.

Isolated stands of silver beech occupy depressions and incised stream beds on the dry western faces. The largest surviving stand is the 75 ha 'Painted Forest' on the southern slopes of Silver Peak. Burning of the surrounding tussock country has severely reduced the extent of beech and produced unnaturally low bushlines on Flagstaff and in the Waikouaiti and Silver Stream catchments. Both prehistoric and historic fires are responsible for maintaining depressed bushlines on most ridges.³

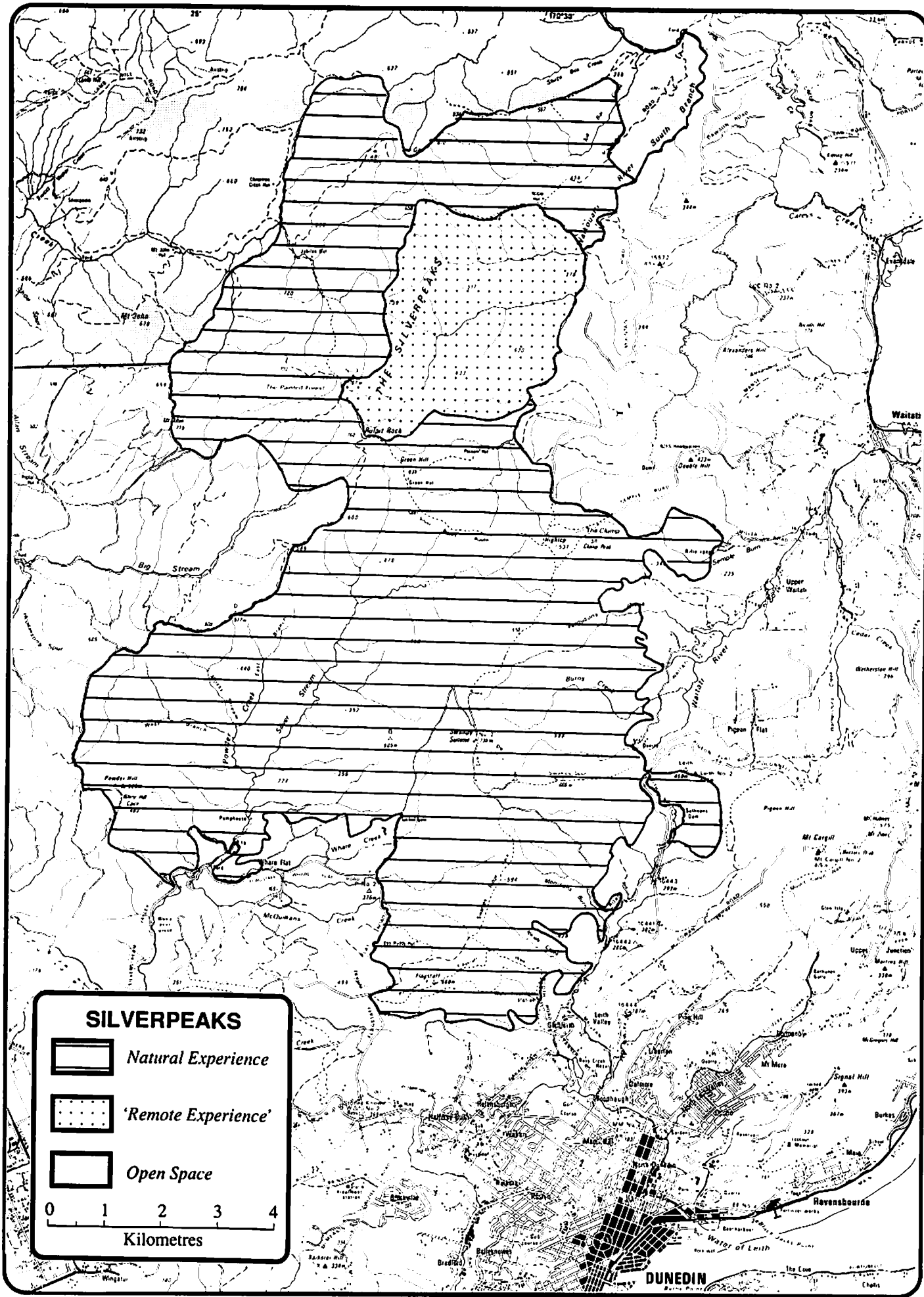
Most ridge crests and all western faces are vegetated by either narrow-leaved snow tussock-shrub associations of cassinia and flax or introduced grasses with markedly fewer woody species inland. The condition of the tussock is highly variable, ranging from largely unmodified on Swampy Summit, to very depleted especially on sunny western and northern faces. Aerial oversowing of the drier and lower country is resulting in rapid replacement by pasture species. The combination of fire and grazing since settlement has weakened tussock grassland cover, inducing invasion by manuka shrublands. Apparently the Silver Stream Valley was mainly open country until about 1870, but is now covered chiefly by tall manuka.

A number of shallow peat-filled basins with tarns survive on Swampy Summit, supporting cushion flora with sub-alpine heaths and herbs. The peat is of special scientific significance as the site of early studies to trace regional vegetation changes during the post-glacial period.

Until the advent of exotic forestry the vegetation of the Silverpeaks was largely indigenous, although substantially modified by farming, fires and timber extraction. The native forests that remain, however, comprise some of the more significant remnants on the east coast of the South Island.

Otago Harbour from Mt Cargill walkway.





Within the confines of the Taieri Gorge, between Taioma and Outram Glen, are continuous riparian native forests, some of which are untouched by European fires. Kanuka is dominant overall, however, localised stands of totara, matai, kahikatea, and kowhai are of considerable scientific and scenic importance.⁴ Most native forests in the greater Silverpeaks area, outside of the Silver Stream water catchment, are browsed by both domestic and feral sheep, and by pigs.

On the Maungatua Range podocarp-broadleaf forest is confined to small areas above the Taieri Plain and the Waipori Valley. Ribbons and patches of silver beech occur along the eastern face, with extensive areas in the Mill Creek and Waipori valleys on the southern flank of the range. Most forest associations have badly depleted understories as a result of severe browsing from sheep, deer and pigs.⁵

Subsequent control operations and fencing have reduced animal populations to low levels, aiding recovery of the understory throughout most of the forest.⁶ It appears that several centuries ago the entire Maungatua Range was forested. Log remains and extensive forest-dimpling throughout the tussock grasslands provides the more obvious evidence remaining today. Tussock grasslands dominated by the narrow-leaved snowtussock cover the extensive summit plateau and upper slopes, frequently in association with shrubs of dracophyllum-cassinia-hebe. On poorly drained areas of the summit there are cushion moors consisting of hummocky turfs of prostrate and cushion-forming species. Nearby there are usually small tarns and associated peat bogs of sphagnum species, flax and bog pine which appear to be invading the snow tussock.⁷

A substantial area (5600 ha) of the western Maungatuas, consisting of tussock grasslands and shrublands down to the shores of Lake Mahinerangi, was afforested in 1979-80. This is adjacent to larger exotic forests of the Dunedin City Council and Forestry Corporation on the dissected uplands south of the Waipori Valley.

The south-eastern flanks of the Maungatua Range, the Taieri Gorge and eastern Silverpeaks lie within the Otago Ecological Region. The western Silverpeaks and Maungatuas are within the Lammerlaw Ecological Region.⁸

2.2 Wildlife

Along with some of the larger surviving remnants of native forest in east Otago, the Silverpeaks and Maungatuas provide important habitats for forest birds. Less common species include the South Island Robin in the lower Silver Stream catchment, and the Shining Cuckoo and Red Crowned Parakeet on Maungatua and at Waipori Falls. The robins' range has been reduced in recent years through logging operations within the Flagstaff plantations which have reduced their habitat of silver beech remnants.⁹

The fernbird is generally distributed throughout scrubby grasslands and swamps in both areas and appears to be able to withstand occasional fires. Its habitat has been greatly reduced in the Waikouaiti Valley by forestry development. The ubiquitous pipit and harrier hawk are found throughout the tussock grasslands. The New Zealand Falcon is regularly seen on the central ridge crests and craggy western faces of the Silverpeaks as well as on parts of the Maungatuas. At least one breeding territory is known in the northern Silverpeaks.¹⁰

Pigs and feral sheep occur throughout the area. There are goats on the Silver Stream flanks of Swampy, and on Maungatua—the result of inadequate fencing of domestic herds. Small

numbers of red deer are found throughout, plus pockets of feral cattle. Pig hunting has long been actively pursued by locals and land occupiers. Feral and domestic animals are generally having a major impact on forest regeneration and their continued presence threatens forest stability.

3. History and Land Use

3.1 Settlement

At the time of the founding of Dunedin in 1848, coastal shipping was the preferred means of communication with northern settlements, such as the Johnny Jones' whaling station and farm near Waikouaiti. However it was not long before the route over Flagstaff and Swampy had developed into a regular bullock cart and sled route; bogs and disorientating fogs notwithstanding. For many years this 'Mountain Road' was the major link northwards from Dunedin and ruts from this trail are still present on Flagstaff and Swampy Summit.

Flagstaff was known by the Ngai Tahu as 'Whakaari,' meaning "uplifted to view," however 'Flagstaff' has prevailed since the gold rush days when it was the practice to station a signaller (with flags) atop the hill to notify Dunedin's settlers of approaching coaches from Central Otago.

Settlement of the Silverpeaks proper began in 1854 with the issue of three depasturing licences west of Swampy Summit and in the South Branch of the Waikouaiti. South of a line between Swampy and Powder Hill, and all the coastal hills to the east were declared 'Hundreds' to allow closer settlement. Sawmilling in the Leith and Waitati Valleys from the 1860s onwards made inroads into forest cover, as did occasional big fires such as occurred on Mt Cargill at the turn of the century, destroying much of the mountain cedar forest.

Woodside Glen on the northern Maungatuas was first settled in 1849. The West Taieri Hundred extended from the Plain to the Maungatua summit, being subdivided into small lots. The run country proper was west and north of the range. During the mid 1850s sawmills began cutting timber on the northern slopes of the range, then extended operations southwards to the heavily forested Waipori Valley.¹¹

3.2 A Pastoral Landscape

Whereas centuries of intermittent burning during Maori occupation had produced a snowtussock fire-climax vegetation west of the Flagstaff-Silver Peak divide, the introduction of stock in conjunction with burning tipped the balance against these grasslands. On moister areas manuka-kanuka with hebe, dracophyllum, flax and cassinia species at higher elevations, rapidly invaded the depleted grasslands. The palatable gave way to the unpalatable in the Silver Stream and upper Waikouaiti Valleys, resulting in abandonment of pastoralism and subsequent use for municipal water supply. Further westward burning, plus grazing resulted in short 'hard' tussock succeeding snowtussock.¹²

A similar, but less dramatic transition has occurred on the drier Maungatuas where burning and variable grazing pressure has produced shrubland-grassland along eastern crests, and a belt of bracken fern among silver beech and broadleaved remnants on the eastern face. On lower north-western slopes 'hard' tussock took over from snowtussock.^{13,14} Extensive tracts of mid-altitude snowtussock grasslands which survived the initial onslaught of pastoralism are now rapidly disappearing due to pasture cultivation and exotic forest establishment.

3.3 Goldmining

Like most parts of Otago, the Silverpeaks did not escape attention during the goldmining era. The Taieri catchment, notably Mullocky Gully, Christmas Creek and Three O'Clock Stream, were well fossicked for alluvial gold, the former experiencing a short-lived rush. Little evidence of this activity remains except in the latter area where diversions and sluice channels armoured with hand-stacked rocks can be seen. During the 1870s a short-lived attempt at underground quartz mining occurred in Reef Creek, a tributary of Mullocky Gully. Little evidence remains today. Extensive 'paddocking' for gold occurred in the South Branch of the Waikouaiti intermittently from 1865 until 1948 with some underground mining on the valley sides. Through reversion to bush these workings are rapidly becoming concealed.

To provide horse and cart access to the Waipori goldfield and Lawrence, the 'Government Track' was constructed in the mid 1860s above the Waipori Gorge and was still in use until 1926. This is now a popular walking track.

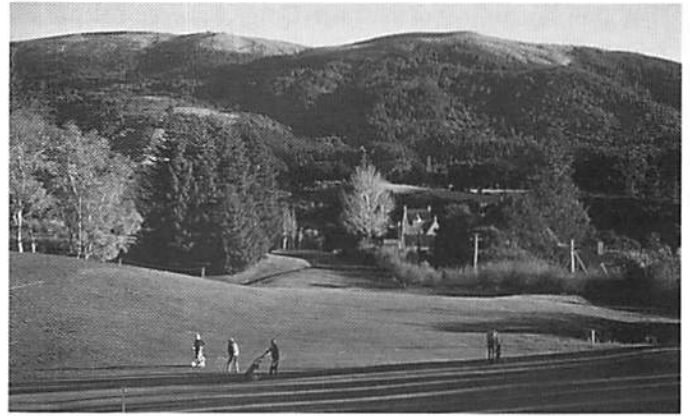
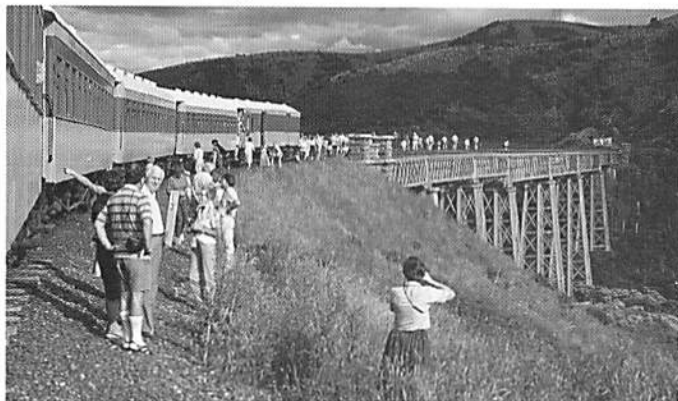
'Stick-up Gully' above Woodside Glen gained notoriety in 1861 when Garrett and his band of masked and armed bushrangers robbed, in one day, up to 15 diggers travelling between Dunedin and the Waipori and Tuapeka Goldfields. The victims were relieved of £400 of valuables and left tied to trees.¹⁵

The only goldmining of any consequence to occur on the Maungatuas was in the Verter Burn or Post Office Creek. Sluiced faces and water races traversing hillsides are evidence of a lengthy era of mining dating from 1862. The largest nugget found in Otago (26 ounces) was reputed to have come from this area in 1865.

3.4 The Otago 'Great Central' Railway

As part of the then Government's programme of opening up the interior for agricultural development, construction of the Otago Central Railway began in 1879, to finally reach Cromwell 42 years later. The route chosen up the Taieri Gorge runs through some of the most spectacular terrain traversed by rail in New Zealand. This presented some major engineering challenges; the most remarkable achievement being the Wingatui Viaduct across Mullocky Gully, which at the time of its construction (1887) was the largest such structure in the southern hemisphere (197 m long, 47 m high).¹⁶ As well, there are many beautifully built iron girder bridges and viaducts with stone abutments and piers, 12 of which occur in the first 37 km of track through the gorge interspersed between 10 tunnels. Within one 300 m section at 'The Notches,' four bridges and a tunnel traverse the sheer gorge wall (See 4.14).

Excursion train at the Wingatui Viaduct.



Flagstaff and city water reserves from Balmacewen golf course, Dunedin.

3.5 Water Reserves ¹⁷⁻²⁵

3.5.1 Water supply and recreation

One of the earliest land uses in the region was Municipal water supply. With completion of the Ross Creek Reservoir in 1867, Dunedin depended on the Ross and Wakari Creek catchments on Flagstaff for its supplies, despite these catchments being privately owned and farmed.

A rapidly expanding population led to water shortages and proposals for extension of supply areas. In 1881-82 some 6000 ha of the Leith, Waitati, Waikouaiti, and Silver Stream catchments were permanently reserved for "the growth and preservation of timber, and water supply." These extensive reserves remained in Lands Department control until 1892 when they became vested in the City Corporation.

The first extension of supply was to the Silver Stream in 1881, followed by the upper Leith and Waitati Valleys in 1906. It was not until 1918 that another 3700 ha in the crucial Ross Creek and Waitati-Leith was appropriated from private ownership. The Nicols Creek catchment in the lower Leith was the last water source close to Dunedin to be added to the supply, in 1949.

Water quantity rather than quality was the prevailing concern for many decades, with little restriction on grazing and public use of reserve areas. Most of the reserves were leased for grazing, often rent-free but with lessees "responsible for keeping down the rabbits." The prevailing official attitude of the time was "the depasturing of a suitable number of sheep does a drinking water catchment no harm." However, in regard to private lands the city "has wisely followed the practice of acquiring farms on the catchment area whenever opportunity permitted, and, as the land was usually overrun with rabbits and used for grazing sheep and cattle, the conditions were not conducive to a pure and uncontaminated water supply."

In 1918 it was recorded that the Ross Creek catchment was "principally used for dairying purposes and a water closet was discharging its contents into this stream." In that year "...the Ross Creek Reservoir is deservedly one of the most popular picnic and pleasure resorts around the city...thousands of people stroll along its banks every summer...both children and adults must obey the calls of nature, and hence the water of the reservoir are in constant danger of pollution." But it was not until 1929 that the authorities made the first moves to control direct public access to the untreated waterways and reservoirs. It was many years before public access to the water was prohibited in catchment and reservoir areas, this being to prevent sabotage after the declaration of World War II. Barbed wire fences were erected around the

reservoirs, intake areas and gates were padlocked, and prominent signs erected. After the war the question arose of reopening the water reserves to the public but "in view of previous trouble," and with the full support of the Health Department, it was reluctantly decided that public access would be unwise.²⁶

Up until 1949 Dunedin had relied upon restricting human habitation in the catchments and on natural filtration to obtain pure water, however, as a result of Health Department pressure, in 1953 the City Council decided to embark on a programme of making the city's water as "pure" and healthy as possible.²⁷ Chlorination was introduced in 1956, and by 1965 all water supplies were so treated, followed by fluoridation in 1967.

A study of the management of the Silver Stream catchment in 1968²⁸ recommended increased recreational usage and suggested the planned development of picnic sites, nature trails, and tramping tracks so located as to have minimum impact on the water and timber resources. The concern by the City Council at possible pollution, fires, and maintenance costs for picnic sites, made it reluctant to relax control over access.

All three catchment areas near the City now have three "preferred lines of [health] defence"—protected catchments and empoundment, coagulation-filtration, and chlorination.²⁹

The City Council has never formally developed an official policy on recreation in its catchments. However, a working policy has evolved within the Water Department which was expressed by the City Engineer³⁰ in 1979 as:

Public access to the Council-owned catchments is to those areas remote from the open watercourses and water intake structures... These areas, containing the open higher altitude parts of the catchments, form the natural tramping routes... access to the intakes and watercourse is permitted for specific purposes to bona fide parties, only where careful policing of activities (by permit) can be provided... development of roading is discouraged and access by unauthorised vehicles, trail bikes, horses etc. is prohibited.

Additionally, pig and opossum hunting is controlled by a permit system.

It was claimed in 1979 that a more relaxed policy on recreation would mean that the Council would have to consider providing a higher standard of treatment, estimated to cost \$5-6 million.³¹

The most recent and comprehensive review of public access to Dunedin's water supply catchments was undertaken in 1979-80 by Dr Juliet Batten of Auckland, in a discussion paper published by the Forestry Council.³² The Council concluded that since the compilation of an inter-departmental report on multiple use of water supply catchments in 1972,³³ pressure for various forms of recreation in these catchments had increased markedly in some areas, and took issue with the 'no risk' approach of the Health Department and its opposition to recreational use.³⁴ The Forestry Council specifically concluded:

- recreational pressure was increasing;
- there was no reason, on health grounds alone, to refuse walking and tramping access under controlled conditions;
- there was no urgent need for water-based activities, except for fishing in certain circumstances;
- water-contact activities, and off-road vehicle activities, were usually inappropriate uses;
- each catchment had to be considered separately, in the wider context of recreation demand and opportunities in the region.

Dr Batten's assessment of existing recreational uses and regional opportunities tended to be confined to defined walkways and tracks on reserve or state forest lands and on the Otago Peninsula. Apparently the author did not appreciate actual and potential extensive recreation over the wider Silverpeaks region. Her observation that "walking and tramping potential in Dunedin's catchments is already well utilised" may be correct in comparison with Auckland, but in terms of Dunedin's recreational opportunities it is quite erroneous. The barbed-fences and keep-out signs remain at catchment entrances, despite a double-standard approach by the Dunedin City Council (DCC) in its provision of stiles in some 'core' catchments. Walking and tramping use overall is very light away from walkways in 'fringe' catchment areas. The deterrent effect of prohibitory structures, general lack of tracks, and public ignorance of natural attractions within the core catchments all contribute to light usage.

The greatest untapped potential was assessed to be the walking opportunities at Nicols Creek and in the Waitati-Leith for a link in the Skyline Walkway. Trout fishing at Sullivans Dam (upper Leith Valley) was identified as one water-based activity that could, "if the demand became great," have controlled use without the necessity of further water treatment.

For catchment-based activities, Dr Batten concluded that Dunedin's policy of free public access to 'fringe' areas and permit control over tramping along valleys had created no problems with regard to the maintenance of water quality. It is of interest to note that the Health Department has consistently graded these supplies as 'A': "completely satisfactory."³⁵

'Access Prohibited' yet provided to DCC water reserves? (Stile lower right).





Mt Cargill from walkway, Flagstaff Scenic Reserve.

3.5.2 Afforestation

In 1906 the City Corporation began a process of afforestation of water reserves with the dual purposes of fire and noxious weed suppression, keeping catchments free of rabbits and stock, preventing rapid run-off and drying up of springs, beautifying the landscape, and providing commercial timber supplies. This programme resulted in extensive plantations at Whare Flat and Three Mile Hill (Flagstaff) with smaller woodlots at Ross Creek and in Leith Valley. Since 1959 there has been no expansion of plantings once it was realised that afforestation reduced water yields.

3.5.3 Waikouaiti catchment

This catchment has never been used for water supply — the purpose of its reservation. However, the adjacent Careys Creek was used between 1912 and 1952 for the Double Hill Water Supply to the Seacliff mental hospital.

