



*Glaciated headwaters of Waikaia west branch, northern Garvies.  
Old Man Range rear.*

## GARVIE MOUNTAINS

### 1. Landforms

The Garvies in northern Southland, are at the south-western extent of Otago's range and basin topography. These mountains consist of a block range in the north and a dissected ridge system in the south, generally on a north east - south west axis. The Waikaia catchment drains from the eastern slopes, and the Nevis and Nokomai drain to the west. The north-south transition is abrupt, between tilted block and dissected high hills, and relates directly to the basement geology. The northern Garvies are formed from finely foliated schist, whereas the southern area consists of greywacke.

#### 1.1 Northern Garvies

In comparison to Central Otago's block mountains, the

northern Garvies exhibit greater relief due to glacial erosion. Several upper valleys have pronounced U-shaped cross sections with impressive cirques or headwalls at their source. Cirques and nivation hollows along the eastern crest of the range are often occupied by lakes and tarns. Glacial forms are most pronounced in the central lake basin system, which is an area of outstanding quality featuring a glacial landscape unique in New Zealand.

Spectacular rock buttresses and pinnacles outcrop on many steep upper faces, often as eastern outliers from the main range crest. Rocky Mount (1889 m) is a notable example and the highest point on the range. The Waikaia tributaries draining the cirques are deeply incised and often gorged at mid section, while the ridges between form a broad plateau. Snowdrifts persist year round below the eastern range crest which is between 1700 and 1860 m. The western unglaciated slopes are smooth and only lightly dissected, below which the block-faulted 'Nevis plateau' forms a distinctive tableland above the Nevis Valley.

Patterned ground abounds over higher non-glaciated crests and consists of hummocks, stripes and terraces. These are similar in extent to those found on the Old Man Range to the north. On the broad, rolling summit of Mt. Tennyson (1527 m) (southern extent of the 'Nevis plateau') earth stripes are the largest examples recorded in New Zealand.<sup>(1)</sup> Parallel corrugations run downslope, being approximately 0.3 m high and 1.2 m between crest centres. These produce the appearance of huge, roughly ploughed paddocks.

Blocky rock outcrops stud the ridge crests and can be weathered into strange and grotesque forms. Here and there shafts or pillars stand on skylines while on many of the most wind exposed ridges only bare erosion pavements are present. Generally, tors on the Garvies do not have the spectacular symmetry of those found on the ranges to the north.

The northern Garvies connect with the southern end of the Old Woman Range by a gentle saddle in the Wakaia-Nevis divide, creating a large contiguous upland with the greater Old Man Range.



Garvie Mountains from Campbells Gully, Old Man Range

## 1.2 Southern Garvies

South of Mt. Cameron (1612 m) the country drops to 1430-1000 m along crests, then falls sharply to the Matura and Dome Burn Valleys. The country is very dissected with intricate, steeply graded catchments off the leading ridges. This

greywacke landscape is very different from that of the northern Garvies. The southern Garvies are not considered in detail by this plan.

## 2. Vegetation and Wildlife

### 2.1 Vegetation

Red, silver and mountain beech occur in the Waikaia Valley between 250 and 910 m. Extensive forest areas on both sides of the Waikaia River account for most of the 10,580 ha Waikaia State Forest, with smaller patches of beech in the lower Gow Bum tributary.

The 'Big Fire' of 1882 burnt into the beech forest at the head of the Waikaia, depressing the bushline by as much as 460 m in this locality.<sup>(2)</sup> Subsequently, fire has been used to suppress regeneration, and as a result broom now occupies extensive areas upvalley of the forest. The lower extent of forest has been determined by direct clearing for farming, and by sawmilling.

Above bushline, short, hard tussock grasslands occur with localised pasture improvement at lower altitudes. Tussock has largely disappeared on Weaner Spur and in the vicinity of Bush Hut and the Titan Rocks, to be replaced by browntop, sweet vernal and oversown clover. The narrow-leaved snow grass dominates the extensive low-alpine zone. Red tussock is locally dominant.