The Silver Stream, Ross Creek, Waitati-Leith catchments continue their historical roles as city water supplies, but, since completion of the Deep Stream (Lammermoor Range) water augmentation scheme in 1977 the relative importance of these catchments to the city has decreased.

3.6 Scenic and Other Reserves

Outside of DCC water reserves (reserves and freehold), there are few areas around Dunedin's hills that are formally reserved for recreation. Those that do exist have had rather chequered histories of revocation and misuse. It has only been in recent years that these reserves have had consistent management in terms of their classification under the Reserves Act.

The Flagstaff Scenic Reserve (98 ha) dates from 1904 when the Crown purchased 58 ha over the summit of the hill, and accepted an offer to sell another 10 ha on the city face. Another 30 ha comprising the southern shoulder was purchased in 1906. Prior to reservation the whole area was continuously grazed and burnt under freehold ownership dating from at least the time of the first Crown grants of land in 1868. Such use did not cease with reservation. Until fencing was completed with an adjoining landowner in 1916, up to 200 cattle at a time trespassed over the reserve:

I am continually receiving complaints from ladies who are ascending Flagstaff that they are afraid of the cattle. Benjamin Rudd (1910)³⁶

Such complaints prompted the Lands and Survey Department to arrange for fencing off a remnant bush area, and to serve a succession of trespass notices on the offender. In 1911 signs were erected at the top of Rudd's Road (on the city face), directing visitors towards the summit.

Departmental attitudes to the reserve changed dramatically over the years. In 1906 the Commissioner of Crown Lands described the reserve as "well-known as one of the most commanding positions around Dunedin and well repays a visit." However, by 1920 the Department proposed vesting or selling the reserve to the City Corporation for tree-planting.

Departmental correspondence over this issue spanned many years. In 1930 the Commissioner was prepared to revoke reservation and sell the area to the city as the reserve is "no longer suitable owing to the destruction of forest thereon," notwithstanding that the reserve was almost entirely tussock grassland at the time of purchase. Despite strong objections from several organisations, headed by the Otago Institute (forerunner of the

Royal Society), reservation was revoked in 1930 but sale of the land was blocked by the Minister of Lands. Continuing representations were made by conservation and recreation groups who expressed total opposition to afforestation on the former reserve. In 1932 the land was gazetted as a local purpose reserve for tree-planting purposes "provided that no exotic trees shall be planted over 1500 feet (457 m) above sea-level." This face-saving provision kept the reserve free of trees as all of the reserve is higher than this elevation!

One of the major arguments advanced at the time for DCC control of the reserve was fire prevention, as the scenic reserve was regarded as the principal danger area for the Corporation's nearby Three Mile Hill plantations. The 'no-tree-planting-reserve' remained until 1976 when it was again gazetted as a scenic reserve with control remaining with the DCC.

As Flagstaff was the last major hill above Dunedin that was unroaded and retained its natural skyline, there was considerable public opposition between 1972 and 1975 to the N.Z. Electricity Department's (NZED) intention of roading to the summit and erecting a communications tower. The completion of New Zealand's first official Walkway across Flagstaff in 1975 proved particularly popular and helped to focus public attention on the natural attributes of the reserve. Concerted opposition, including technical revelations that a skyline site was unnecessary, finally forced the NZED to concede defeat and erect their tower some 240 m below the summit, being well outside the reserve. It was known at the time that this controversy deterred the Post Office from advancing plans for a new installation in the area, instead settling for upgrading an existing facility on Swampy Summit.

An on-going management issue is the role of burning in relation to maintaining the tussock grasslands within the reserve. Native and weed shrubs are actively succeeding tussock as the first step towards forest regeneration. Current scientific thinking is that periodic burning, in the absence of grazing, is necessary to maintain the dominance of snow tussock over woody species.³⁷

Following a disastrous 'hot' accidental fire in the autumn of 1976, a controlled burn in the spring was undertaken as a comparative experiment. This demonstrated that recovery of the tussock from the 'cold' spring burn-off was considerably faster. While the DCC accepted the rationale behind the case for controlled burn-offs, this management tool was excluded from the approved management plan as it was considered to be inconsistent with the protection philosophy of scenic reserves.³⁸ Monitoring of grassland recovery and secondary succession after these fires has been undertaken. Based on data available in 1984, a prediction was made that in the absence of further fires, by the year 2026 virtually all the reserve area would support a snow tussock-scrub community with manuka the dominant species.³⁹ This prediction was affirmed by a 1988 resurvey of vegetation, but with a warning that exotic conifer forest would succeed as the ultimate climax vegetation (self-sown from adjacent plantations),⁴⁰ rather than native forest as had been earlier predicted.⁴¹

As a tall-tussock grassland located on a commanding hill-top close to a major city, the area has unparalleled recreational opportunities. To maintain recreational diversity within the Dunedin area, it is highly desirable that the tussock grassland setting be maintained on Flagstaff. However, legislative restraints embodied in the Reserves Act, plus any detrimental impacts on wildlife, including a fernbird population, should be fully assessed and debated before any changes to the management plan or the reserve's classification are instigated.

The most recent threat to the integrity of the Flagstaff reserve occurred in 1984. On accepting control of the Flagstaff Walkway, the DCC embarked on a 'maintenance' programme which entailed widening and reticulating an entire 5 km length. Initially this was justified for reasons of public safety and accessibility. However, it became clear that the sole reason for the 'upgrading' was ease of motorised maintenance. During the walkway's initial construction, a combination of vehicle and hand methods were used which provided a variety of tread widths and alignments. This heightened the walkers' experience of the surroundings. The majority of the walkway now has a metalled width in excess of 1 m.

Doubtless there are Dunedin people who have climbed the 2,186 feet to the top of Flagstaff a score of times, but how many there are who, though well able have never set foot there. This highland is a wonderful gift of Nature to Dunedin, for it is probably safe to say that no other city in New Zealand has a hill of its dimensions so easy of access and so unmarked by the hand of man.

Alfred H Reed 1954⁴²

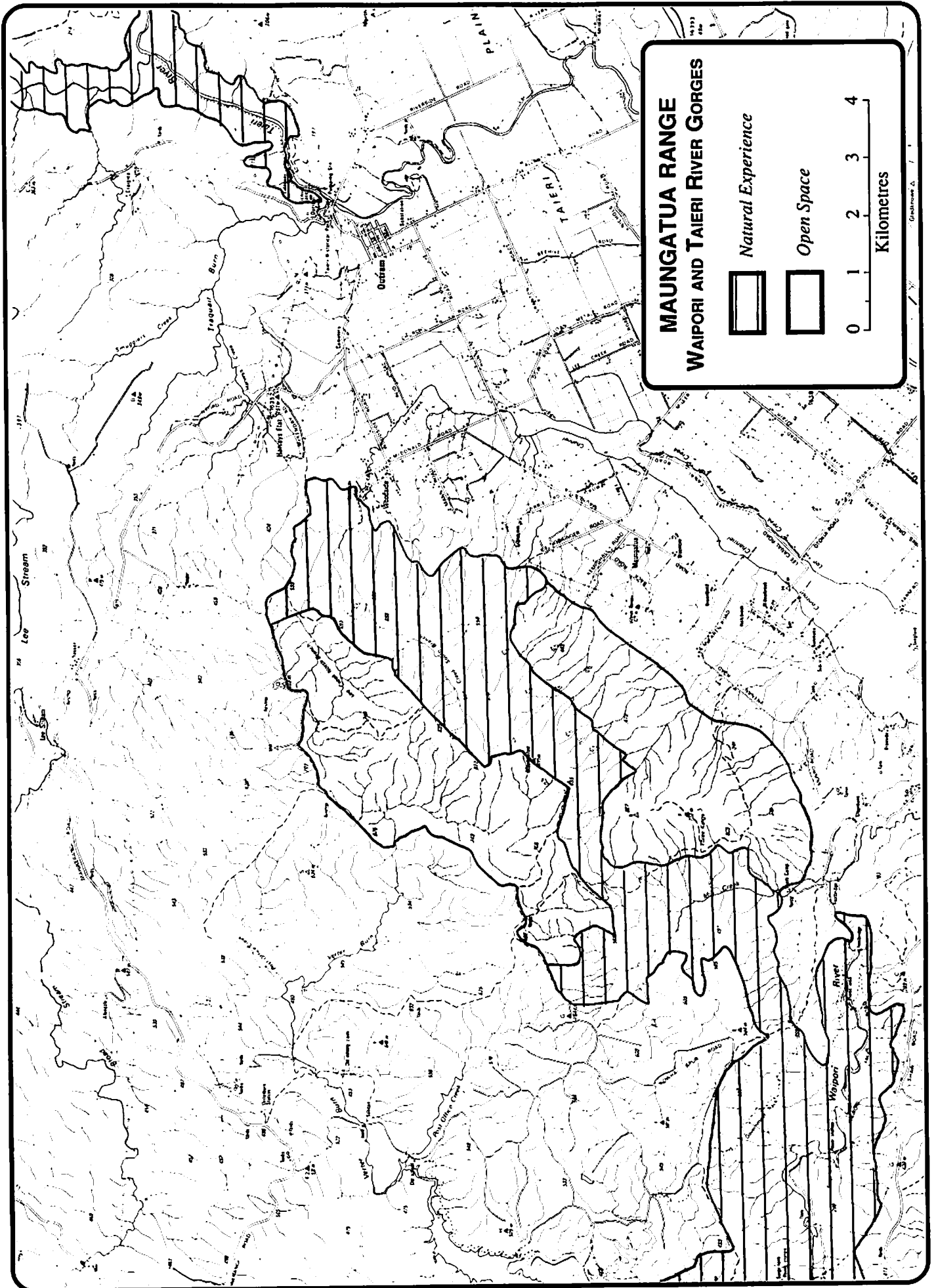
Evansdale Glen Scenic Reserve on the north-eastern fringe of the Silverpeaks was the initiative of a group of citizens who purchased private property in lower Careys Creek in 1912. This was done with assistance from public subscriptions and a Government subsidy. The reserve was controlled by the Dunedin City Council for many years and proved to be "a popular rendezvous for many picnic parties from the city and elsewhere."⁴³ Originally under private ownership, a nominal charge was made by the proprietor for each person passing through the Glen.⁴⁴

Until the late 1960s the reserve remained popular as a starting point for walks up the old water pipeline in Careys Creek and for tramps into the Silverpeaks. Rock climbing was practiced on outcrops upvalley from the reserve. Invasion by gorse and broom and destruction of a pleasant walking track along the bush-lined creek resulted from bulldozer salvage of the pipeline. Forestry development further upvalley isolated the Glen from the main Silverpeaks. The 20 ha reserve is under the control of the Silverpeaks County Council.

The Outram Glen Scenic Reserve on the true right bank of the Taieri Gorge dates from gazettals as recreation reserve in 1887, 1917, and 1959. This 137 ha reserve was added to in 1984 with the acquisition of a further 100 ha between Taioma and Lee Stream, resulting in reservation down one complete bank. The entire opposite (true left) bank of the forested gorge was identified by Lands and Survey as worthy of addition to the reserve.

Maungatua Range Reserves: There are three major reserves on the Maungatua Range. In 1984 these were proposed for collective management as the Maungatua Range Scenic Reserve with linkages established between these, creating a biological corridor from one end of the range to the other.⁴⁵ The whole proposal is a very deserving one and should result in a higher public profile for the area. However, additional landscape considerations need addressing by the relevant authorities, particularly land use and native forest protection on the commanding Taieri Plain face of the range.

On the northern end of the Range, the 273 ha Maungatua Scenic Reserve dates from a recreation reserve in 1889. A popular picnic area has long been established on adjacent County Council land in Woodside Glen. Short walking tracks lead into the lower forested slopes of the range. The reserve is vested in the Department of Conservation's (DOC) control.



The former 553 ha **Maungatua Scientific Reserve** on the range-crest dates from a proposal in 1962 to reserve snow tussock, bog and cushion associations primarily for scientific and educational purposes. It was gazetted in 1969. A considerable effort by the Department of Lands and Survey to contain gorse and exclude stock from the reserve has been largely successful. It has now been reclassified 'scenic.'

263 ha of beech forest and tussock in **Mill Creek**, a southern catchment of the Maungatua Range, was gazetted scenic reserve in 1984. It was formerly UCL and state forest. A further area of tussock, being part former state forest, has been allocated to DOC. A key area (115 ha) of silver beech forest in this catchment, being in private ownership, is within the proposed Maungatua Range Scenic Reserve. It provides a prominent backdrop to the lower Waipori Valley and the only forested linkage between the Maungatua Range and the Waipori Valley. It is currently subject to milling. Initiatives by DOC and conservation groups, including offers to purchase, have been unsuccessful. This recent threat to the natural character of the range has highlighted the realities of private ownership over such publically important areas.

Elsewhere excellent progress has been made towards achieving the end-to-end Maungatua Range Scenic Reserve. Purchases of key areas have been concluded, in particular a 300 ha tussock and forest block linking the former scientific reserve with the Woodside Glen.

One of Otago's largest reserves is the **Waipori Falls Scenic Reserve** to the south of the Maungatua Range. It dates from 1913 and 1925. Road access up the Waipori Gorge was completed during this period. At that time recreational motoring and picnicking was very popular for day excursionists from Dunedin. The DCC's Waipori hydro-electric scheme has been progressively constructed within the reserve. This has entailed revocation of parts of the reserve for the construction of power-houses and the Waipori Village. Construction has also occurred through and adjacent to the reserve.

Major management problems for the reserve have included accidental fires, illegal shooting and firewood collection. Of long standing concern have been high numbers of feral sheep which have had a major impact on biological values. This 1322 ha reserve was under the control of the DCC Electricity Department until 1982 when responsibility was assumed by Lands and Survey, now DOC. Approximately 30 ha of native forest, being part of the former Berwick State Forest has recently been allocated to DOC for addition to the reserve.

3.7 Reserve Proposals

In addition to the Maungatua proposals, of major recreational significance for the Dunedin region is the **Silverpeaks Scenic Reserve** which has been officially approved since 1984 but awaits gazettal. 2500 ha of the South Waikouaiti, Hightop and part of Swampy Summit have effectively been managed as scenic reserve successively by Lands and Survey, then DOC since the DCC agreed to relinquish control of large areas of unused water reserves. Recommended further additions include 3700 ha in the western Silverpeaks, Silver Stream catchment, from Swampy to Flagstaff, and major forest remnants of the Leith and Waitati Valleys.⁴⁶

The reserve is considered to be of national significance "for its recreational value, wide variety of vegetation types, with complex histories and inter-relations, landforms and as a very important wildlife habitat."⁴⁷



Maungatua Range summit plateau.

The attainment of such a major reserve on Dunedin's back-door, particularly the reservation of the central and western Silverpeaks, would achieve many of the planning objectives established by the Silver Peaks Regional Park Study (see also 3.15).

3.8 Land Tenure

The central core of the Silverpeaks and upper Leith Valley are 'timber and water reserves' administered under the Reserves Act. The reserves actually used for water supply are vested in the control of the Dunedin City Council. The balance await gazettal as scenic reserve and are under DOC's jurisdiction. The DCC is the dominant freehold owner over the upper Waitati and Leith Valleys, and in the Flagstaff-Whare Flat area. There are a substantial number of small freeholdings on lower city and valley flanks. The south-western sector of 'The Peaks' is almost entirely freehold farmland, dating from the declaration of the East Taieri Hundred in 1856.

The western and northern Silverpeaks was formerly all run country which has seen progressive subdivision and alienation of the Crown's interest right up to recent times. Small grazing runs were exchanged for renewable leases and deferred payment licences during the 1950s for part of Mt Allen, Mt John and Silver Peak Stations. Additional areas of pastoral lease on Mt Allen were reclassified in 1973 as 'farm land' leading to freeholding. The six remaining pastoral leases in the north-western 'Peaks' were reclassified in 1979-80 and with the exception of one where the lessee has for the time being opted to retain pastoral lease, all the others are now private lands.

The north-eastern 'Peaks' is a mix of former state forest due for transfer to the Forestry Corporation and sale, and freehold. The relatively small areas of scenic reserve at Evansdale Glen, Flagstaff and the Taieri Gorge are described in Section 3.6.

The Maungatua Range is a mix of reserve, state forest due for transfer to the Forestry Corporation, and private farm land. West of the summit most of the area was formerly either small grazing run, lease in perpetuity, pastoral lease, or Crown grant (freehold) going back to the time of early settlement. Substantial areas of mid-altitude tussock grassland under pastoral lease were reclassified in 1964 and 1980, resulting in freeholding of the last 'pastoral lands' on the range.

The Taieri face of the range has been freehold since the West Taieri Hundred was declared and remains freehold, or is partly reserved. South and west of the Waipori Scenic Reserve large areas are DCC forest or the former Berwick State Forest.

3.9 Land Use Capability

The whole Silverpeaks is predominantly Class 6, being stable hill country which is generally responsive to development by aerial oversowing and topdressing, and capable of moderate grazing. Forestry is considered a wise use of steeper areas. The steep slopes of the Taieri Gorge are Class 7.⁴⁸ The Otago Catchment Board considers the whole area to be suitable for either production forestry or intensive pastoral farming.⁴⁹ The former Forest Service similarly viewed the whole area to be suitable for forestry, with the southern Silverpeaks better suited for forestry than farming, and the northern 'Peaks' either farming or forestry.⁵⁰

On the Maungatuas the summit and steeplands of the Taieri faces are Class 6 with moderate limitations to pastoral use. The western flanks of the range are Classes 4 and 6, the former being capable of limited cultivation but with a severe climatic hazard. The catchment board sees potential for production forestry and intensive pastoral farming over most of the range crest and eastern faces. There is also the potential for semi-intensive arable farming over the western and northern slopes.⁵¹

3.10 District Scheme Zoning

The Waikouaiti, Silver Stream, Waitati, and Leith Valley 'timber and water reserves,' including the present extent of the Silverpeaks Scenic Reserve and extending southwards to the Flagstaff Scenic Reserve, is zoned 'Rural E' (Scenic Appreciation) within the Silverpeaks County District Scheme.⁵² The zone also extends westward over parts of Mt Allen and Silver Peak Stations to include the upper Christmas Creek catchment and the Big Stream Valley above the 500 m contour.

This zone was brought about as a result of strong objections from recreational groups, led by FMC affiliated clubs, to the County's intention in 1982 of zoning the whole Silverpeaks 'Rural C' (Afforestation). A request to include the Taieri Gorge on a 'Rural E' zone was considered unnecessary by the Council, despite recent forest clearance within the gorge.

Predominant uses within the 'Rural E' zone include farming, reserves, and shelter belts. Discretionary uses are controlled by non-publicly notifiable application procedures where it is the Council's policy "to protect the scenic qualities of the landscape and to minimise the visual impact of proposed buildings and structures (including tramping huts), commercial forestry and farm tracks in the visually significant parts of the district." Council's choice of 'non-notifiable' procedures precludes public knowledge of development applications, recreational-user inputs into design, as well as public objection and appeal. Council's policy for exercising its discretionary powers does, however, provide criteria to assess visual impacts of a proposal on landscape-skyline values.

The 'Rural C' (Afforestation) zone encircles the 'Rural E' zone, extending westwards to the Taieri River and Three O'Clock Stream, and south of Flagstaff. 'Rural F' (Water Quality) zones abut the Rural E in the catchments of the Waitati and Careys Creek.

On the Maungatua Range the Taieri face, summit, western slopes above approximately 600 m, and the plateau above the

Waipori Valley, including reserves, are zoned 'Rural C' (Afforestation). The Silverpeaks County Council sees commercial forestry as the "optimum purpose" of this zone. While grazing and forestry are predominant uses within this zone, no provision is made for reserves.

The balance of the Maungatuas and Waipori Gorge is within Tuapeka County Council's one rural zone which permits agriculture and forestry as predominant uses.⁵³

3.11 Regional Planning Scheme ⁵⁴

The Coastal-North Otago United Council's environmental policies for its region, including the Silverpeaks, provide for:

- public management planning for all formally protected natural or recreational areas;
- assessment of conservation needs as a high priority;
- support for recommendations arising from Protected Natural Area (PNA) or other similar surveys;
- requirements that all sites of special fisheries and wildlife interest be protected in District Schemes;
- positive recognition and protection of important natural areas within District Schemes provisions;
- high priority been given for protection of landscape values;
- promotion of protection for all threatened and endangered species and their habitats.

It is to be hoped that the policies formulated will carry over to the new Otago Regional Council to succeed the United Council.

3.12 Forestry Development

Excluding consideration of forestry development by the DCC on the periphery of the 'Peaks,' the Silverpeaks remained free of forestry developments until comparatively recently. The purchase of land for state forest use in the Waikouaiti and Careys Creek catchments in the mid-1960s rapidly changed the character of a large slice of 'The Peaks.' High standard circuit roading resulted in greatly reduced foot access times to the central ridge system. Since the first plantings in 1964 most of the 2100 ha block has been planted in radiata pine and Douglas fir. Forest establishment is now complete.

Although the laudable intentions in the 1977 Silver Peaks Forest Management Plan ⁵⁵ of preserving bush areas (300 ha) have been observed, in contravention of the plan most areas of tussock and manuka zoned as 'open' have been planted, obscuring key vistas of the central Silverpeaks and coast from the road and walking tracks. Fortunately, the Hightop slopes above the forestry road, being a critical area for recreational/landscape reasons, has been left unplanted. This has now been transferred to DOC for addition to the scenic reserve. Waikouaiti River faces which were "subject to further study on the desirability of leaving these unplanted" were planted without further consultation with other interested parties. The intrusion of eucalyptus and Douglas fir along a straight-line boundary with the new scenic reserve, right down to the upper Waikouaiti River, indicated a selective disregard for management obligations. This particular landscape tract was identified in a 1978 landscape assessment ⁵⁶ as having moderate landscape value in relation to the 'high relief uplands' of the Silverpeaks and is also known fernbird habitat. Rationalisation of boundaries with the reserve, plus removal of all of these trees is highly desirable before the Forestry Corporation's commercial interest is sold off.