High-alpine vegetation consists of the narrow-leaved snowgrass merging into the shorter slim snow grass, with remnants of the latter occurring up to 1800 m. The occurrence of isolated tussocks throughout many areas of high-altitude herbfield, suggests that the present plant communities have been induced from tussock grassland by the combined impacts of burning and grazing.<sup>(3)</sup> Probably because of wetter ground conditions and resultant quicker recovery from fires, and less dependence on Merinos, snow tussock grasslands on the Garvies appear less modified than on the Central Otago block mountains. However, there is a marked contrast in vegetation communities between the Waikaia faces and the drier Nevis flanks of the range. Relatively high stocking rates on the Nevis side, and burning, have combined with wind exposure and sunny aspect, to result in greater grassland depletion than in the Waikaia. Herbfields of *Celmisia* species with blue tussock now dominate on the west side above approximately 1430 m, with prostrate cushion plant species occupying the most exposed sites.

Much of the uplands and stream margins are covered with peat bogs, often dotted with small tarns. These, and snowbank communities in high, leeward depressions provide a diverse mosaic of texture and colour which is visually and botanically stimulating. These micro environments are susceptible to severe damage from stock trampling or vehicle use. Extensive string-bogs near Mt. Tennyson are of international importance.<sup>(4)</sup>

Due to lower altitude and drier conditions the vegetation of the southern Garvies has been extensively modified by burning and grazing. Beech species are widely distributed, but their extent has been drastically reduced to narrow riparian strips and isolated trees. Tussock grassland has been largely replaced at lower altitudes by pasture.

The northern Garvies are within the Old Man district of the Central Otago Ecological Region, whilst the southern Garvies and Waikaia State Forest are contained within the Nokomai and Umbrella districts of the Waikaia Ecological Region.

## 2.2 Wildlife

Numerous small terns and their environs, in particular on the southern 'Nevis plateau' and the northern Garvies, are of particular importance for wildlife. They provide nesting and feeding habitat for black-backed gull, paradise shelduck, grey duck, banded dotterel, and pied oystercatcher. Skylark, pipit, black shag, and spur-winged plover are also found throughout the Garvies. Keas occur in the high, craggy terrain of the range crest. The New Zealand falcon is known to breed throughout the area.

As an isolated, extensive and largely unmodified beech forest, the Waikaia State Forest has a high value as bird habitat. Brown teal have been recorded in the Waikaia Gorge. There are populations of South Island robin and yellow-crowned parakeet. This is also the eastern-most stronghold of the yellow head, however the Waikaia Bush population is in decline.<sup>(4)</sup> The lower altitude forest in particular, provides ideal habitat for most common insectivorous native birds. Long-tailed bats have also been reported in this area.<sup>(5)</sup>

The insectivorous birds require well developed forest-floor litter. Compaction and tracking by browsing animals and trail bikes must be restricted if high habitat values are to be maintained.

Liberations of red deer were made in the adjacent Pomahaka catchment in 1901-3 and on Argyle Station in 1919-20.<sup>(2)</sup> The Waikaia herd provided sport for local hunters for many years. Helicopter shooting and live capture has greatly reduced deer numbers. There are low to moderate numbers in the forest, and low numbers in the catchment overall.

Rabbits used to be in plague numbers, with 43,000 taken off Whitecombe Station one winter in the 1890's.<sup>(2)</sup> Hares are widely distributed throughout the alpine zone. They appear to be having a major browsing impact on snowgrass, speargrass and herbfield communities.

## 3. History and Land Use

### 3.1 R-e-history

The grassland-forest margin in the upper Waikaia Valley appears to have been favourable moa habitat. A 'Moa Cave' south of Mt. Cameron is recorded on a 1926 map and a substantial find of moa bones in the east branch of the Waikaia in 1981<sup>(2)</sup> indicates a former wide distribution.

In 1894 Augustus Hamilton discovered a moahunters' campsite near the Gorge Creek (now Blue Creek) tributary of the west branch of the Waikaia.<sup>(6)</sup> His guide informed him that this was one of several moahunter sites in the vicinity. In an unsuccessful attempt to relocate this discovery, another site exhibiting cooking areas, bones and polished stone flakes was discovered in 1980.<sup>(7)</sup>

Polynesians, in conjunction with climatic change, may have been responsible for substantial vegetative changes within the region. Forest dimpling above the present-day bushline, in the

absence of charred logs on the surface, suggests pre-historic fires. European forest fires are indicated by standing and fallen charred logs.