The 5200 ha Mt Allen and Salisbury stations were purchased by Tasman Forestry in 1981-82 as part of a regional expansion into Otago and Southland. A major roading network was completed and 2700 ha planted before the company decided to sell off its Otago assets. The planting programme is near complete. This development has been a rapid and major intrusion into traditional tramping country, with much of it being visible from Silver Peak and Pulpit Rock. To date no change of ownership has occurred. However, several local authorities have expressed the wish to form a forestry consortium to take over and expand the plantings on Mt Allen.

The DCC's Waipori Forest commenced in earnest in 1925 and now extends over 6000 ha. The Berwick State Forest began in 1946 on the south side of Waipori Falls Scenic Reserve and the DCC plantations. An additional 6000 ha area of mid-altitude tussock grasslands on the western Maungatua was planted in 1979-80, being the first exotic afforestation on the range. The total production forests of Waipori-Berwick are now approximately 20,000 ha—the third largest exotic forest in New Zealand.

Clearance of native forests for metropolitan firewood supplies has re-emerged as a practice affecting the Silverpeaks. A substantial area of kanuka-podocarp forest in the Taieri Gorge was used for this purpose in conversion to pasture. The 'Painted Forest,' the largest remnant of silver beech in the Silverpeaks, also drew interest as a wood supply but in this case it was purchased in time for the new scenic reserve.

3.13 Communications Installations

Coinciding with construction of Dunedin's Momona Airport on the Taieri Plain in the 1960s, access roading was constructed on to the summit plateau of Swampy Summit for the installation of air navigation equipment. This consisted of two separate buildings plus arrays of pole and tower aerials. A Telecom microwave link on Swampy Spur consists of a substantial building, and several aerials, all of which are conspicuous from Dunedin and the greater Silverpeaks. The University has a space research facility to the north of the summit.

Future installations should give more consideration to design and location to reduce their impacts. Sharing of facilities may bring about similar ends. There is currently no consistency in colour schemes for buildings, however the University has commendably used a low-impact colour scheme.⁵⁷ This provides a useful model for other installations on Swampy.

3.14 Hydro-electricity

The first scheme intended to supply electricity to Dunedin was on the Lee Stream tributary of the Taieri but after partial construction of a tunnel this scheme was abandoned in 1904.⁵⁸ In recent years completion of the scheme has been raised as a possibility. A 45 m dam near Hindon has also been proposed, which would extend a lake 5 km upstream in the scenically impressive gorge.⁵⁹

The city's main peak-load supply comes from its Waipori scheme which comprises four power stations which reuse water from the Mahinerangi dam, to produce a combined power generation of 76,000 kW. The scheme dates from 1902 when a private company was formed to supply power to Dunedin and country districts, but was taken over by the City Corporation two years later. The first installation consisted of two 1000 kW generators which first supplied power to Dunedin in 1907. Some 3.5 million superficial feet of locally sawn beech was used in the construction of fluming, which was replaced by a tunnel by 1911.

In 1923 the first high dam was completed at the head of the gorge to provide storage capacity. During the 1930s a higher replacement dam was built, to be raised in 1946 to its present-day height of 34 m, but in so doing it inundated the goldfields town of Waipori.

Additional power houses were added to the scheme in 1930, 1954 and 1955.⁶⁰ The DCC has steadily upgraded and replaced much of the earlier generating works. With the completion of the Deep Stream Diversion Scheme in 1984, inflows to Lake Mahinerangi have increased by nearly 20 percent, allowing greater generation from existing plant. The scheme supplies about half the city's peak demands, and about a third of its total energy requirements.

3.15 The Silver Peaks Regional Park Study

In response to a request in 1974 from the Otago Tramping and Mountaineering Club the Dunedin Metropolitan Regional Planning Authority commenced a planning study of the region in 1976. A discussion draft, released for limited circulation among Government departments and local authorities,⁶¹ was used by the Authority as a basis for advancing reconciliation of the competing interests.

The draft document summarised the importance of the Silverpeaks resource area, in a regional context, with a 'high' rating for water catchment and for recreation, a 'moderate' rating for commercial forestry, and a 'low' rating for farming. It was concluded that as a planning objective "the protection of landscape qualities and recreational values should be given a high priority in the management of all land use areas."

Two strategies were identified to achieve the above objective. One entailed public acquisition of all parts of the area which are important for scenic, recreational and scientific purposes as a regional park, with arrangements made for existing uses of farming, water catchments and forestry to be continued where appropriate. This proposal was considered to be politically unacceptable and unlikely to be funded from central or local government sources.

The preferred strategy was to provide a framework which would cause minimum disturbance to existing ownership and legitimate land uses but which would provide controls on uses that could be detrimental to recreation and conservation.

Responses from interested parties, including landowners, were taken into account in the preparation of a revised draft document⁶² which confirmed the regional importance of the Silverpeaks. Objectives for the future development of the area were expanded to provide:

- maximum benefit to the Dunedin region;
- a satisfactory balance in land uses;
- conservation of landscape quality;
- protection of recreational potential by setting aside lands specifically for recreational use and by allowing recreation as a secondary use of other land.

Policies were proposed to confine forestry development to existing areas, protect skylines and landscape features, reserve natural features, safeguard recreational use of ridges and their environment, provide for gregarious recreational activities in peripheral areas, maintain 'wilderness quality' by restricting vehicle use and not permitting any roads to be constructed along or across the main ridges, and recognise landscape qualities in the siting and design of roads and buildings.

The principal conclusion and recommendation of the revised draft was that the area was worthy of being designated a Regional Park.

Based on the experience of other metropolitan areas, in particular Wellington, it was concluded that it was unnecessary that all the land be in public ownership and existing land uses could continue successfully within such a park. In addition to establishing a Regional Park Investigating Group, a number of "proposals for action" were made, most of which "should be undertaken whether or not a regional park is established." These included:

- development of an appropriate rural zoning over private land;
- establishment of the proposed walkway along the main ridge, and as many as possible of other connecting routes;
- rationalisation of property boundaries;
- recreational development in exotic forests, and peripheral areas (ie Mt Allen, Taioma, Whare Flat, Leith and Waitati Valleys, Evansdale Glen);
- protection of certain areas for nature conservation, either by reservation, protected private land, or covenant, with immediate action for the protection of:
 - South Waikouaiti forests;
 - the 'Painted Forest';
 - bogs on Swampy Summit.

The inter-departmental and local authority Investigating Group instigated further resource studies and liaison with affected parties during 1978. A landscape assessment⁶³ was conducted over the 360 km² study area which made comparative rankings among 'cultural' to 'high relief' landscapes in 46 distinct landscape tracts. The study identified desirable management for each tract in light of the relative ranking and recreational opportunities. The survey established a strong correlation between landscape character and recreational attractiveness and identified additional recreational opportunities in peripheral areas, including the possibility of a farm park at Whare Flat in the Silver Stream valley.

Initially there was considerable goodwill from the major farmer-landowners to the broad objectives of the Regional Park investigation. However when the full implications on farming practices became known, collective farmer reaction replaced individual reason. As a consequence initial reservations about controls on farming practice hardened to a stance of total opposition to any scheme involving their land. The whole Regional Park concept finally foundered when the Silverpeaks County Council withdrew its involvement from the study.

Of the "actions which should be undertaken whether or not a regional park is established," the major achievements to date have been walkway establishment, the embryonic scenic reserve, and the 'Rural E' (Scenic Appreciation) zone over part of the study area.

However much remains to be done to adequately protect and manage the regionally important values as established during the Silver Peaks Study. The resource information and experience arising from these efforts provide a sound basis for further progress.



Rock climbing on 'Big Rock,' Flagstaff 1949. Photo: OTMC Collection

4. Recreational Opportunities

4.1 Historical Patterns

Dunedin's scenic areas have long been in demand for walks and as peaceful respites from the pressures of urban life. The city's pattern of recreational areas has changed little in the last century. During the late 19th and early decades of the 20th century, the natural bush walks in the Leith Valley, Bethunes Gully (North-East Valley), Woodhaugh Gardens (lower Leith Valley), and Evansdale Glen were very popular.⁶⁴ During this period informal recreation predominated, whether it be Sunday strolls along Dunedin's ocean frontage, picnics at a local beauty spot, or lengthy family walks along coast or skyline hills. This latter tradition was well embodied in the energetic activities and writings of Dunedin's nationally acclaimed citizen, Sir Alfred H. Reed.⁶⁵

With the emergence of the shorter working week during the 1920s and 1930s, and the resultant increase in leisure time, the pattern of recreational land use in the city changed from park-like natural areas and gardens to an emphasis on development of grounds for organised sports. However, the pattern of recreational use of Dunedin's outdoors was well established by this time and increased leisure time led to several city-based mountain and naturalists' clubs being formed with the express purpose of organising outings to Dunedin's environs. Public trams, trains, and walking provided the means of reaching local beauty spots.

The Silverpeaks were found to be ideal for hill walks of varying duration. The Otago Tramping Club started with a flourish in 1923, boasting a membership of over 150 at the end of its first year. Flagstaff, Whare Flat, Signal Hill, Mt Cargill, and the main Silverpeaks were the usual destinations.⁶⁶ The club was obviously meeting a need, as the trip attendances were so great that parties had to be divided, and sometimes three trips were arranged for one day.⁶⁷ A programme of track cutting was embarked upon by the club to provide access to hill tops above the city, and through the Silver Stream valley.

This expansion of interest in recreational walking was not matched by public reservation of land or provision of legal access. However with the exception of exotic plantations on Flagstaff-Whare Flat, Dunedin's hinterland remained undeveloped and largely natural until comparatively recent times, with very few conflicts of interest between recreationalists and the owners and occupiers of many of these areas.

4.2 Recreational Preferences

A comprehensive investigation of citizen recreation undertaken in Dunedin during 1974, determined that walking for pleasure ranked sixth in most popular activities with 26 percent participation, behind gardening, driving for pleasure, hotel drinking, movie watching and picnicking. This established walking as the most popular form of recreation providing sustained physical activity. The daily frequency of people participating in recreational walking was found to be double that for the average of all other activities. Tramping was ranked the twenty-second most popular activity (5 percent participation) but figured as the ninth highest ambition.⁶⁸

Although no comparable survey has been undertaken since, it may be surmised from subsequent observations of the popularity of walkways around Dunedin's hills that an increased level of participation has occurred. Also a large number of citizens' walking groups have sprung up either as offshoots from existing clubs or as new entities. There are now organised opportunities for 'over 30s,' 'over 50s,' families, retired folk, rehabilitating coronary patients, mid-week walkers, WEA, and YWs. Informal activity by non-affiliated individuals by far exceeds that of all other groups. Walking for pleasure is probably now more broadly undertaken in society than most other forms of active outdoor recreation.

A 1978 study in Dunedin attempted to determine whether physical environmental factors influence people in their decision to participate in recreational walking. It was concluded that there is potential to increase the popularity of walking by up to 10 percent of the population through provision of 'natural' types of facilities very close to residential areas. The study also indicated very strong preferences for 'natural' environments in which to walk, as well as for soft 'natural' walking paths.⁶⁹

Two further surveys in 1979 provided user preferences on walking track planning and development. In the Dunedin Environmental Survey the prevailing response to the question of improvements to walkways was that formations should not be upgraded. The majority also preferred no further tracking within the city's town belt, but an equal number favoured more walking tracks around the Dunedin hills. Proximity to the city was found to strongly influence frequency of use. Additional questions related to the environment ascertained that scenic features were the single largest feature liked about Dunedin, and 90 percent of respondents wanted native bush outside of reserves protected.⁷⁰

The Ross Creek Walking Track Survey⁷¹ found that the large majority of walkers and joggers, who were the major users, gave features such as the flora, fauna, tranquillity and the aesthetics of the environment (around the forested Ross Creek reservoir area) as their primary reasons for using the track complex. Track users were found to be willing to accept some degree of inconvenience caused by muddiness and other natural environmental features, rather than 'upgraded' facilities.

A conclusion from a 1980 national review and study of trampers, as recreationalists, was that "tramping areas near large population centres in particular, should be managed for diversity in tramping groups [experience], bearing in mind that fuel shortages (long or short-term) as well as convenience of proximity may render them subject to great pressure."⁷²

4.3 Walking for Pleasure

Since 1975 the opportunities for recreational walking on the outskirts of Dunedin have been considerably extended with the progressive completion of walkways on the city's skyline hills — Flagstaff, Swampy, Mt Cargill, and at limited coastal locations. Opportunities for walking on Otago Peninsula, away from accessible beaches, remain limited despite attempts by the Otago Peninsula Trust to negotiate public foot access over private farmland. Therefore most walking opportunities near Dunedin are confined to natural forest environments within the urban area (eg. Town Belt, Ross Creek) or adjacent valleys and hills immediately inland.

There is now a 'route standard' walkway from Swampy Summit along the main spinal ridge of the Silverpeaks, 'walk standard' walkways over Flagstaff and Mt Cargill, with part of a proposed 'track standard' connection extending from Flagstaff to Leith Saddle. Completion of a planned connection to Mt Cargill, and an eventual extension to Signal Hill will provide a skyline walkway that will encircle northern Dunedin. Flagstaff and Mt Cargill walkways receive year-round use, which can be heavy at times, dependent largely on Dunedin's changeable weather. It is unfortunate that actual usage has not been quantified although almost a third of respondents to a 1979 survey in the Dunedin metropolitan area had used the Flagstaff-Pineapple Walkway during the previous two years.⁷³

This evolving network is in part complemented by city walks. Since 1978 it has been the City Council's policy to create a connecting network of "green linkages"⁷⁴ and walking tracks throughout the city and its environs, complementary to the walkways system. The tracks vary in length and offer differing degrees of challenge.⁷⁵ However, only limited work has been done to extend existing tracks in line with this objective. In the Council's maintenance programme at Ross Creek and on Flagstaff considerable aesthetic stimulation has been removed by excessive graveling and track widening for vehicle access. As 'walking for pleasure' figures so prominently as a popular activity in the city, sensitive application of additional, modest resources by the City Council is more than justifiable to provide the opportunities desired by so many citizens.

Opening-up water catchment areas in Leith Valley for recreational walking would greatly extend the resource area available near the city. In particular the 12 m high Nicols Falls would provide a considerable attraction. They were known and visited by excursionists as early as 1870.⁷⁶ Visitors to the New Zealand and South Seas Exhibition of 1889-90 were taken to see the falls as a matter of course, since they were regarded at the time as the



Nicols Falls, Leith Valley.

city's "greatest scenic attraction." 77 For a period the private owners charged visitors for admission. During the exhibition the roads were hardly metaled and traffic raised clouds of dust. Visitors alighted at the road bridge where there was great congestion with horses, vehicles and people. Two small shops, and a Scotswoman balladeer, astride a beer barrel, vocalised nearby for the benefit of bemused visitors!

Further afield at **Evansdale Glen**, a walking track leads up Careys Creek through native forest to the 'Seacliff' dam and side tracks lead through native and exotic forests to the 'Mountain Track' Road. Public usage of these tracks has generally declined since exotic afforestation. No official attempts have been made within the DCC's exotic forests to provide walking tracks.

A popular river-side walk is available from **Outram Glen** on a recently constructed walkway as far as Lee Stream. This receives considerable use by anglers, rafters and part-day walkers.

On the **Maungatua Range** easy walking opportunities are somewhat limited by the relatively steep terrain. A short track is available at Woodside Glen through lower altitude forest. Several short tracks have been developed near the Berwick Forest headquarters through mixed exotic forests, including one suitable for wheelchair use. These connect to an 18 km unofficial walkway through exotic forests and the Waipori Falls Scenic Reserve to the shores of Lake Mahinerangi. The section through the reserve follows the 'Government Track' and provides considerable interest as an historic formation through native forest. The rest of the walkway is more notional than pleasurable where it traverses monocultures of pine or along forestry roads. The

Government Track and forest headquarters tracks are receiving increasing use as a result of forest promotion efforts. There is potential for further short walking tracks within the scenic reserve for river side walks away from the road and through spectacular gorge scenery.

The development of walkways and walking tracks in and around Dunedin City has provided considerable opportunities for jogging and hill running. This is an increasing activity and has led to the formation of a club concentrating on hill running.

4.4 Tramping

As a large, mainly unroaded natural area close to a major metropolitan centre, the Silverpeaks' primary recreational value is for tramping. This activity is of long standing, with the area having functioned as a training ground for several generations of Dunedin trampers. It is used by a variety of youth and family groups as well as by several schools as part of their outdoor education programmes.

Activity duration can vary from afternoon walks, to round trips of 40 km or more, along tussock ridges or untracked bush, spending one or more nights in a hut, tent or rock bivouac. Three huts are maintained by mountain clubs for public use.

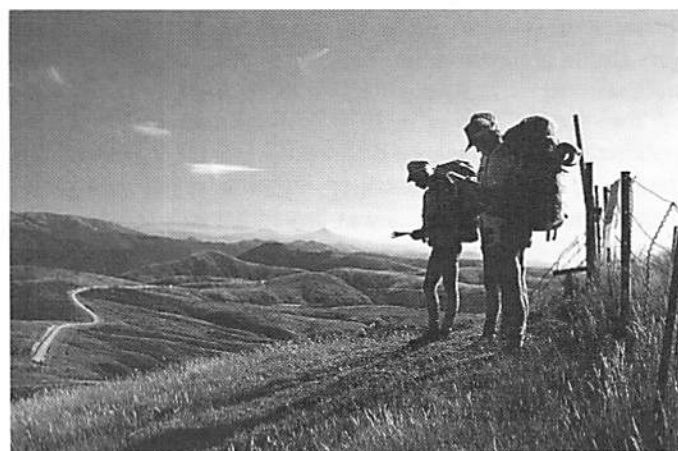
Although the country is not particularly high (approximately 770 m), sudden changes in weather conditions, often accompanied by dense chilling fogs or cold southerlies are a feature of all seasons. Some advance preparation is necessary, as is knowledge of route finding. Previous experience of the area is desirable for leaders of groups. A tragic reminder of the climatic hazards occurred in May 1983 when three youths lost their lives in a snow storm near 'The Gap.'

Access to the central Silverpeaks is available from a number of spur roads which penetrate into the hills a short distance, or from other roads which skirt its periphery. The unique character of the greater Silverpeaks area is the opportunity it provides to tramp in natural settings right from the hill suburbs of Dunedin. The most common approaches are from the east or north, with a variety of tracks or routes available. In the past rail access was available to the western Silverpeaks, but with the discontinuation of passenger services in 1976 usage of these more distant areas has declined.

No overall usage figures are available for the area, however, 10 percent of respondents to a 1979 survey in the Dunedin metropolitan area had tramped in the Silverpeaks region during

Map orientation on Hightop.

Photo: Ewan Paterson





Traversing along 'Rocky Ridge' towards Silver Peak.

Photo: Ken Mason

the previous two years.⁷⁸ Hut book records indicate that the area is used for day and weekend recreation by Dunedin citizens, and as a training ground for summer holiday activities further afield.⁷⁹ Usage is lowest in winter. Traditional patterns may be changing as a result of establishment of the central tramping route as a 'route standard' walkway.

Most routes follow the main ridges and spurs. The main spine of 'The Peaks,' being the dividing ridges between the major catchments, holds the whole tramping area together as a unit. Very few routes follow the forested Silver Stream and Waikouaiti Valleys due to difficulty in forcing a passage through the regenerating bush. Only two or three defined tracks exist in these localities, although there are several tracks and routes ascending from the forested Leith and Waitati Valleys.

The 'traditional' tramping area of the Silverpeaks began to be seriously compressed during the mid 1960s with intensification of farm development in the west, and the establishment of exotic forests in the east. These developments were predated by roading and a series of communications installations on Swampy Summit, however their impact was relatively localised. The most immediate impact of the later development was farm tracking and firebreaks, some of which obliterated traditional tramping tracks and introduced vehicular use right into the heart of 'The Peaks.' This intensifying land use accelerated through the 1970s with parts of the key spinal ridge system tracked for vehicle use. Recreational horizons rapidly shrunk, and in the absence of any rights of recreational use or influence over land use 'the trumper' began to feel endangered as a species. This led to a rearguard

defensive move of requesting a regional park study in 1974 (see 3.15), in an attempt to protect the naturalness of the settings on which continued tramping activity depended.

Confinement of use has intensified activity on the remaining undeveloped areas, with exotic forest and roaded areas generally being avoided, or traversed only as of necessity to reach natural country beyond. Due to proximity to Dunedin and the absence of comparable terrain within 80 km of the city, the Silverpeaks in their somewhat disfigured state, continue to function as the prime tramping area for the Dunedin metropolitan region.

As already noted, the **Taieri Gorge** downstream from Lee Stream is tracked and receives considerable use. The remaining gorge upstream to Mullocky Gully is untracked, requiring bush navigation and 'boulder hopping' to traverse it. This gorge route was traditionally one of the main western approaches to the Silverpeaks but, with large scale afforestation on Mt Allen Station cutting-off the Taieri from the main 'Peaks,' tramping use has declined. However the gorge remains ideal for introductory training in tramping skills, specifically bush navigation, gorge travel and river crossing. For the latter two activities the Taieri River provides the only such opportunities near Dunedin. The untracked Lee Stream gorge provides a smaller scale setting for these activities.

Historically the **Maungatua Range** has received only moderate use by trampers, and generally only as day-long ascents from the Taieri Plain. Ascents are normally from either end of the range at Wesleydale or Woodside Glen, occasionally entailing end-to-end traverses. With an end-to-end reserve along the range, and greater public information it is likely that usage will increase.



OTMC Bushcraft Course at former Green Hut.

Photo: Don Greer

It is interesting to note that up until the early 1960s, when farm and forestry development had not made major in-roads into the tussock grasslands of the Barewood Plateau (Taieri uplands) and Silverpeaks, an annual 80 km tramping marathon was conducted between Berwick and Merton on the coast. This was via the Maungatua Range, southern Silverpeaks and the 'Mountain Track.' Such an event would not be seriously contemplated by trampers today.

4.5 Rock Climbing

The 'Big Rock' on the western face of Flagstaff received early attention for chimneying and bouldering. This is now only occasionally visited.

In the central Silverpeaks there are numerous schist outcrops from Pulpit Rock and along the western faces of 'Rocky Ridge' which provide climbs of varying height and difficulty. These are occasionally explored by a few adventurous souls who are prepared to venture on foot further afield than Dunedin's mecca of rock climbing at Long Beach. There are also several large outcrops above bushline in Woodside Glen that deserve attention.

4.6 Sking

A heavy snowfall on Flagstaff in 1932 attracted 15 skiing enthusiasts. The event convinced those present that there was sufficient interest in Dunedin to warrant formation of the Otago Ski Club.⁸⁰

This was not the first time that skis had been used on Dunedin's hills. Members of the Otago Tramping Club skied on Flagstaff and Swampy during the winter of 1925.⁸¹ Memories of the 'big snows' of 1939 and 1945 prompted a group of enthusiasts to build a 'ski' hut and a ski run in 1946 on the tramping club's Ben Rudd property on Flagstaff. Unfortunately the 'big snows' ceased with completion of the work.⁸²

In most years there are a few days each winter on which it is possible to ski on the hills around the city. The prospect of a few hours fun near home is relished by many enthusiasts. Snow conditions deteriorate rapidly, although adequate snow cover can

persist for several consecutive days. Traverses between Flagstaff and Swampy are not infrequent. A combination of snow and scrub skiing has even been used to reach the former Green Hut site! A more pleasurable experience is the 5 km downhill run along the road off Swampy Summit.

The higher elevations of the Maungatua Range normally result in a snow-cap through part of each winter. Drift snow and more general cover after fresh snowfall can provide good cross-country skiing conditions within a half hour drive of Dunedin.

4.7 Hunting

Pigs provide the main interest in the Silverpeaks for the recreational hunter. Former state forest and reserve areas are allocated on a block basis and individual arrangements are made on private lands, where compatible with poisoning operations. Lamb losses due to pig predation used to be very high after a lapse of control during World War II but are now only of intermittent concern to farmers.

Hunting blocks in the Waipori Falls Scenic Reserve and Waipori and Berwick forests are in heavy demand for possum, feral sheep, pig and deer hunting. This is controlled by permits and blocks, which are 'oversubscribed' due to their proximity to Dunedin.⁸³ Mill Creek is popular for deerstalking despite limitations on access. Some live deer capture has occurred in the former Maungatua Scientific Reserve.

4.8 Picnicking and Camping

Roadside picnicking and camping opportunities in the region are somewhat limited, despite the obvious need for developed areas near Dunedin.

Evansdale Glen, despite being admirably suitable, receives only light use possibly due to the proximity of competing coastal attractions. The Scout Association used to make available a picnic area on its property at Whare Flat. This has been closed due to vandalism. The DCC has semi-developed open glades in the area which also receive their share of use and abuse. As the nearest forested locality to Dunedin there is a potential for considerably greater picnic facilities on areas at Whare Flat and in the nearby plantations. The limitation is finance for development, maintenance and supervision.

Outram Glen receives very heavy use for picnicking and swimming. This popularity also attracts the 'common-or-garden' vandal. Smashed facilities and broken bottles are normal contributions to the local scene.

Picnic areas are provided in the Maungatua and Waipori Falls scenic reserves and receive heavy use at times. Some informal camping occurs on favourable openings along the Waipori Falls Road both in and outside the reserve. A serviced picnic area is provided near the Berwick Forest headquarters in an open glade surrounded by a variety of exotic forest. Camping areas are available by arrangement with the Forestry Corporation (Timberlands) within a 470 ha Recreation Area.

Lake side picnic areas, with facilities, are provided by the DCC in its Waipori Forest on the shores of Lake Mahinerangi.

4.9 Off-Road Vehicles

The formation of firebreaks and farm tracking resulted in an upsurge in off-road vehicle use during the 1960s. Initially this was confined to Hightop-Swampy-Flagstaff, but then the central Silverpeaks became accessible to these vehicles. With the advent of trail bikes capable of penetrating untracked areas the quiet

domain of the tramper became increasingly threatened. More active reserves management, including fencing and walkways, has substantially removed these machines from popular walking areas in the eastern Silverpeaks. However, the central peaks has now become the regular venue for organised 'enduros.' Outside of these events, only occasional riders visit this area, apparently because there are many other suitable areas for this activity closer at hand to Dunedin and the Taieri.

The sub-alpine bogs in the former Maungatua Scientific Reserve have received considerable damage from trail bike use, but this activity has been largely curtailed by completion of boundary fencing.

There is an obvious need for suitable outlets for trail bike and 4WD vehicle use near Dunedin, however, their indiscriminate use close to residential areas, in the vicinity of walking tracks, or in natural areas is increasingly objected to by the wider community. Forestry areas provide the most obvious locations for concentrating off-road vehicle recreation. Closer subdivision, farm and forestry development is rapidly reducing 'wild' grass and shrubland areas where a variety of machine-riding experiences can be obtained. The remaining natural areas are more important for conservation and non-mechanised recreation, than for machine recreation. For a description of motorcyclists' and 4WD recreationalists' needs see Aukerman and Davison (1980).⁸⁴

4.10 Horse Riding

Most grass and shrubland areas of the Silverpeaks and Maungatua, excluding formed walkways and fragile environments, appear suitable for horse riding. Such activity would most probably be compatible with walkers and trampers when limited to low numbers, however there does not appear to be any appreciable demand by horse riders for upland areas. A pony club has its headquarters on the lower slopes of Flagstaff, with its members using parts of the nearby DCC forests. The hill country in the vicinity of Hindon is used by a commercial trail riding venture.

4.11 Canoeing and Rafting

The Taieri River between Sutton and Outram ranks as "an important national recreational and scenic asset worthy of some recognition."⁸⁵ The Otago Catchment Board is of this view mainly because of its outstanding schistose landscape.

The rugged, boulder-strewn gorge upstream from Hindon has rarely, if ever, been navigated, while the reach between Taioma and Outram is particularly popular. Grade 2 and 3 rapids provide the best local white water conditions for Dunedin canoeists,⁸⁶ and the location of the only commercial rafting operation in east Otago. Jet boat access upriver is often used for this operation. Unfortunately the water quality for these contact sports is often doubtful; low flows during summer and autumn tending to

South Waikouiti catchment and Pulpit Rock (centre) from Green Ridge.



restrict activities. As noted earlier this lower gorge is important for gorge tramping and river crossing instruction.

The New Zealand Recreational River Survey ⁸⁷ ranks the Taieri between Hindon and Outram as a 'C Category River,' having high recreational values and picturesque scenic value. Any hydroelectric development, such as that proposed at Hindon, would inundate the impressive river gorge for a 5 km reach. Other than the Lee Stream proposal, no other developments have been contemplated in the lower gorge.

Lake Mahinerangi is suitable for lake cruising with backdrops of either pasture or exotic forest. Low lake levels at times expose an unpleasant shore line. The lower reservoir in the Waipori Gorge can provide pleasant canoeing when full, otherwise tree trunks and extensive muddy beaches become exposed. Below the last (No. 4) powerhouse the river is used for canoeing in high flows with Grade 2 and up to Grade 3 chute-type rapids.⁸⁸ By manipulation of water flows with the DCC Electricity Department, Dunedin canoe clubs have established a permanent slalom course on a section of the river. This has been successfully used for national white-water championships. At other times canoe use is dependent on hydroelectric operations.

4.12 Fishing

Fishable reaches of several small rivers and streams within easy access of the greater Dunedin area are under heavy angling pressure. The Taieri is regionally important for fishing due to high visitation, closeness to home, good access, and opportunities for solitude within some reaches.⁸⁹ The Waipori River is locally important as it receives high use, with high rankings for scenic beauty and feelings of solitude in the bushed middle reaches.⁹⁰

4.13 Driving for Pleasure

This activity ranked as the second most popular recreational activity in the Dunedin Recreational Study, being undertaken by just under a third of the survey sample.⁹¹

Of the 'periphery' roads within the region, the Leith and Waitati Valley Roads, Whare Flat-Flagstaff, Silver Peaks State Forest, and Waipori Falls Roads receive the most recreational use. In addition, the Northern Motorway into Dunedin provides a striking perspective of the partly forested Waitati Valley, the mountain cedar forests of Leith Saddle, and of the eastern faces of Swampy and Flagstaff.

The Silver Peaks Landscape Assessment ⁹² identified opportunities for harmonious management of farm and forest landscapes as viewed from public roads. The upper Leith and Waitati Valleys ranked highly in this assessment. It is highly desirable that the small-scale blend of natural-cultural landscapes in the Leith and Waitati valleys be maintained, by controls on the siting of buildings, higher protective status for native forest, and the retention of bush ribbons in gullies and along road verges.

4.14 Railway Excursions

Since the cessation of passenger services on the Otago Central Railway, the Otago Excursion Train Trust has run return sightseeing trips through the Taieri Gorge. The diesel-drawn early 1900s carriages stop at regular intervals throughout the rugged gorge for sightseeing and photography. These excursions are very popular and many thousands of Dunedin residents and visitors have taken advantage of this very scenic service. Unfortunately doubts exist as to the long-term future of the line and with it this novel experience.



Slalom course, Waipori River.

5. Zoning

5.1 Natural Experience

Three separate areas are zoned 'natural experience':

5.1.1 Silverpeaks Scenic Reserve

The recommended 'eventual' reserve proposal (6284 ha) is the full extent of salvageable natural areas left in the Silverpeaks. The full proposal, if implemented, would satisfy upland recreational needs.

The reserve should exclude vehicle use within its boundaries, with the exception of service vehicles on Swampy, and ensure as far as practicable, restoration of the original landforms and vegetation where vehicle tracking has occurred in 'high relief' areas.

The proposed reserve is of regional recreational significance, and of national biological significance. Control and management of this major asset should remain with DOC.

5.1.2 Taieri River Gorge

The forested Outram-Taieri, and Lee Stream gorges are of regional significance due to the diversity of forest and river activities that occur within the zone, and the virtual absence elsewhere in eastern Otago of river gorges.

Reservation appears to be the most appropriate mechanism to protect the setting and provide for public use.

5.1.3 Maungatua Range and Waipori Falls Scenic Reserves

The full extent of reserve extension proposals should fully accommodate existing active recreational uses, provided conveniently located foot access becomes available through private lands. However full landscape protection requirements are not met by the Maungatua Range Scenic Reserve proposal. Buffering and landscape management is also required along the Taieri Plain face and upper western slopes.

The biological corridors concept embodied in the reserve proposal will ensure linkages between diverse settings for recreational walking, similar to those found in the Silverpeaks, but on a more confined scale.

5.2 Open Space

5.2.1 North-western Silverpeaks and upper Taieri Gorge

The extensive tussock grasslands adjacent to the northern boundary of the Silverpeaks Scenic Reserve and lower Three O'Clock Stream catchment is zoned 'open space.'

Although few rights of public use exist over this private land, it is hoped that landowner consents will continue to be given for the relatively light tramping use this area receives. However, as all equivalent areas are developed throughout eastern Otago, demand for recreational use over this semi-natural grassland could become greater.

To remain attractive for recreational use, the tussock grassland setting needs to be retained. Remnant coniferous-broadleaf forests centred on the Mt. Misery Creek catchment deserve protection as components of the broader landscape.

Planning controls over farm roading, woodlots and forestry are desirable within the river corridor to retain the 'open space' character as viewed from the river and railway. Hydroelectric development on this reach of the Taieri would destroy its wild character. A water conservation order from Pukerangi downstream to Outram is highly desirable.

5.2.2 Maungatua Range: Taieri face-upper western slopes.

Such an imposing feature as the Maungatua Range requires an integrated approach for landscape protection. While the Maungatua Range Scenic Reserve proposal takes in most of the native forest on the Woodside faces, its straight-line boundaries exclude numerous fingers of beech and broadleaved forest above West Taieri. As important components of the total Maungatua massif, protective arrangements over this forest are highly desirable. Of overriding concern is the maintenance of a harmonious blend of pasture, 'finger-forests,' and tussock grassland above. Planning controls on non-farming uses such as forestry, and on building siting and colour are equally desirable.

The headwaters of Lee Stream and the Verter Burn are relatively high-altitude tussock grasslands (approximately 600 m) extending up to the range crest and abutting the reserve along much of its western boundary. Although capable of forestry development, the limitation of altitude may make it unattractive for this use. However pasture improvement is likely to continue by non-cultivation means. Much of the area can be suitable for cross country skiing and it provides a buffer from wilding tree spread from any forest establishment that may occur on the lower western slopes in the future.

Compatible land management between the reserve and this private land might be achievable by good neighbourly relations between DOC and the individual land owners. However, forestry should be excluded by planning controls.

5.3 Cultural Experience

The exotic Silver Peak and Flagstaff forests and their immediate environs (eg Evansdale Glen and Whare Flat), plus the Recreation Area in the Berwick Forest are zoned 'cultural experience.' (The Mt Allen forest is not included in this zone due to its relative remoteness.)

Expansion of recreational facilities/activities within these areas is highly desirable in view of their proximity to a large urban population. These forests have a potential for providing for a wide range of recreational opportunities which are not dependent on natural settings.

5.4 Remote Experience

While not satisfying Government or FMC criteria for formal definition as 'Remote Experience Areas,' two areas within 'natural experience' zones deserve recognition. Three bush tributaries of the South Waikouaiti lying between Pulpit Rock and Yellow Ridge are untracked. These provide excellent opportunities for bush navigation training, or just for roughing it.

The untracked Taieri Gorge between Mullocky Gully and Lee Stream is very suitable for wild river gorge travel. No comparable opportunity exists in the region. Both areas, being within reserves, should remain free of tracks.

6. Recommendations

Silverpeaks Scenic Reserve

6.1 That DOC initiate the progressive establishment of the 1984 proposal to the full extent of the recommended eventual boundaries. This is a matter of national significance for nature conservation and recreation. A high priority should be given to the allocation of government finance for successful completion of negotiations to purchase all private lands within the "recommended eventual boundaries."

6.2 As a matter of urgency, reserve-former state forest boundaries in the upper South Waikouaiti-Hightop area be rationalised, with the objective of removing tree plantings within 'Landscape Tract 8.'

6.3 That management planning for the 'core' scenic reserve area take account of the necessity to maintain diversity in tramping opportunities within the broader Silverpeaks-Dunedin region. In this regard the untracked South Waikouaiti catchments should remain untracked.

Water Supply Areas

6.4 That the Dunedin City Council formally recognise that, because of comprehensive water quality protection and monitoring, there is no longer a necessity to restrict non-polluting public uses from core water catchment areas.

6.5 That the DCC, as a first step in a progressive relaxation of control, permit managed public recreation in the two supply catchments with greatest actual and potential usage, being the Silver Stream and Nicols Creek.

6.6 That the DCC and DOC collaborate in the above areas for the purpose of providing public recreation consistent with the maintenance of a municipal water supply.

6.7 That in the longer term the DCC consider transferring to DOC the management of water supply reserves within the 'eventual boundaries' of the Silverpeaks Scenic Reserve.

Note:

- Offence and bylaw provisions of the Health Act 1956, Sections 6 and 19, and bylaws under the Reserves Act 1977 provide the means to control public use consistent with water supply.

6.8 That all present and future domestic water supply areas within the new scenic reserve be managed primarily for nature conservation and water supply, and secondly for recreation.

Firebreaks

6.9 That no further firebreaks be constructed within the 'eventual boundaries' of the Silverpeaks Scenic Reserve.

Note:

- Active management of scenic reserves adjacent to water supply areas should result in decreased fire incidence.
- A DCC proposal to construct firebreaks suitable for vehicle access between Swampy Summit and Hightop, and along the Green Ridge to Pulpit Rock ridge, is unnecessary in view of the scenic reserve abutting the Silver Stream catchment. It would also destroy another section of the key spinal ridge which holds the central Silverpeaks together as a walking and tramping area.

Flagstaff

6.10 That pine and larch plantations above approximately 460 m, east of the Flagstaff-Whare Flat Road, be progressively removed and not replanted.

Note:

- These are visual intrusions into the tussock grasslands and on skylines and also provide major seed sources for wilding tree spread throughout the Flagstaff Scenic Reserve. (One private plantation and the upper extent of DCC plantations are involved.)

Swampy Summit

6.11 That greater sharing of existing communications installations be pursued, and landscape treatment of existing facilities be undertaken.

6.12 That future communications installations be confined to Swampy Summit, on the proviso that their siting and any roading does not further damage bog areas.

Silverpeaks County District Scheme

6.13 That non-notifiable discretionary uses in the Rural E (Landscape Appreciation) Zone be replaced by conditional uses.

6.14 That the Rural C Zone in the north-western Silverpeaks (as defined by FMC's 'open space' zone) be revoked in favour of Rural B (Pastoral).

6.15 That both banks of the Taieri Gorge, between Little Mt Allen and Nenthorn Stream up to an elevation of 320 m, be zoned as Rural E. This is to ensure that exotic forestry does not obscure the spectacular, craggy features as viewed from the Otago Central Railway and river.

Water Conservation Order

6.16 That the regional water board initiate a water conservation order over the Taieri River between Pukerangi and Outram in recognition of nationally important landscape and recreational values.

Recreational Roads and Dunedin Environs

6.17 That the cultural-natural interface in the upper Waitati Valley, Leith Valley, and the city face of Flagstaff be managed to maintain harmonious landscapes. The means may include:

- higher protective status for publicly controlled native forests;
- covenants over private native forest;
- removal of higher altitude and isolated blocks of DCC plantations to allow reversion to bush.

6.18 That 'key vistas' along the Mountain Road within the Silver Peaks State Forest be cleared of obscuring exotic trees in accordance with the prescriptions of the management plan.

Bush Remnants

6.19 That bush remnants in the Mt Misery Creek and the adjacent Waikouaiti Valley be protected.

Recreational Development Areas

6.20 That the DCC initiate a recreational development programme in its Flagstaff-Whare Flat forests, to cater for a variety of recreational activities.

Outram Glen Scenic Reserve

6.21 That all remaining native forest between Taioma and Outram and in the lower Lee Stream be reserved.

6.22 That no further walking track formation be undertaken along the Taieri Gorge between Mullocky Gully and Lee Stream so as to retain opportunities for wild river tramping near Dunedin.

Maungatua Range

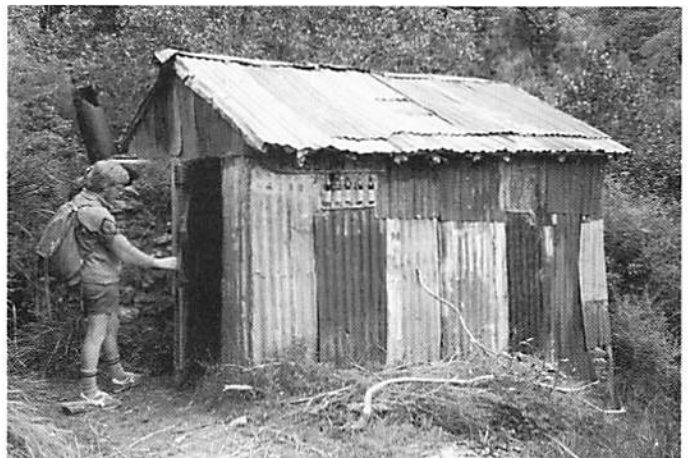
6.23 That the full Maungatua Range Scenic Reserve proposal proceed, with provision for public foot access at regular intervals from the Taieri Plain.

6.24 That the Rural C zones in the Silverpeaks County District Scheme be replaced with Rural B zones on the Taieri faces and western tops as defined by FMC's 'open space' zones.

6.25 That bush remnants on the Taieri faces and Waipori Valley, outside of currently established reserves, be protected as a matter of high priority.

Possum Hut.

Photo: Ken Mason



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THE REMARKABLES and Hector Mountains

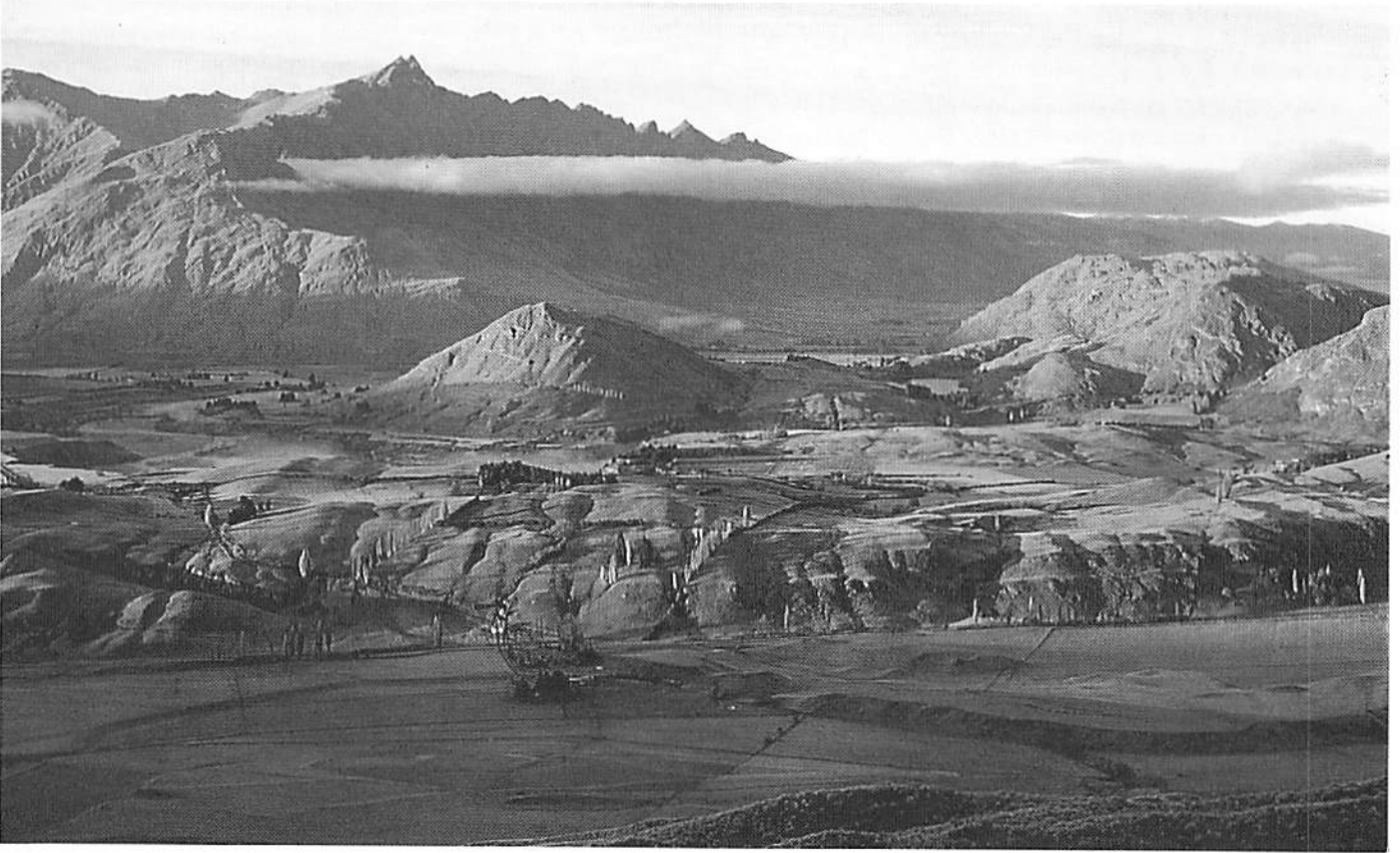


Photo: Bob Entwistle

The Remarkables with a crest from 7000 feet to 7600 feet high rise steeply from the shore of Lake Wakatipu by a series of stupendous declivities, forming a spectacle that for absorbing grandeur is unrivalled in New Zealand.

Professor James Park, 1908¹

1. Landforms

The Remarkables are one of New Zealand's outstanding geological features. The great western face, thought to be a glacially modified fault-scarp, rises 2000 m above the shores of Lake Wakatipu. This perspective of the range has in no small way contributed to the national and international renown of Queenstown.

Eastern back-slopes of the Remarkables are mountainous but less spectacular, as are their southward extension, the Hector Mountains. The crest height of the Hectors lies between 1920 and 2225 m as far south as James Peak, south of which the country becomes less dissected. Then the height falls gently to 900 m at the southern limit of the Hectors above Garston.

The glaciated upper altitudes of these schist mountains illustrate the transition from the valley glaciations of the main alps to the Central Otago block mountains further east. Horn and arete systems, armchair cirques, hanging valleys, cirque moraines and periglacial deposits are well developed. Lake Alta in the Rastus Burn is dammed behind a moraine in the most spectacular

armchair cirque. The head-wall consists of the 520 m high north-east face of Double and Single Cones. Lake Hope, slightly larger, occupies another cirque at the head of the south branch of Wye Creek.

In the headwaters of the north branch of the Wye a hanging cirque above a 210 m high wall almost cuts off access to Single Cone from the south. Over sixty small lakes and tarns occupy glacial depressions the length of these mountains.

Smooth outlines on the lower Kawarau shoulder and Hectors indicate sculpturing by a Wakatipu glacier during the Pleistocene. Post glacial landforms such as extensive bedrock slumping and still active solifluction deposits are unusual in their complexity. Such features are not often seen in the main alps, although they are found in adjacent areas such as the Eyre Mountains to the west of Lake Wakatipu.

2. Vegetation and Wildlife

2.1 Vegetation

The flora of the area is somewhat unique in its combination of a few of the larger, more colourful alpine plants that characterise the wet mountains west of the Otago lakes, together with many of the distinctive high-alpine cushion plants that are a special feature of the drier Central Otago highlands. In addition there are a few alpine species of limited east-west range that are centred on the Remarkables and Hector's.²

The plant cover consists of a mosaic pattern of high-altitude snow tussock grassland, dwarfed cushion, snowbank, herbfield and bog, with sparsely vegetated fellfield and rock debris slopes. These different environments are separated chiefly by altitude and topography. The most extensive plant community is snow tussock grassland rising from 1000 m to 1800 m dependent on aspect. The narrow-leaved snow tussock gives way to slim snowgrass at 1200-1500 m, which in turn merges into blue tussock, or ends abruptly at the toe of the fellfield. The condition of the grassland is generally as good as, or better than, that found on the Central Otago ranges.

The extensive fellfields are relatively stable, consisting of jagged schist. The highest peaks of the Hector's are more rubbly than the central Remarkables and this is reflected by the restricted distribution of several fellfield species. A notable feature of these fellfields are heavy growths of leaf-like and twiggy lichens.

Unlike the Central Otago ranges, herbfields within the Remarkables and Hector's are infrequent, as are alpine bogs. The latter are largely confined to the vicinity of tarns in the upper Rastus Burn and Wye Creek.

At lower altitudes (up to 1000 m) the grassland consists of predominantly silver and fescue tussocks, with a wide zone on the western escarpment covered by bracken fern. The lower country is steadily being developed for pasture by oversowing, topdressing and more intensive stock management.

Isolated stands of mountain beech are confined to rough lower creek beds such as in the Wye and Staircase Creeks. These are only small remnants of a much more extensive forest cover, as shown by the occurrence of scattered logs of Hall's totara. These logs date from a forest destroyed prior to European settlement. The extent of forest cover at the time of pastoral settlement in the early 1860s has not been established.³

The Remarkables and Hector's form the Remarkables District within the Lakes Ecological Region.⁴

2.2 Wildlife

In summer, blacked-backed gulls are the most abundant bird species at higher elevations, nesting at the numerous small tarns scattered the length of these mountains. In small numbers, Paradise shelduck and pied oystercatchers frequent the same habitat as the gulls. Skylarks and pipits both have a widespread distribution. Keas and falcon are present but in low numbers.

Of a total recorded population of 13 keas in the Remarkables, 5 birds were removed during 1985 by the former Wildlife Service as a result of complaints of damage from the skifield operators. This move resulted in widespread public condemnation. Consequently another 5 birds were released in their place. The operators have now learnt to live with keas, as all major equipment that is vulnerable to damage has been 'kea-proofed.'⁵

Possibly because of the relatively large area of water, invertebrate fauna at the head of the Rastus Burn and Wye Creek is richer than on the drier Nevis flanks and probably explains the presence of many birds. A large black and silver moth, thought to be endemic, and two species of *Aciphylla* weevil have been found in the Lake Alta and 'Sugar Bowl' basins of the Rastus Burn. Two species of distinctive black alpine cicadas inhabit the alpine meadow and fellfield of the Remarkables, one of them being restricted to above 1500 m.⁶

The Double Cone area is a unique habitat for indigenous fauna, both because of its high altitude and because it is in the transition between the alps and the much drier Central Otago block mountains.⁷

Red deer are present in low numbers. Hunters generally prefer other mountain areas with higher animal numbers. Chamois have been recorded in low numbers. The presence of bull thar have been recently confirmed. Game birds such as quail and chukar are common on lower, warmer country and are popular with game bird hunters.⁸

3. History and Land Use

3.1 Pastoral Settlement

Lake Wakatipu was first seen by Europeans, at a distance, in 1853 but it was not until 1856 that the lake was first reached. The area was surveyed by Alexander Garvie who aptly named the Remarkables in 1857 when he sighted their jagged tops from Central Otago.

While there was still plains country in the South Island available for pastoral settlement, interest in taking up the rugged Wakatipu district for grazing was slow to develop. It was not until 1860 that the Crown granted the first depasturing licence to cover the entire length of the Remarkables and Hector Mountains. However this run (Staircase) was not stocked and it passed into the hands of W.G. Rees and partners.

Rees entered the district early in 1860 and took up two runs from Queenstown to Glenorchy, establishing his homestead in Queenstown Bay. On behalf of his partnership he acquired 'The Staircase' and 'Peninsula' runs which covered the northern flanks of the Remarkables.⁹

The November 1862 gold discoveries in the Arrow and Shotover Rivers resulted in a rush to the district and Rees' two northern runs were declared a goldfield. Gold mining did not directly affect the Remarkables, however it hastened its pastoral use. Rees, displaced from the new goldfield, shifted his operations to the previously unused Remarkables runs. These become known as Kawarau Falls Station being in excess of 4000 ha.¹⁰

'String bog,' Doolans Basin.

Photo: Bob Entwistle



Stock numbers were steadily increased to a peak of 29,000 sheep in 1877, however 'The Big Snow' of 1878 and a rabbit plague resulted in a reduction to 6,000 sheep. Hard times continued and in 1886 the station was abandoned to the mortgagee company. It, in turn, went bankrupt in 1894. The original Kawarau Falls Station has subsequently been subdivided into six runs, with 'Cone Peak' and 'Remarkables' sharing the mountainous feature of the district.

3.2 Land Tenure and Access

The area is predominantly pastoral lease (9 leases), but with significant areas of reserve and DOC stewardship areas in the north.

5117 ha of the rugged western face, the Wye catchment and the Lake Alta cirque has been allocated to DOC and awaits gazettal as scenic reserve. This is south of the 3rd ridge from the left on the main face and includes the Wye catchment, as far south as the South Branch at Lake Hope, to the dividing ridge with Doolans. Broad strips of land on the north bank of Wye Creek, and the south bank of Lumberbox Creek above State Highway 6, provide public access to the DOC controlled land. The 2nd and 3rd ridges, on Cone Peak Station, have traditionally been available for public foot access to Lake Alta and were the main foot access routes before the present road was constructed.

700 ha of the upper Rastus Burn, excluding Lake Alta, is recreation reserve (gazetted 1980) and abuts the future scenic reserve along the main ridge crest. A short-term lease over the total area of this reserve has been issued to the Mount Cook Group for the duration of skifield development. On fulfilment of its

conditions a long-term lease and rights of way will be issued but only over the area occupied by the building complex, car parks, road and lift lines (10.5 ha total). While the company has a lease over the total recreation reserve, the public has rights of free use of the reserve, except for buildings and other facilities, if behaving in an "orderly and seemly manner." On the road the public has right of free foot use, and right of vehicle use on payment of a fee.¹¹

A special lease has been issued over a narrow strip along the foot of the western face of the Remarkables, with public foot access up Wye and Lumberbox Creeks provided across this to the DOC land. A grazing permit (unused to date) has been issued in the north branch of the Wye valley. This area is of exceptionally high botanical value due to an absence of grazing for many years.¹² Three thousand nine hundred and fifty ha of 'retired' lands between the Wye south branch and Staircase Creek is under grazing permit, and along with all the stewardship and reserve areas, are available for public recreation.

3.3 Land Use Capability

Land generally above 900-1000 m is Class 7; above 1350-1500 m is Class 8. This comprises 75 percent of the areas still under pastoral occupation. The balance is Class 6 or better.¹³ These lowest altitude Nevis, Kawarau and Wakatipu faces have potential for increased production by oversowing and topdressing.¹⁴

A third of the total area has been assessed to be severely eroded, however only a quarter of such lands have been retired or partly destocked from grazing.¹⁵ Only a small proportion has been surrendered from pastoral tenure.

Single Cone, Remarkables from North Wye head-basin.

Photo: Neill Simpson



3.4 Remarkables-Hectors Management Study ¹⁶

At the conclusion of a year-long study in 1977, a Lands and Survey study team, commissioned by the former Land Settlement Board, recommended that a 20,000 ha scenic reserve be gazetted over the alpine zone of both the Remarkables and Hector Mountains. This was to include the high altitude Class 7 and all Class 8 lands between the Rastus Burn in the north, and Staircase and Commissioners Creeks to the south. The team concluded that only the Right Branch of Doolans Creek was suitable for skifield investigation.

Only a small part of the reserves recommendation has been implemented and the skifield recommendation disregarded by Government decision. However there remain strong recreation and landscape reasons for a large scenic reserve covering the northern Hector Mountains, retired pastoral lease and stewardship lands.

The Remarkables escarpment has been identified as a candidate for national reserve status, being an outstanding natural landmark.¹⁷ The National Parks and Reserves Authority requested the Department of Lands and Survey to investigate the Remarkables for national reserve ¹⁸ but this request remains unactioned.

3.5 District Scheme Zoning

Three territorial local authorities share jurisdiction over the region.

Within **Lake County** the Kawarau, lowest Wakatipu faces of the Remarkables, and western face of the Hectors are zoned 'Rural B' which permits farming of any kind, but commercial forestry, farm tracking, and rural industries are conditional uses. The Council will impose such conditions as it sees fit to conserve scenic values in rural areas. The intended Remarkables Scenic Reserve is designated and has an underlying 'Rural L' (Landscape Protection) zone. The Rastus Burn Recreation Reserve is zoned 'Recreation S' (Skifield). The balance of the Remarkables and the northern Hectors is 'Rural C' (Soil and Water Conservation).¹⁹ The remainder of the Hectors within Lake County (the western face) is 'Rural B.'

Most of the Nevis catchment on the eastern slopes of the Remarkables and Hectors is zoned 'Rural 1' within **Vincent County**. This permits farming, soil and water conservation schemes and reserves as predominant uses, with rural industries such as forestry conditional uses.²⁰

South of Lorn Peak the Nevis catchment is within **Southland County**. The 'Rural A' zone permits farming of any kind as a predominant use, and rural industries and forestry as conditional uses. 'A Rural B' (water and soil conservation) zone covers the highest Hector tops southwards to Tennants Peak. Retirement from grazing, pastoral farming in accordance with approved management plans, huts and tracks are predominant uses. Farming and tourist facilities are conditional uses.²¹

3.6 Reserve Zoning and Management ²²

Three areas of bog and small tarns within the Rastus Burn Recreation Reserve are zoned 'natural environment.' No development or vehicles are permitted within these areas. Policies for slope protection during skifield development and operation include controls on boulder removal and slope grooming. Tracking is permitted within the reserve only to provide summer walking opportunities and essential services.



Climbing party at Lake Alta 1890s. Photo: Lakes District Centennial Museum

4. Recreational Opportunities

4.1 The Setting

The Remarkables, since the time of the earliest European settlement, have been regarded as the single most spectacular feature in a highly scenic region.

Passive appreciation remains its greatest recreational value. The "stupendous declivity" of jagged crags, from level base to saw-toothed summit ridge, has a dominating presence over the Queenstown district. It is unrivalled by any similar landform in New Zealand and provides a backdrop for all manner of outdoor activities undertaken by many thousands of visitors from throughout New Zealand and overseas. For many it is an object of marvel and inspiration, without generating a need to touch or climb. The absence of any natural or man-made weaknesses in the 'declivity' inspires almost mystical qualities that give it a value beyond mere rock and cleft.

4.2 Tramping and Climbing

Government geologist T.N. Hackett and party made the first recorded ascent of Double Cone in October 1864.²³ As Queenstown became less of a goldrush town and more of a resort, interest in climbing to the summit increased. Since at least the 1890s the climb up the northern Kawarau face or the western face, to Lake Alta and the summit, has been a popular attraction.

Before road construction, the Lake Alta area of the Rastus Burn was the focus of attention for trampers and climbers, with Single or Double Cone the objective. Two days, or a very long day, was required for the return trip. The only recorded indication of activity immediately prior to road construction was 108 people

who were known to have set out for the Remarkables by the main northern access routes over a 10 week period of the 1979-80 summer. During the same period another 10 climbed the main face and 27 went via Wye Creek.²⁴ An ascent had considerable appeal for those who were prepared to expend the considerable energy required for the 2000 m vertical climb. This was regarded as a physical challenge, prompting many clubs and individuals to make annual 'pilgrimages.'

The usual approach was up one of three ridges at the northern end of the western face, followed by a sidle into the head of the Rastus Burn. An alternative approach or departure via the north branch of the Wye was also popular. Public access has now been improved through the Wye by the local mountain club cutting a track through the beech forests of the lower valley.

A variety of steep rock routes can be chosen to the summit; the Alta-Wye saddle, boulder fields and a final steep gully (rope advisable for the less confident) being the usual route to Single Cone. Rock quality tends to be good, with coarse quartz crystals providing good holds in the hard schist. Climbers have numerous direct routes to all the main peaks above Lake Alta to choose from, or alternatively up the west face, providing steep tussock approaches, generally free gully climbing in summer, and steep snow gullies in winter. In snow conditions the summit 'pyramid' is a serious technical climb.

Only isolated patches of snow persist year-round, however climatic conditions are alpine in all seasons. The orographic influence on the weather of this high, isolated mountain-mass can cause snow and ice conditions, strong winds and cloud obscurity at any time of the year. Weather changes can be sudden and severe.

The availability of road access since 1985 has naturally made the Rastus Burn-Lake Alta area very accessible, especially for day walking, with greater use of the Wye as a day or overnight departure route. A variety of groups, including DOC summer programmes now visit this valley. However a deterrent to greater activity is a lack of signposting during summer specifying public use rights over the road.

To avoid damage to alpine bogs, a board-walked trail has been established to the spectacular scene at Lake Alta. Unfortunately litter, arising from the ski season, is now widespread throughout the upper valley and is very apparent during the rest of the year, as are ski and machinery trails on the skifield. The

collection and disposal of litter is a responsibility of the Company.²⁵ On-going removal of rocks and boulders is also altering the natural character of the basin.

The Hector Mountains attract sporadic but increasing tramping activity, with western approaches usually used. The longer access from the Nevis Valley is infrequently used. Lake Hope, Ben Nevis, James Peak and Staircase Creek are the more usual objectives for tramping parties.

Public recreational activity has become well established over the pastoral lease properties. The physical effort of climbing into these areas in the past tended to impose limits on numbers, so that use levels presented few conflicts with pastoral activities.

4.3 Sightseeing

Sightseeing from a spectacular lookout at 1980 m on the brink of the western face was promoted by the skifield developers as a major component of the Remarkables development. Access is by chairlift to below the ridge crest, with a short walking track provided for the final approach. This facility was heavily promoted during the first two years of operation, however the operators have discontinued this service and closed the base building during the non-ski season. The Company has stated that it has no intention of generating further sightseeing activity in the area.²⁶

4.4 Skiling

4.4.1 Heli-skiing

During pre-skifield years there was a steady use of the Remarkables for heli-skiing and ski touring. Throughout the winter, conditions permitting, a daily helicopter service operated in the Remarkables. However strong winds and cloud obscurity were a major inhibition to operations, resulting in 25 to 40 percent cancellation of bookings.²⁷

The three basins of Rastus, Doolans (right branch) and Wye basin (north branch) were regularly skied. The extensive Doolans basin provides an attractive variety of runs, usually with good snow cover. The adjacent Wye basin is notable for extremes in gradient, from flat to very steep. This was used for heli-skiing but is better suited to 'nordic' skiing. Frequently the Rastus Burn proved unskiable over part or the whole of its length.²⁸ Ninety percent of the time the Doolans and Wye were skied by clients and guides in preference to the Rastus Burn.²⁹

DOC summer guided party above Lake Alta.

Photo: Neill Simpson



The Wye Creek approach, Lake Wakatipu below.

Photo: Ken Mason



In the last few years unauthorised heli-skiing activity has taken place most winters in the Doolans and Wye. Applications for heli-skiing recreation permits within the area of the proposed Remarkables Scenic Reserve were put on hold pending completion of a management plan for the reserve. However areas within the Hector Mountains and Doolans basin are now under application.

4.4.2 Ski Touring

Parties of ski mountaineers regularly visit the Remarkables and northern Hectors, with occasional traverses of both ranges. Although limited use can be made of cross country skis within individual basins of the Remarkables the southern Hectors provide the only extensive scope for traverses on 'nordic' skis. Eight km south of James Peak (at 2072 m) the range dips gently southward for approximately 17 km to Tennants Peak. The terrain is generally less dissected, with rounded ridges and easier gradients than to the north. The altitude varies between 1645 and 1370 m, with skiable conditions often available down to 1060 m along the Garston-Nevis Road at the southern extent of the range.

The Doolans and Wye basins provide the most attractive terrain for touring in the Remarkables. With the advent of road access into the adjacent Rastus Burn, these two basins are receiving greater attention for day and weekend ski trips, providing one of the few such opportunities in the main mountains of Otago. Noise intrusion from helicopter use is an on-going detraction for tourers.

4.4.3 Skifield History ³⁰

In 1936 the Southland Ski Club established a skifield on the southern end of the Hector Mountains above Garston. A twenty bunk pre-fabricated hut was erected at a site at 1000 m. An east-facing basin at the crest of the range, between 1140 and 1060 m, provided easy slopes with skiing occasional down north-west slopes below the hut. A two hour walk into the hut was required during winter.

In 1947 a rope tow was installed and was in use until 1955 when it became unserviceable. By 1957 the Club had abandoned its Garston field in favour of Coronet Peak.

Ski touring Doolans basin.



4.4.4 Rastus Burn Skifield

In 1973 the Mount Cook and Southern Lakes Tourist Company made application to the Land Settlement Board for a lease within the Rastus Burn for the purposes of skifield development. The objectives for this proposal included: ³¹

- providing for greater capacity as Coronet Peak was projected to reach skier capacity within a few years;
- developing a high altitude skifield to ensure a longer and more reliable ski season.

The Company claimed that these objectives could be attained in the Rastus Burn as they considered that the higher altitude (approximately 420 m) of the Rastus Burn in relation to Coronet Peak would give a better guarantee of snow as well as an extended ski season. The Company further stated its intention of extending skiing operations into the Doolans as the "quality and extent of this snow field is superior to any other known area adjacent to Queenstown."³² The means of access to this basin was to be either chair lift or tunnel from the Rastus Burn.

The Company received major criticism of aspects of its plans from government agencies, skiers, mountaineers, environmental and recreational organisations, and some local residents. However the overall response from local interests was to welcome (any) development as it was perceived to be essential to the economic well-being of Queenstown.

Despite protracted objection and appeal procedures, the Company finally cleared all legal obstacles, and after an extension to planning consent commenced road construction in 1983, opening for skiing in 1985 with two chair lifts. A third lift was added in 1986.

On the crucial question of site suitability for a skifield, the Land Settlement Board initially expressed reservations "that the site applied for was the best one and that other areas could be more suitable."³³ The Commission for the Environment recommended that the overall need for further skifields in the region be considered, as well as a re-evaluation of the intrinsic suitability of the Rastus Burn as a skifield.³⁴

In spite of the Land Settlement Board's initial reservation and its own commissioned land use study recommending that only the Doolans Basin was suitable for further skifield investigation,³⁵ in 1977 the Board approved in principle the Company's application subject to Town and Country Planning consents. These were obtained from the Lake County Council in 1979 and from the Planning Tribunal in 1980. These approvals were given despite well documented evidence contradicting the Company's assertions that the Rastus Burn was suitable for skifield use.³⁶ The criticisms have in part being borne out by the company shifting further major skifield investment back to Coronet Peak. It is understood that this is based on independent advice that development in the Rastus Burn has exceeded its slope capacity, and that it is not feasible to expand into the Doolans from the Rastus Burn. The road is also proving to be a deterrent to many potential users.

Most objectors' concerns centred on the likely visual impact of road access construction across the prominent western and Kawarau faces. The objections did not prevent the works but they did prevent what one Planning Tribunal member predicted would be "a weeping sore on the landscape."³⁷ Stringent design specifications and requirements for revegetation of batters were imposed. These have largely been met, except for several locations where slumping of batters is inhibiting revegetation efforts. Some 100,000 tussocks have been hand-planted, with more to follow.



There remains the risk of slope failure and loss of road access due to deep-seated geological instability, in particular on the Kawarau face. Overall however the works are probably the tidiest road construction to have occurred in the New Zealand mountains in recent decades. Considerable follow-up works and care in day-to-day maintenance is still necessary to ensure that the design standards set, at considerable public and private expense, are realised.

The controversy over skifield development in the Remarkables has been a classic battle between conflicting interests. The full ambit of legal public participation procedures were employed in the decision making process. In addition to the developer's expenses in obtaining approval, individuals and public interest groups expended thousands of hours, being mainly voluntary effort, towards compilation of evidence and submissions. This was over a span of several years. Monetary costs for objectors were considerable. However at the end of the day the recommendations of two government agencies and the concerted efforts of individuals and private groups proved insufficient in the face of a determined and influential developer.

One outcome from the protracted legal manoeuvrings of the skifield debate was recognition of the area's national significance. The Planning Tribunal concluded "that the whole of what we describe as the appeal area [The Remarkables] has national significance, particularly from the point of view of its physical attributes as a place of outstanding scenic beauty, as a place of importance for those wishing to use it for outdoor pursuits of the unstructured kind, particularly tramping and climbing."³⁸

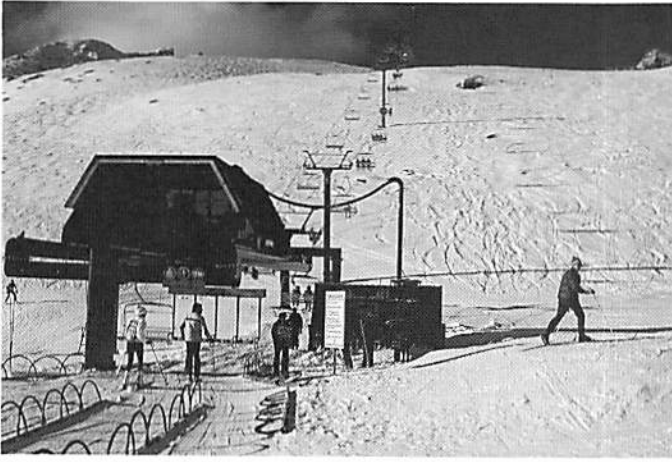
In spite of the company's initial enthusiasm and commitment to development in the Rastus Burn, major reservations remain as to the viability of skifield operation on anything but its present limited scale, that is unless major slope modifications and snow making is embarked upon. The former was not applied for³⁹ or contemplated in any of the official approvals given for the development.

Skifield Capacity

In 1979 Mason estimated the skiable area of the Rastus Burn to be one third that of Coronet Peak, with capacities, in terms of skiers that could be comfortably accommodated on-slope, to be one fifth.⁴⁰

The Rastus Burn slopes are characterised by extremes of gradient with extensive rock exposure. More obvious but less hazardous boulders abound. Skiing is largely confined to main trails where the rock hazard has been reduced. Ski slopes range from steep advanced and expert skier terrain to gentle beginner-novice slopes in the valley floor. The three chair lifts provide between approximately 120 and 310 vertical m of skiing. By comparison Coronet Peak provides a maximum of 445 m.

The Company claims that the Rastus Burn is "ultimately a larger field than Coronet Peak" and expresses the intention of "continual improvements" to lesser trails.⁴¹ Unsightly groomer and ski trails already detract from the summer scene. The Company now argues that "a prerequisite for a full [snow making] system would be extensive ground preparation."⁴²



'Sugar Bowl' lift, Rastus Burn.

Snow Cover

Factors of terrain, slope aspect, altitude, snowfall, and wind exposure have interrelated influence on suitability for skifield operation.

Mason's observations of snowlines in the Rastus Burn in 1975 and 1979 produced a conclusion that any advantage of higher altitude over Coronet Peak is cancelled out by higher snowlines. This is principally due to the predominant sunny, northerly aspect.

Recent simulations of former snowlines in the Remarkables 1931-84, based on computer modelling, has calculated the average winter snowline to have been higher than the present base area in the Rastus Burn. This was particularly so during the 1940s and 50s but with intervals of high snowlines throughout the study period. A slight decrease in snowline since 1970 was also calculated, but with no overall trend apparent.⁴⁹ Two of the four operating seasons for the Remarkables field have experienced good snow cover in relation to Coronet, however this is too short a record to be confident of the success or otherwise of the development.

Like Coronet Peak, there is no latitude for higher snowlines arising from possible climatic warming of the 'greenhouse effect.'

Conclusions

There is a danger that large-scale modification to the environment will be pursued in an attempt to make a marginal skifield less so. While snow making (already done on a small scale) could be undertaken with minimal environmental impact, for maximum benefit of patrons, the same cannot be said for rearranging the Remarkables. The Company went ahead with development in full knowledge of the serious limitations of the site. The national importance of this highly acclaimed mountain area must not be further compromised by an irreversible public 'subsidy' of landscape detraction. In the writer's view full liability for the decision to proceed with development should lie with the Company.

FMC is in favour of skifield development when soundly based on skier need and physical suitability as this enables member clubs as well as the wider skiing community to extend their activities. However the Federation's position is conditional on adequate environmental safeguards being provided in sensitive natural areas, as well as minimum displacement of or interference with other forms of mountain recreation and enjoyment.

5. Zoning

5.1 Natural Experience

The imposing alpine features of the Remarkables and Hectors, excluding the Rastus Burn skifield, are zoned 'natural experience.' The zone is generally above 1200-1300 m elevation, or follows 'retirement' fences, and includes the Wakatipu face of the Remarkables from its base.

Note:

- The zone provides opportunities for a wide range of recreational activities and experiences ranging from small scale remote to easily accessible. The presence of road access to the core of the Remarkables and along the western base will, with formal provision for public use, result in considerably greater public activity.
- The whole zone should be excluded from pastoral tenures and reserved.
- Provision for additional public foot access is required at regular intervals around the perimeter.
- No skifield or other tourist development should be permitted within this zone, nor concessions involving regular or scheduled aircraft landings. A prohibition of further skifield development is necessary as development would destroy the best remaining opportunities for day and weekend ski touring in the Otago alps. For the same reason aircraft intrusion should be prohibited. Heli-skiing and downhill skiing are very well catered for in the rest of the Otago high country.

5.2 Cultural Experience

It is within the Rastus Burn that dependence on intensive use recreational facilities should be confined. The extent of the recreation reserve affected by skifield development is zoned 'cultural experience.'

To the greatest extent practicable, the remaining natural values of this reserve should be protected for the benefit of all recreational users and as a key approach to a future national reserve or equivalent. High standards of facility design, site restoration, and landscape protection must be maintained.

5.3 Open Space

All the lower country is zoned 'open space.' This includes the lower Nevis catchments, the Kawarau and most of the Wakatipu faces. These areas have already had considerable pasture improvements, farm tracking and fencing with potential for further development. Despite such developments the whole zone should remain a large-scale, uninterrupted landscape, with farming or other influences relatively insignificant within the total mountain setting.

Particularly sensitive landscape treatment is required in the 'open space' zone along the western and Kawarau faces of the Remarkables.

Forestry development should be discouraged within this zone. Full revegetation of all skifield road batters must be strived for due to the prominence of these scars as seen from the Arrow basin.

6. Recommendations

6.1 The proposed Remarkables Scenic Reserve, ultimately with extensions to include the complete Wye and upper Doolans catchments (both branches), be designated national reserve, or equivalent status under new legislation.

Note:

- National status will ensure priority being given to the protection that these distinctive mountains deserve.
- The above boundaries incorporate all areas of high actual and potential recreational use. One unifying classification of reserve is desirable to ensure balanced management of the recreational resource.
- Gazetted as (scenic) reserve is required under the Reserves Act before national reserve status can be conveyed under present legislation. The option of a 'tussockland' conservation park as an alternative to national reserve status may arise out the current review of protected areas' legislation.

6.2 The balance of alpine areas be progressively removed from pastoral tenure and reserved as a Hector Mountains Scenic Reserve.

6.3 To maintain a regional diversity of recreational opportunity and to ensure protection of natural values, all future recreational facility development be confined to the Rastus Burn Recreation Reserve.

6.4 The Rastus Burn Recreation Reserve Management Plan be amended:

- to include 'landscape detracting' as a basis for declining consent for construction of tracks, slope grooming, and boulder removal;

- to provide a minimum snow depth for the operation of snow groomers to ensure protection of native vegetation.

6.5 Public use rights over the skifield access road be signposted at the foot of the hill.

6.6 Additional legal public foot access be provided:

- to the crest of the Hector Mountains from the Garston-Nevis Road;
- from Coal Pit Saddle to Mt Edward and beyond;
- to the Staircase Creek-James Peak area from State Highway 6.

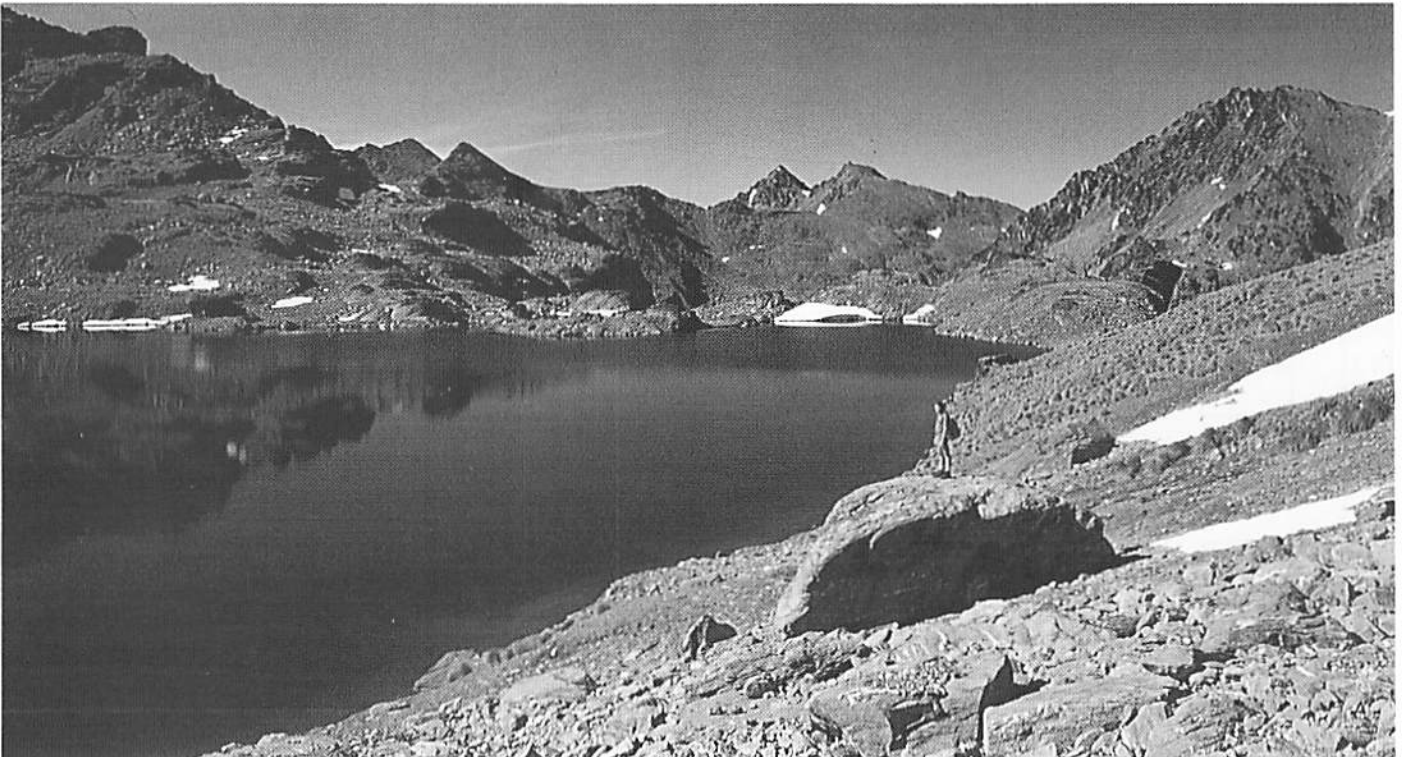
6.7 That in the interests of equality of recreational opportunity the area of the proposed national reserve and Hector Mountains Scenic Reserve be kept free of recreational aircraft landings, because:

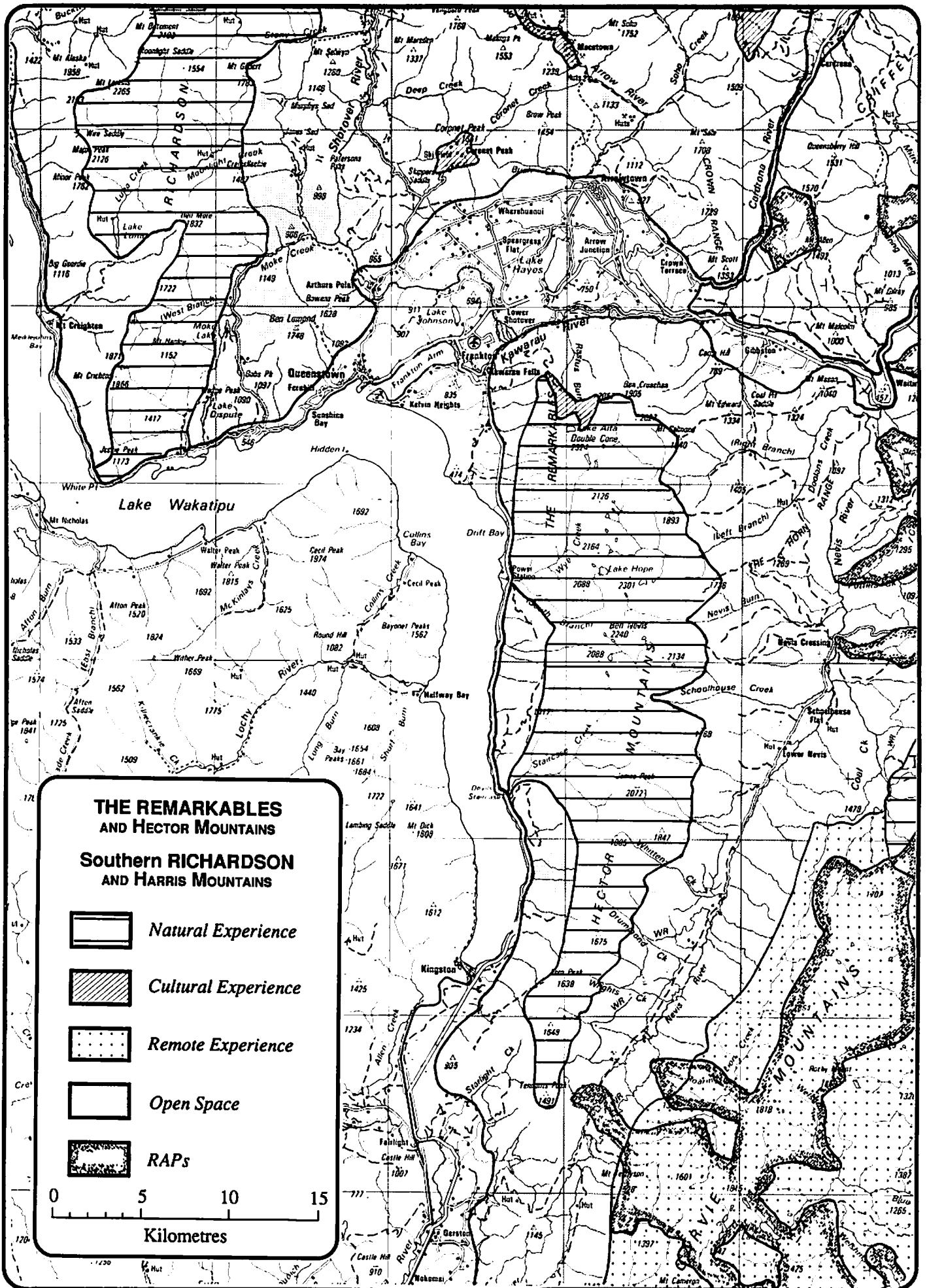
- there are now few, winter-accessible mountain areas in the Queenstown-Wanaka region that are free from helicopter intrusion;
- far better, and more extensive, areas are available for this activity elsewhere in the Lakes district;
- the Remarkables and Hectors are readily accessible on foot during winter;
- few alternatives exist elsewhere in Otago and Southland for accessible alpine ski touring.

6.8 That the Lake County Council amend its district scheme to prohibit further inappropriate uses within the 'open space' zone. For instance like the existing oil installation adjacent to State Highway 6, or forestry development along the Lake Wakatipu face of the Remarkables. The 'Rural L' (Landscape Protection) zone should be extended downslope to the state highway.

Lake Hope, Hector Mountains.

Photo: Bill Hislop





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RICHARDSON and Harris Mountains

1. Landforms

This large area of mountain country of over 230,000 ha lies between Lakes Wakatipu and Wanaka. It is bounded by the Matukituki Valley to the north, the Rees Valley to the north-west, Lake Wakatipu and the Arrow Basin to the west and south respectively, and the Cardrona Valley to the east.

Within such a large region there are several physiographic units —the Richardson Mountains as a rugged spine along the west, the large Shotover catchment, the Harris Mountains, Arrow catchment, and the officially unnamed 'Cardrona Range' between the Motatapu and Cardrona Valleys.

The Richardson Mountains rise from less than 1800 m in the south to 2500 m in the north. The major peaks are Mt Ferguson (2484 m), Centaur Peaks (2518 m), Lochnagar (2299 m) and Cleft Peak (2231 m). The Shotover-Matukituki divide falls in elevation eastwards from Mt Tyndall (2457 m) to the northern Harris Mountains at Craighoyston Peak (2213 m), Sharks Tooth (2094 m) and Fog Peak (2225 m). Permanent snow fields occupy the higher south- and east-facing slopes.

The Harris Mountains south of Black Peak (2283 m) are considerably less rugged than the Richardsons. Crest-heights range from 2073 m at Treble Cone in the north, to 1646 m at Coronet Peak in the south. The 'Cardrona Range' varies from 1600m to 1934 m.

The westward dip of these schist mountains is reflected by smooth, slabby western slopes and deeply dissected, precipitous eastern faces with rocky outcrops or escarpments.

Three major parallel faults traverse the Shotover catchment; the Moonlight, Shotover and Polnoon faults which are generally on a north-south axis. These faults, with their subsidiary fractures and associated crush-zones are responsible for much of the present topography.

The soft and friable schist bedrock is very easily eroded and may account for the relative scarcity of obvious glacial features. 'The Island' at the mouth of the Polnoon is one good example of ice-contoured terrain. Most of the moraines and other glacial features are relatively fresh in appearance because the last ice advance occurred only 18,000 years ago. Cirques commonly occur at higher altitudes with the best developed examples facing east.

Periglacial features are extensive. Areas of solifluction debris on wet south-facing slopes are characterised by a rippled, hummocky texture. These occur up to depths of 30 m as a result of a history of freeze and thaw action, with fracturing and slumping of the weak underlying schists.

There has been profound post-glacial erosion causing deep V-shaped valleys and alluvial terraces which are up to 60 m above present river levels. The lower Shotover and Moonlight Valleys show many classic examples not only of high-level terraces, but of 'valley-in-valley' forms.

Many of the lower valleys have lengthy gorges. The spectacular Shotover Canyon is nationally renowned for its scenic qualities. In contrast, many upper catchments are more open, often with wide, braided river flats. Vistas from these flats of distant

Mt Aurum from Aurum basin, Left Branch Skippers Creek.

Photo: Bob Entwistle



snowy peaks are in marked contrast to the confinement felt within the deeply dissected landforms that predominate throughout the region.

There are few lakes or tarns within these mountains. Lochnagar in the headwaters of the Shotover is a notable exception being a mountain lake dammed by a landslide. It is in an amphitheatre almost encircled by peaks rising 900-1200 m directly from its shores. Lakes Luna, Dispute and Moke in the southern Richardsons occupy smaller glaciated depressions.

2. Vegetation and Wildlife

2.1 Vegetation

The region has a semi-continental climate, but not as extreme as the drier areas of Central Otago. The area falls under the influence of the nor-wester, with diminishing rainfall towards the south-east. These ranges are very wet compared to the Central Otago mountains, receiving between 2500-8000 mm per year. This, and geology, has a major bearing on erosion rates (see also 3.6). There are large daily and seasonal temperature extremes and high sunshine hours. As 80 percent of the region is above 1000 m, much of the precipitation is snow during winter, although snowfalls can occur at any time of the year.

The vegetation is predominantly tussock grassland, but there are also considerable areas of sub-alpine shrubland, beech forest, and high-alpine vegetation. Mountain beech appears to be a relict of a much more extensive, possibly continuous forest cover under wetter climatic conditions. It is now largely confined to shady aspects and in gullies. The presence of widely scattered stands of silver beech is another indicator of relict status. Pre-European fires, burning of adjacent grasslands, and timber extraction for mining and domestic purposes has reduced forest to less than 2 percent of the region. Under grazing pressure from both feral and farm animals, the future of many of these forests is precarious.

Considerable areas in the upper reaches of the Shotover are subalpine shrubland. Steep, rocky ground, particularly towards the west, is favoured by *dracophyllum* species. Matagouri grows on river flats where there is adequate soil moisture. Shrubland areas are vulnerable to depletion by fire and grazing, and most have been modified by pastoral activity.

Manuka occupies extensive areas of the eastern part of the lower Shotover and in the Moonlight catchment. This species appears to be an invader from the Lake Wakatipu faces as a consequence of the depletion of low altitude hard tussock grasslands by burning. Since the introduction of blight there has been a considerable reduction in its extent.¹ In several localities beech forest is rapidly invading manuka when left undisturbed by fire.

Bracken fern grows as a dense low altitude belt along the Lake Wakatipu and lower Rees faces of the Richardsons, and along the Matukituki faces. It appears to have succeeded from forest destroyed by fires dating back to pre European times.

Alpine fellfield and shingle scree are extensive at higher altitudes in the Richardsons, in some places extending well downslope. These normally only support sparse vegetative cover. Alpine cushion communities are more localised. Tall tussock grassland dominated by the narrow-leaved snowgrass is the dominant vegetation above 900 m on sunny faces, or 600 m on shady faces, and may grow up to 1900 m on stable slopes. Sub-dominant species may include varying proportions of hard tussock, blue tussock, *dracophyllum* species and alpine herbs.

At lower altitudes pastoral activity has either partially destroyed or replaced tall tussock grassland with hard tussock or in places silver tussock. Exotic sward grasses such as browntop and sweet vernal have become dominant on many valley floors, terraces and sunny faces, as a result of the depletion of low altitude short tussock grassland.

Localised exotic forests are establishing themselves over sluiced tailings and hillsides at Skippers and over the Queenstown faces of Ben Lomond. European larch and Douglas fir are colonising short tussock grassland and shrublands, dramatically altering the landscape in these areas. Problem species are *Pinus contorta*, Corsican and Scots pines, larch, sycamore, and Douglas fir. In 1986 it was estimated that 1500 ha in the Queenstown-Lakes district was covered by wilding exotic trees, by far the largest infestation in the South Island high country.² The Department of Lands and Survey undertook eradication and containment programmes on Ben Lomond, Queenstown Hill, Closeburn, Bobs Peak, Coronet Peak, and Skippers. This is being continued by DOC. The ending of subsidised work schemes has severely limited control efforts. Substantial areas of exotics were planted in upper Skippers Creek during the 1970s, to assess whether such plantings would reduce the amount of river sediment. Despite Forest Service and MWD assurances at the time that these trees would be removed, they remain. Unless they are removed the trees will spread, severely affecting reserve areas and ultimately the Mount Aspiring National Park.

The area reviewed in this chapter encompasses the Shotover, Richardson, and part of the Wanaka districts of the Lakes Ecological Region.³

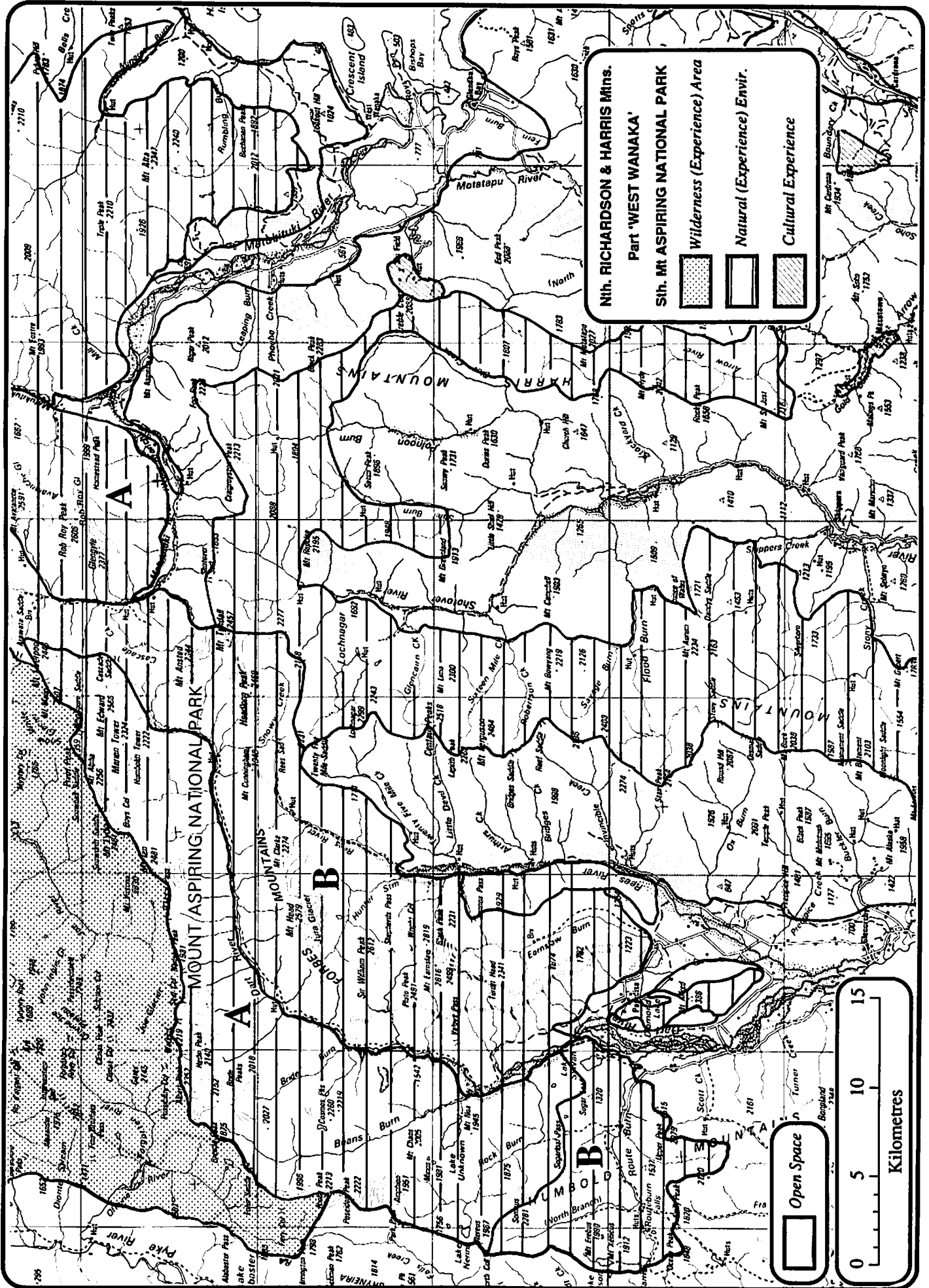
2.2 Wildlife

As a predominantly modified grassland habitat with few wetlands the region is relatively devoid of native birdlife. Small numbers of Paradise shelduck are to be found along river flats. The only rare species known to occur, consists of a pair of grebe on Lochnagar.⁴

Game birds, including chukar, are not present in sufficient numbers to be attractive to shooters. Due to high silt content, most rivers provide poor trout fishing.

Goats were introduced to the Shotover and Arrow by gold miners to provide meat and milk. Frequent escapes, a fast breeding rate and favourable terrain and climate led to a rapid increase in feral populations. Control operations began in the 1920s and are continuing. There are low numbers overall but localised higher populations still persist. The Forest Service considered total extermination to be impossible, even when combined helicopter and foot hunting is used. In view of their explosive reproductive potential it is highly desirable that these animals are confined to the Richardson and Harris Mountains.

Deer moved into the region from the north during the early 1930s, with their population peaking in the mid 1960s. Red and fallow deer only reached high numbers locally and were rapidly reduced by helicopter operations. Deer are now scattered in very low numbers over the greater portion of the region. Low populations of fallow deer are present throughout the Richardsons, being derived from a liberation at Bob's Cove in 1904.⁵ Whitetail deer range from the Dart forests to the Rees Valley flanks of the Richardsons, but are present in very low numbers.⁶ Chamois have colonised the region recently, generally being found above 1000 m. Up until 1982 they had not been seen south of Polnoon Creek in the Harris Mountains and have been controlled by foot and helicopter hunting.



Nth. RICHARDSON & HARRIS Mtns.
Part 'WEST WANAKA'
Sth. Mt ASPIRING NATIONAL PARK

Wilderness (Experience) Area
 Natural (Experience) Envir.
 Cultural Experience

Open Space

0 5 10 15

Kilometres

Possums are scattered throughout the region in moderate numbers with their range known to extend up to 1300 m during summer for browsing of sub-alpine vegetation. Hares are found in moderate numbers from river flats up to 2000 m in all seasons. The habitat generally favours hares rather than rabbits which are largely confined to terraces and lower hill slopes. Although their numbers were in plague proportions in the 1880s, even up to high altitudes, rabbits are now more confined to scattered pockets of moderate density.



Skippers—sluiced terraces and the Shotover River from Maori Point Saddle.

3. History and Land Use

3.1 Goldfields

Despite an extensive survey of the Shotover catchment ⁷ no pre-European archaeological sites have been located. It is unlikely that this high mountainous area was particularly attractive for Maori visitation.

Although first runholder William Rees' sheep run extended into the Shotover, it was not grazed. Nor were most of the Richardson and Harris Mountains for several years after the first European settlement in the Lakes region. As a direct result of gold discoveries in 1862, in both the Arrow and Shotover, Rees' lease over his 40,000 ha run was cancelled. Pastoralism was therefore a late starter in the region in comparison to adjacent mountain ranges.

A westward quest for new goldfields characterised Otago's provincial affairs after Gabriel Reed's 1861 Tuapeka discovery. Two major gold discoveries in the Wakatipu region resulted in the area being over-run by diggers. In October 1862 it was widely rumoured that a miner named Fox had found a goldfield in some remote and unknown region, surpassing in richness all previous finds. A small number of parties under Fox's enforced 'commissionership' successfully concealed the site of their mining for over a month, securing for themselves incredible riches. Of three parties, one obtained 480 oz of gold in two weeks, another 984 oz, and the third 1320 oz in four weeks, of which 109 oz was cradled in one day! ⁸

'Hunting the Fox' became a provincial obsession. Ultimately the secret lair was discovered in the lower Arrow gorge. The ensuing rush saw the Arrow and its tributaries thoroughly prospected. However Arrow returns were quickly surpassed by an

even richer find a few km westward. In November 1862 Thomas Arthur and a companion obtained 200 oz of gold in eight days work at the mouth of the Shotover canyon. Unlike Fox, Arthur made no attempt to conceal his discovery, and when the facts were known a tremendous rush saw thousands of men pour into the precipitous Shotover country in search of riches. The most famous Shotover discovery was on the river beaches at Maori Point where two Maoris found one of the richest claims in New Zealand, winning 300 oz in one day. By the end of 1862 the valleys, ravines and river beds of the Lakes district were alive with restless humanity, whereas only a few months previously the area had been largely unknown except to a few shepherds and their wandering flocks.

Soon the river claims became exhausted and the mining population declined dramatically. Gold-bearing quartz reefs in the Shotover and Arrow had been found as early as 1863, but they were not developed while alluvial mining remained payable. From the late 1860s to the 1920s large scale hydraulic sluicing operations took place on many high-level terraces, creating striking new landscapes. River gravels were re-worked by hydraulic elevator, and, in the case of the Shotover, also by dredge. These mechanical monsters were in their heyday in the 1890s with the last traditional dredge operating in the 1930s. A number of ambitious river diversions were devised by means of massive channels and tunnels. There was no shortage of entrepreneurial zeal which was more often than not rewarded by failure.

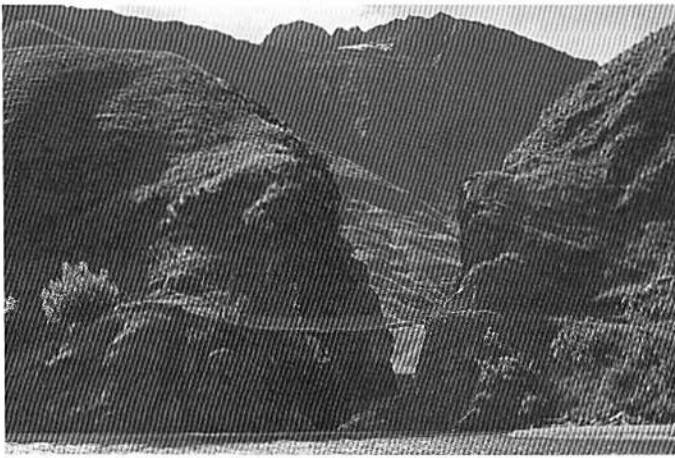
The Shotover and Arrow continue to yield gold, with considerable lengths of the Shotover and its tributaries being reworked by modern dredges/pontoons (see also 3.5). Evidence of past alluvial mining can be found today in most of the lower Shotover, Arrow and Motatapu catchments. Hundreds of km of water race traverse rugged hillsides, and massive sluiced terrace faces, early pack tracks, and sites of former settlements (now marked by poplars and stone walls) remain.

It was the quartz mining ventures, however, which left the most mechanical relics. Reefs were opened up in the mid-1870s, with the largest mines operating intermittently at Bullendale and Macetown over a span of fifty years. The difficulty of transporting heavy crushing machinery into such remote, rugged country has also discouraged its removal. Generally the impact of underground mining on the landscape has been very localised in comparison with that of the extensive sluicing operations.

Modern gold mining plant in Skippers Creek.

Photo: Ewan Paterson





16 Mile Gorge stock bridge —Shotover River. Mt Lima rear. Bob Entwistle

3.2 Pastoralism

After the first wave of miners had departed, available land was taken up by runholders from 1867 onwards. Many of the original holdings were too small or lacked sufficient winter grazing to be run as separate units, leading to later amalgamations. Most present-day properties consist of two or more of the original runs.

Sheep flocks built up rapidly to a peak in the mid 1870s. A severe winter in 1878, when snow blanketed the whole district, resulted in very high sheep losses. By 1880 rabbits had reached the upper Shotover, reducing stock carrying capacity by almost half. This factor and poor wool prices tended to keep sheep numbers low until 1905, with a steady improvement until the 1930s, when numbers again declined through to the late 1940s. A shortage of labour and increases in goat and rabbit numbers during the war years was responsible.^{9,11}

Effective wild animal control and rising wool prices saw increasing sheep numbers into the 1960s. Then came a trend of replacing sheep with cattle. The net effect of this change has been to shift grazing pressure to the lower altitude country and valley floors, reducing pressure on fragile high altitude lands.

3.3 Tenure

Most of the area is held under pastoral lease and special lease, with the balance being UCL, reserve and freehold.

Within the pastoral lease lands substantial areas of the Richardson Range, between Lake Luna and the Buckler Burn, have been retired from grazing under soil and water conservation plans. Similarly the Twelve Mile Creek face of Mt Crichton, Mt Cardrona and Middle Peak above the Cardrona Valley.

Ben Lomond Station is under special lease for pastoral and tourism purposes, although the latter activities have not been undertaken for many years. Treble Cone skifield is also on special lease. Another special lease, containing rights of public foot use, has recently been issued over a large area of the Shotover headwaters, onto the Matukituki divide. This is in place of an expired pastoral occupation licence (POL). Between Mt Motatapu and Treble Cone is UCL as are the headwaters of the Polnoon. The latter area was initially considered for inclusion in the Mount Aspiring National Park but being an area isolated from the rest of the proposed park remained as UCL.

Three types of reserves occur in the region: recreation, scenic and historic. Most of Mt Aurum Station is now recreation reserve,

with the balance being incorporated into the Branches pastoral lease. A substantial area on the south-east face of Mt Cardrona is the only high altitude land within the region which is freehold.

There is an almost continuous strip of recreation reserves along the shoreline of Lake Wakatipu between Glenorchy and Queenstown, comprising some 2000 ha. These reserves extend above and below the Queenstown-Glenorchy Road and include heavy bracken, remnant beech and regenerating broadleaf forest. Rationalisation of boundaries with pastoral lease has consolidated the reserve largely between the road and lake shore. These shoreline reserves have potential for a variety of active and passive recreation activities.

Two thousand eight hundred ha of the Twelve Mile Creek catchment containing a large remnant of beech forest and alpine grasslands, being formerly within pastoral lease, has been agreed for addition to the Lake Wakatipu reserves complex, with the intention of scenic reserve classification.¹² A Crown land strip encircles the shores of Moke Lake. Along with further areas acquired from leasehold, this is intended as a future recreation reserve. A recreation reserve encircles the smaller, nearby Lake Kirkpatrick.

A substantial recreation reserve runs up the tussock covered south face of Coronet Peak, with the Mount Cook Group leasing the upper half for skifield purposes and the whole 600 ha reserve licensed for grazing. The vegetation and landscape in this reserve has been severely modified by ski trail construction and slope grooming. A 470 ha scenic reserve of long standing on the Queenstown face of Ben Lomond includes beech forest, shrubland, tussock grassland, self-sown pines and fir.

Historic reserves incorporated into the Otago Goldfields Park occur at Macetown and at the Invincible Mine above the lower Rees Valley. The 145 ha Macetown Historic Reserve includes the former town site and two quartz-crushing batteries in the Rich Burn. Another two small historic reserves include the former Invincible Mining Company's mine and gold concentrating sites in the Rees. A small recreation reserve at the Oxenbridge Tunnel in the lower Shotover is also managed as part of the goldfields park.

3.4 Land Use Capability

Land use capability within the region is predominantly Class 8 and 7. These lands are unsuitable, or have severe limitations for grazing. The only areas well suited for grazing (Class 6) are on valley floors and along lake or lower valley flanks. This is only 18 percent of the region.¹³

The Otago Catchment Board (OCB) has recommended that most of the Richardson and Harris Mountains, and the Shotover catchment, be managed for watershed protection with grazing as a secondary use confined to minor, more stable areas. On high altitude valley floors restricted cattle grazing is seen as the only safe long term use.¹⁴

3.5 Present and Potential Land Use

The predominant land use is extensive grazing of native grasslands. The catchment authority sees potential to double the area of developed hill pasture to approximately 10 percent of the total region, within the limitations of farm economics.¹⁵

In view of the importance of the Shotover catchment to water quality for the Clutha, the OCB advocates watershed protection for the entire catchment, involving extensive retirement from grazing, and only limited grazing on the more stable slopes and

valley floors. Improvement in the vigour of the tall tussock grasslands of the Harris and 'Mt Cardrona' ranges, to obtain greater summer water yields for irrigation in the Arrow Basin and Cardrona Valley, is a fundamental objective.¹⁶

Production forestry potential within the Shotover catchment was investigated by the Forest Service which considered it to be technically possible but undesirable. To justify the high development costs, commercial forestry is considered realistic only on a relatively large scale (5-10,000 ha).¹⁷ On the lower slopes of Coronet Peak a consortium of local authorities is establishing plantations of Oregon and Douglas fir. Their potential for spread throughout the adjacent tussock grasslands is high.

Gold or scheelite mining continues in the Shotover, Arrow, and Buckler Burn near Glenorchy. Numerous mineral rights are held over extensive areas of mountain side and riverbed. Alluvial gold is being won by using temporary river diversions, mobile screens and excavating machinery. The visual impact of alluvial mining is minor when confined to riverbeds which experience regular floods. As gold is widespread the Mines Division insists that the whole area must be kept open for mining interests "at all levels."¹⁸ However, the potential impact of unrestrained mining, both on-site and through the construction of access roading in rugged terrain, could be severe on water, soil, landscape, historical and recreational values.

Head of Shiel Burn, Upper Shotover.

Photo: Bob Entwistle



3.6 Shotover Sediment

The Shotover has long been known as a major source of sediment in the Clutha system. In 1980 the OCB quantified the average annual deposition in Lake Roxburgh at 1.8 million tonnes, of which the largest source (1.08 million tonnes) was the Shotover.¹⁹ Lake Dunstan will provide a new sediment trap for the Shotover River.

The sediment source is the schist bedrock which is readily eroded by frost and water action. The MWD identified the primary sediment production from river reworking of bedload, erosion of river banks, and the toes of generally deep-seated slips.²⁰ The steeply inclined bedrock provides an ideal slip-plane for the overlying solifluction debris and soil, or for slabs of the rock itself.

Below the alpine zone, the overall vegetative cover in the region is reasonably intact, with slight to moderate exposure of bare ground and only localised pockets of severe erosion.²¹ Density of vegetative cover compares favourably with that of the Central Otago block mountains. While acknowledging that a complete grasslands and shrublands cover is desirable for soil and water conservation it cannot be claimed, as has been suggested from time to time, that large-scale exotic afforestation would have any significant effect on sediment loads. Rather, localised vegetative treatment where practicable, river-bank stability works, and limitations on future mining detritus in waterways should have the greatest effect. The systematic excavation and processing of bedrock by present day gold mining ventures in the Shotover riverbed was not considered in the 1975 Shotover Sediment Sources Survey. The report concluded that the combined effect of all practicable preventative measures would be only a 30-35 percent reduction in river-borne sediment, stating that the sediment load "is due predominantly to high rates of geological erosion" rather than human induced causes.²²

Localised treatment, if sensitively planned and executed, should have only a limited impact on recreational and scenic values. In marked contrast however, construction of debris dams on the Shotover would have only a limited life and would destroy one of New Zealand's top ranking wild rivers. The MWD investigated dam sites at the Sixteen Mile Gorge and Saddle Creek Flat in the upper Shotover, at Branches Flat, and at Tucker and Big Beaches in the lower reaches. The Branches site would have 62 percent of the catchment's sediment sources upstream and an expected life of 300 years, whereas the dams downstream from Arthurs Point would have all sediment sources upstream but have individual lives of only 40 to 50 years.

The impact on recreational and landscape values would be extreme if the lower river dams were built. At best the white water as far back as the Moke Creek confluence would be destroyed and at worst the entire canyon below Deep Creek.

3.7 Shotover-Mt Aurum Management Plan ²³

In 1977 the Department of Lands and Survey purchased the pastoral lessee's interest in the 12,600 ha Mt Aurum Station for "the primary objective of soil conservation and water management," following the 1975 MWD sediment sources survey.

The station was destocked, however over 2000 ha was placed under POL and later incorporated into the adjacent Branches pastoral lease.

In 1982 a management plan was published for the Crown land in the total Shotover catchment. While acknowledging that the Skippers and Stony Creek catchments are among the largest

contributors of sediment to the Shotover, the report concluded that "this erosion is basically a natural geological phenomena which cannot be prevented by present methods of control." Greater stock and wild animal control were considered the most effective means of improving soil and water condition.

Provided these concerns were satisfied, the report advocated integration of historic site preservation, landscape aesthetics, recreation, pastoral use and mining on Mt Aurum. The report recommended a substantial reserve for the management of recreational use and historic site protection, consistent with soil and water values. This was implemented with the 9100 ha Mt Aurum Recreation Reserve being approved in 1985. It is the first major public reservation in the heart of the high country within this region.

In 1985 a draft management plan for the reserve was released.²⁴ This discussed the appropriate classification for the reserve and opted for a 'recreation' classification overall until such time as there was a suitable delineation between 'scenic' over the greater reserve area, and 'recreation' on the relatively high-use Skippers terraces. However such a course is inconsistent with the resource information contained in the plan which sees the reserve as encompassing "one of New Zealand's more notable landscapes which merits protection and sensitive management." A diversity of recreational opportunities were identified in the plan however it was acknowledged that the "retention of historic and scenic values is fundamental to recreational enjoyment..."

Concerted local opposition to a 'scenic' classification has seen both DOC and the Otago National Parks and Reserves Board reverse their earlier support for 'scenic' classification. The primary case advanced by opponents of a scenic reserve is that this would inhibit or prevent recreational use. This is a spurious argument as Section 19 of the Reserves Act 1977 (which defines scenic reserves) would allow the continuation of the range of recreational activities currently enjoyed in the area. Recreation reserve status does not give adequate protection to the natural values that most visitors appreciate. In contrast, recreation reserves (S.17) give primary importance to sporting activities and facilities, with biological and landscape values secondary. This designation is more befitting a race course or sports ground than "one of New Zealand's more notable landscapes." Experience within scenic reserves throughout the country has clearly established that recreational use and historic site management can be harmoniously accommodated within a 'scenic' classification. In the view of FMC this should also apply to Mt Aurum, or alternatively a higher status of 'conservation park' in the future.

4. Recreational Opportunities

4.1 Recreational Opportunity Spectrum

The region provides settings for the most diverse range of outdoor recreational activities in Otago, even when considering the existing national parks and reserves. A powerful combination of striking scenery, rich history, continental climate, and close proximity to major holiday centres provides a focus for year-round, at times intensive recreation. It is a resource of major significance, providing outlets for Otago and Southland residents as well as for other New Zealanders and overseas visitors.



Hells Gate, Skippers Road.

Photo: Mark Hanger

4.2 Historical Attractions

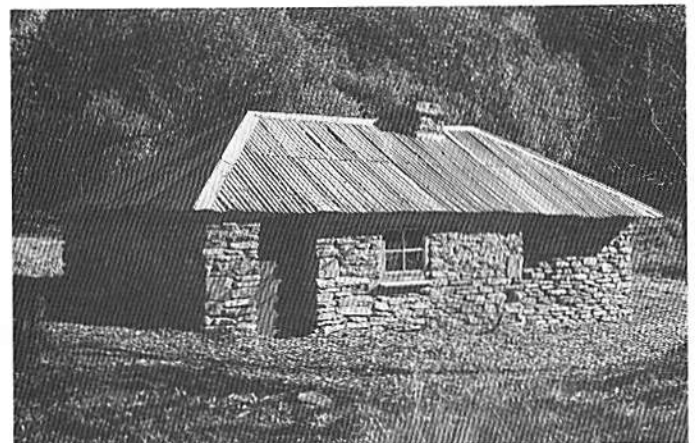
This is an historic goldfields resource without parallel in Otago, for its large scale and the existence of so many relics. Goldfields sites are centred on the lower Shotover and Arrow catchments, with lesser areas in the Motatapu and Rees Valleys. Although intensive mining took place in the Cardrona Valley, its impact was almost entirely confined to the valley floor with little effect on the mountainous regions under discussion in this volume.

Historic sites fall within the categories of alluvial and quartz mining areas, settlements, and trails: both roads and pack tracks.

4.2.1 Roads. The Skippers and Macetown roads, which date from the 1880s, provide a unique recreational experience in themselves as well as the means of viewing many of the historic and scenic features within these valleys. The roads are notable for being single lane with easy grades, being designed for horse and buggy rather than the motor-vehicle. This necessitated large cuttings across rock faces, with substantial supporting rock walls.

The position of the Skippers Road, up to 150 m above the Shotover River, provides spectacular views of river canyon, steep dissected faces and massive terrace sluicings. The Skippers suspension bridge gives access across vertical canyon walls to the Mt Aurum Reserve. This bridge was completed in 1901, but unfortunately for the quartz mining interests who pressed for its

Restored Needhams Cottage, Macetown.





Macetown 1897.

Photo: Lakes District Centennial Museum

construction, it was too late to be of great benefit. An even narrower road continues up valley from Skippers as far as the Branches Flats.

The Macetown Road traverses the Arrow Gorge for 15 km to the town site of Macetown. Twenty two fords restrict vehicle use to 4WD and trail bike. The road is also very popular for walkers.

4.2.2 Pack Horse Tracks. These were quickly established to the newly discovered goldfields. Traces are still to be found between the Arrow and Shotover goldfields. Despite slips and lack of use, in some cases for over 100 years, they provide natural walkways through difficult terrain. The major through tracks are the Skippers Track (1863), Big Hill track to Macetown (1864), Roses Saddle-Motatapu, Arthurs Point-Moke Creek-Ben Lomond, and Moonlight-Lake Luna. Other pack and dray tracks lead to individual mines such as Bullendale, up Skippers Creek, and the Advance Peak sledge formation. Numerous other mines had their own horse or dray access and tramway formations.

4.2.3 Town Sites. The former town sites of Macetown and Skippers Point are major attractions. Whereas at the time of first settlement these sites were bleak and treeless, they are now studded with larch, poplar, sycamore, spruce and fir, providing pleasant park-like settings for present day visitors.

Few complete buildings remain. However stone walls, headstones and building ruins provide sufficient evidence for historical appreciation. On-site interpretation by means of a guide book ²⁵ provides a stimulating insight into the isolation and hardships at Macetown during its heyday in the 1890s. Expansion of interpretation and site preservation activity in the Otago Goldfields Park is providing a relatively easy means of maintaining and utilising this historic resource for public benefit.

There are numerous stone-walled miners' cottages scattered throughout these goldfields, many in isolated and unexpected places. These all add greatly to the charm and character of the region.

4.2.4 Alluvial Workings. Huge sluiced faces remain as stark reminders of the era of company mining spanning from the 1870s to the 1950s. The immense scale of these operations was responsible for the deposition of tailings into river beds, to the extent that the first Skippers Bridge had to be abandoned due to frequent flooding. Major sludge channels or tail-races and tunnels often had to be constructed for the disposal of tailings from terraces. Many of these are still visible today. The largest sluicings are to be found at Moonlight No. 1 and 2, in the greater length of the Shotover Canyon, and to a lesser extent in the lower Arrow. The Shamrock Company's workings above the Arrow and the Moun-



The Mountain Terrace slucings, Skippers Creek.

tain Terrace workings above Skippers Creek are notable examples of high-altitude slucings conducted under difficult conditions. The lack of nearby water supplies obliged these companies to construct lengthy water races through very difficult terrain, using piped siphons, and metal fluming in one instance suspended from an overhanging rock-face. There are hundreds of km of long-abandoned water races traversing hillsides throughout this goldfield, often with three or more different levels of race on the same hill. They are a distinctive feature of the area.

Many ingenious schemes were devised to win riches from the Shotover and Arrow Rivers. These involved major river diversions by open cuts or tunnels through spurs, leaving sections of river bed 'dewatered' and accessible for mining. Many such ventures were defeated by floods, incorrect levels or simply a lack of gold. However such set-backs failed to prevent even more ambitious schemes from being attempted. Several river diversions remain as monuments to an enterprising era. These include Scoles Tunnel (1887) in the Arrow, Oxenbridge Tunnel (1907-10), New Channel (1864), Sandhills Cutting (1926-31), and the Polnoon Tunnel (1935-37) in the Shotover. The Sandhills Cutting was excavated by sluicing away over one million cubic m of detritus. Unfortunately for its constructors, the river could not be permanently diverted into the cutting. A 250 m tunnel still diverts the Polnoon into the lower Shiel Burn. The Oxenbridge's insides are inspected daily by the patrons of several rafting companies.

From the 1880s to the 1930s the Shotover Canyon saw sporadic gold dredging activity. Frequent and sudden floods, bedrock obstructions, and difficult access provided major operational problems. Only one relic dredge from the 'historic' era remains, that of the unsuccessful Maori Point suction dredge (1926-27) which is viewed by rafters and canoeists in the canyon. A modern multi-million dollar dredge was swept away by a flood in 1988, providing an obstacle for rafters. This was salvaged and is now operational again.

4.2.5 Quartz Mines. With increasing depletion of easily-won alluvial gold, attention turned to the reefs in the late 1860s to mid 1870s. Prospecting was encouraged by the Otago Provincial Government offering £1000 bounties for the discovery of payable reefs.

Skippers and Macetown were two of the major quartz mining districts of Otago. However, despite substantial overseas investment in mine development none contributed more than a small proportion towards the total gold returns for the province. The continued existence of relics from this era provides a consider-

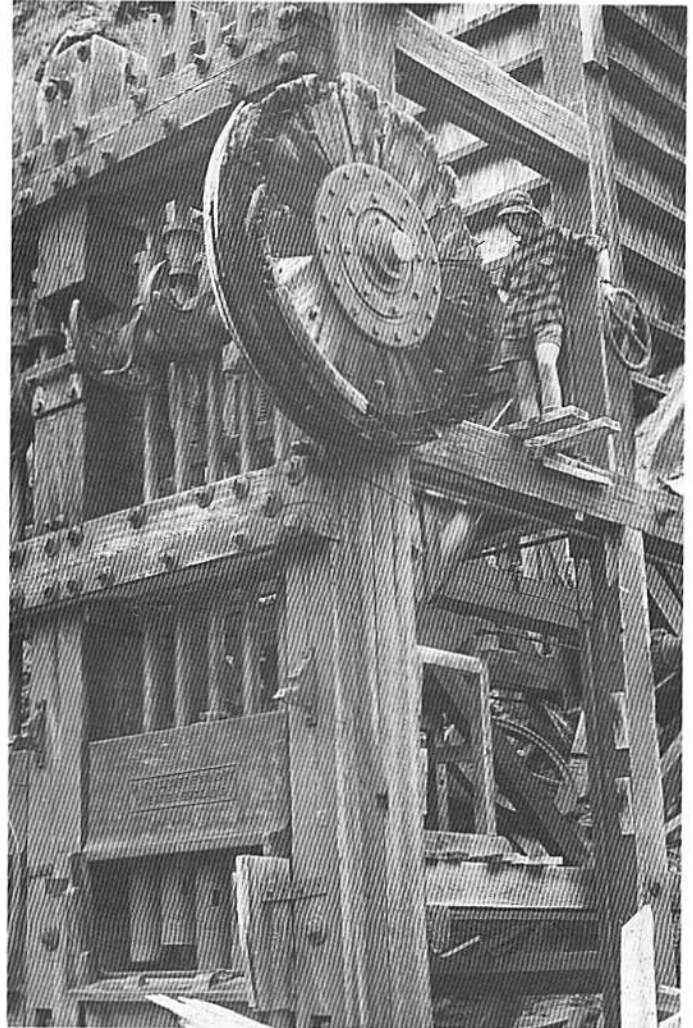
able recreational attraction, consisting of mine complexes, machinery and tramlines in many remote and rugged locations.

Under the shadow of Mt Aurum (2234 m), Bullendale saw intermittent activity over a period of 33 years commencing in 1868. Heavy crushing machinery was hauled to the site over fragmentary tracks, to be abandoned when the ventures finally failed. Much of this equipment can still be found, along with mine entrances, despite Bullendale become overgrown with scrub and beech forest. At its peak Bullendale boasted a population of 200 inhabitants.

In the left branch of Skippers Creek is the site of the first hydro-electric plant in New Zealand to be used for motive power. This was installed in 1886 to provide power to the Phoenix Company's 30-stamp battery at Bullendale. To commemorate the centennial of this nationally significant event, a partial reconstruction of the generating machinery was undertaken in 1986.

Battery remains at smaller mine sites are scattered over the Mt Aurum Reserve. These include five batteries which range from 2 to 10 stamps in size. Most of these are within a short walking distance of Skippers, yet are unknown to the vast majority of visitors. Their presence, along with an array of other historic sites on Mt Aurum, provides an unequalled opportunity for a site preservation and interpretation programme within a relatively compact area. This much neglected resource could become a major visitor attraction.

'Homeward Bound' battery, Macetown.



Within the Richburn catchment above Macetown is another cluster of mine complexes and associated machinery. The Premier and Tipperary Mines were the largest and most successful ventures in this area. A number of small companies operated over a period of forty years, with the last mine closing in 1914. Within the Richburn and even high on Advance peak (1737 m), mine entrances, batteries, mullock heaps, tram and sledge tracks, and aerial cableways are to be found. There are five batteries the largest of which, the Homeward Bound, is a massive structure.

The size and diversity of the Shotover and Arrow quartz mines provides an opportunity to manage them for a variety of recreational experiences. While one battery at Macetown is accessible by vehicle, and the largest is only thirty minutes walk from the road end, others are less accessible up steep hillsides or gullies. The former Lands and Survey Department's policy of not publicising the location of all such sites at Macetown deserves support, as it maintains a diversity of recreational opportunity for those wishing to be guided to some batteries, as well as for others who wish to 'discover' some sites for themselves. Visitation and awareness of the Macetown sites is currently higher than in the Shotover and is increasing as the features of the Macetown Historic Reserve become better known to the public. The visitation pattern may change if there is active management of the Mt Aurum Reserve. Its larger size will permit 'remote' historical experiences at some sites.

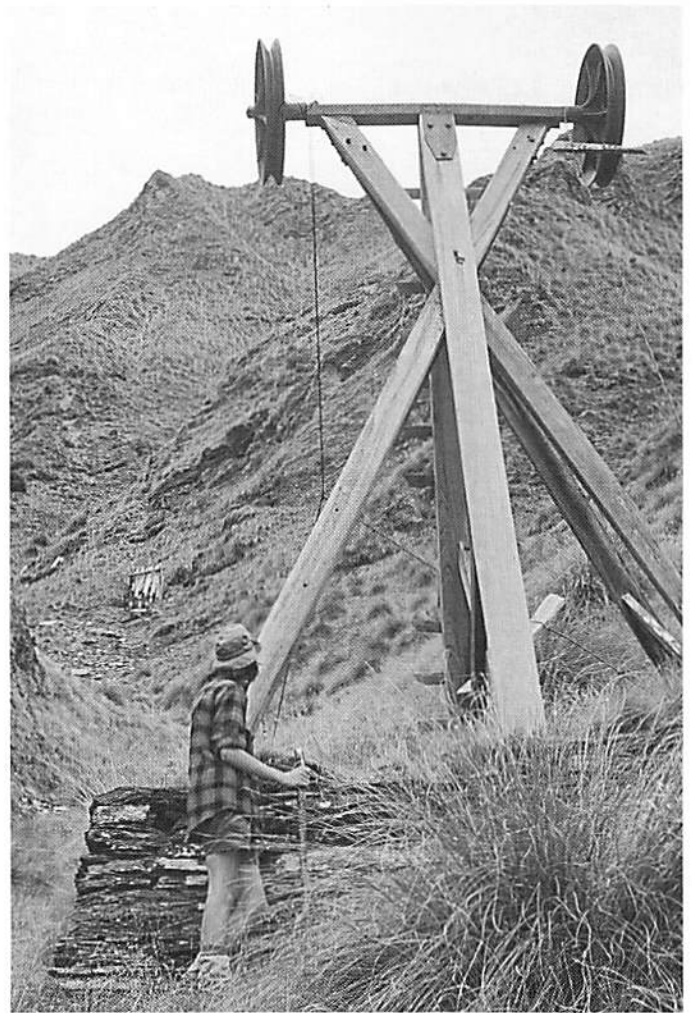
The Invincible Mine is an outlying complex in the lower Rees Valley. Dating from 1879 it is unusual for the technology employed at the time and also for the relic machinery remaining on-site. A pleasant climb through beech forest leads to the mine site at the bush line. The remains of a battery, water-wheel, and seven heavy iron 'berdans,' used for ore grinding and gold saving, are to be seen. Magnificent views of Mt Earnslaw and the upper Rees Valley peaks are an additional attraction. On the valley floor a 7.9 m diameter concrete 'buddle' remains from a successful process to win residual gold from the battery tailings. Both sites receive moderate visitation, this increasing since inclusion in the goldfields park.

4.2.6 Scheelite Mines. In the early 1860s gold was found in the Buckler Burn near Glenorchy, but difficulty was experienced in saving it due to an unidentified mineral filling the sluiceway riffles. This was later identified as scheelite (a tungsten mineral) and led to its mining in a belt between Mt Crichton and 25 Mile Creek in the Rees. A lode was discovered on the crest of Temple Peak (2091 m) which became the highest mining operation in New Zealand.

Mining activity has been intermittent and closely related to world prices. Most activity occurs during wars when scheelite is in demand for the hardening of steel. Small scale underground mining continues. Visitor interest tends to be local and does not have the same general appeal of abandoned gold mines, despite the presence of extensive physical evidence.

4.2.7 Historic Site Management. Within the Arrow and Shotover, the significance of historic goldfield sites has been recognised by the District Scheme and its extensive 'Rural H' (Historical) zones. The entire Shotover Canyon, Mt Aurum Reserve, upper Moonlight and Skippers Road are included in one large zone, while Macetown is protected by another zone over the Rich Burn catchment.²⁶

As already noted, historic reserves have been gazetted at the Invincible Mine and Macetown. The Mt Aurum Reserve provides the major opportunity in the region for historic goldfields protection and public presentation.



'Homeward Bound' aerial tram, Macetown.

4.3 Scenic Attractions

The striking landscape of the region is a major component of the total recreational experience. A notable example is the view of the Shotover Canyon from the Skippers Road. The scenery generally, coupled with a sense of history and a unique motoring experience provides wide appeal. The few larger lakes and their surroundings provide the other major attractions.

The main landscape characteristic which differentiates this region from Central Otago and the Southern Alps, is the ruggedness and diversity of forms in relation to the former, and a general absence of forest to obscure the stark line of rock, river and angular ridge. Compared to the rest of the Lakes district, there is a general absence of lakes, and an overall sense of confinement in deeply entrenched V-shaped valleys. Unlike the adjacent Wakatipu and Wanaka basins there are few vistas available outside of the immediate locality. As a scenic landscape it is in a distinct class of its own.

4.4 Picnicking, Camping, Gold Fossicking

Closely associated with roadends and vehicle access, intensive day-use activities occur during the summer holiday period. Skippers, dependent on road conditions, is steadily used by day visitors for picnicking, as is Macetown. The lower Arrow Gorge, Arthurs Point and Moke Lake areas at times receive intense use.

Despite 'Closed Fire Seasons' during summer, accidental fires in these peripheral areas are a constant cause for concern



DOC guided party in southern Richardson Mountains. Mt Crichton left.

Photo: Neill Simpson

with occasional outbreaks in the lower Arrow and at Skippers. The provision of safe facilities coupled with explanatory signposting, is the most likely means of fire prevention close to roads. Away from roads it appears that there are no substantiated cases of accidental fires caused by trampers in recent years. Miners, aircraft crashes and 'controlled' burn-offs have proved to be the greater causes of escaped fires.

Informal camping occurs along the Skippers Road, normally by arrangement with private land owners. At Skippers fluctuating numbers of holiday campers use the tree-sheltered Burkes Terrace; a major limiting factor is the scarce water supply and an absence of toilet facilities. These users, along with occasional longer-term campers, compete with day visitors for the limited sheltered areas most suitable for picnicking. The opportunity exists to separate campers from day visitors by providing basic facilities and tree shelter for campers in a separate area, for instance on the adjacent Londonderry Terrace.²⁷

Less intense camping pressure occurs at Macetown, but indiscriminate camp location can, at times, degrade the historical setting for the much larger number of visitors who have historical appreciation in mind.²⁸

Widespread fossicking of historic sites has occurred in the recent past, with many sites intensively turned over by bottle hunters despite official discouragement of this practice.

Fossicking for gold is a major attraction for many visitors. In the lower Arrow fossicking pressure is intense, fortunately it has little or no permanent impact on river or banks. Commercial prospecting and mining operations are an on-going source of

conflict with recreational miners. The granting of mining licences over extensive reaches of river bed has led, in some instances, to the exclusion of amateurs. Such conflicts in the past led the Lake County Council to apply for public mining licences over five areas near Queenstown, Arrowtown and Cardrona. This met an unfavourable response from the Mines Department. However there remains a need to recognise that recreational prospecting is a legitimate use of the Crown's minerals. The setting aside of readily accessible areas for public fossicking is a high priority in the Arrow-Queenstown district.

4.5 Off-Road Recreation

4.5.1 Walking. Within the environs of Queenstown and Arrowtown there are many walks available for the public to reach viewpoints, scenic and historic features. To a lesser extent, a number of walks are available near Wanaka. Large tracts of spectacular mountain country suitable for family walking, immediately adjacent to major holiday centres, must be regarded as a major recreational asset.

Even though most of the region is not park or reserve, a lengthy history of public use of the leasehold properties has evolved. Formal arrangements for accessways such as walkways have only been initiated in recent years. A network of short walkways has been established around Queenstown and in the lower Arrow. Only limited opportunities exist around Wanaka, largely confined to lake side walks. There is considerable scope for further walkways, both of short and overnight duration. Efforts should be made to retain an informal, low-key approach