### 3.2 Pastoralism (8)

Earliest pastoral activity dates from 1860 to 1869 with the issuing of depasturing licences which were later transferred for leases. Today, two of the largest pastoral leases in Otago and Southland occupy the Garvie Mountains, with a common boundary along the crest. The 54,000 ha Glenaray Station is the result of the amalgamation of earlier runs.

Nokomai Station, formerly known as Glenfalloch, occupies the Nevis and Nokomai faces of the range. Early in its history this run extended over the range and into the headwaters of the Waikaia.

To successfully control stock movement within and between these runs, the employment of boundary keepers was required. At Jack Mac's, 'Fred's Lake' (now known as Blue Lake), and Gow's Lake, stone huts were built in the 1870's and occupied for a five month summer. It was the lonely keepers' task to keep sheep up on the higher country during these months. After the fall muster (late March) a keeper at the log Bush Huts would keep his sheep from drifting back up until a permanent snowline became established. The last keeper, Julian Jackson (alias Jack Mac) finally left his hut in 1921, after 23 years of duty. Another boundary keeper spent almost 25 years based from the Old Blue Lake and Bush Huts.

In 1918 a Glenaray-'Glenfalloch' boundary fence was completed along the crest of the Garvies, although successive winter snows destroyed this. Only the segment south of Mt. Cameron is still maintained. The remainder lies derelict along the range crest.

Pastoral use of the high country on Glenaray Station has declined substantially in recent years, particularly since large-scale pasture improvement downvalley from the State Forest has permitted year-round grazing of breeding ewes. However, localised pasture improvement and sub-divisional fencing has occurred above bushline in the Waikaia. Glenaray still grazes approximately 14,000 wethers over its high country during three months of summer.<sup>(9)</sup> Because of footrot problems arising from the large areas of bog and wet ground, the country has been unsuitable for Merino sheep. The flock is generally maintained as Romney Merino cross.

In 1985 a revised run plan for Glenaray was approved. This sets a 33 year stock limitation over 23,200 ha of high country. Sheep only are permitted, but at a greater level than is currently grazed. 'Off-site development' includes oversowing and topdressing of the lower Weaner and Bush Hut blocks. Cattle trespass into the headwaters of the East Waikaia occurs from adjacent runs on the Old Man Range.

Stock numbers on Nokomai's 'Nevis plateau' and Garvies face appear relatively high, with sheep drifting across the range into Glenaray.

The combination of burning and grazing has had a major impact on the composition of native plant communities. Burning and localised heavy stocking throughout the high country is continuing to have severe impacts on natural values.<sup>(10)</sup> (See Section 3.11).

### 3.3 Sawmilling (11)

The Waikaia beech forests provided a convenient local timber supply. In the mid-1870's two sawmills were established in the district to meet local needs - both goldfields and farming. Bullocks were used to haul logs out of the bush; some time after 1905 a small steam-powered mill was built at Piano Flat (originally known as 'Piano Harry's Flat' after a digger H. Selig.<sup>(2)</sup>)

### 3.4 Goldmining

Goldfields were discovered and mined in the Nevis, Nokomai, the lower Waikaia Valleys at Switzers, and in the east branch. The Garston to Nevis Road, an early goldminers' route, traverses the edge of the Garvie's massif. The Waikaia Bush Road was constructed in 1886-87, along an established goldminers' route, to permit timber extraction but the grades were found to be too steep for horse traffic. It is now a 4WD road over the Old Man Range to Roxburgh.

There has been little direct impact from mining on the Garvies, other than the extraction of timber from the Waikaia forest and the occasional water race.

### 3.5 Land Use Capability

Above approximately 900 m the northern Garvies and their Nevis and upper Waikaia flanks are predominantly Class 7, with severe limitations for pastoral use. Class 8 generally occurs on steeper slopes above 1400 m. At the head of the Waikaia Bush, there is approximately 1400 ha of Class 6.<sup>(12)</sup> 1350 ha has been oversown and topdressed in this locality, and there are proposals to oversow and topdress a further 2000+ ha with a corresponding 50 per cent increase in stock numbers.<sup>(13)</sup> For this to be achieved would require the development of at least 1500 ha of class 7 land, with moderate to severe erosion risk. Such development appears very questionable on soil conservation and economic grounds. An additional concern arising from eventual loss of tussock cover, is contribution to accelerated run-off. Flash floods are common, with the Waikaia contributing significantly to flooding of the Maitai River.<sup>(14)</sup>

The Southland Catchment Board considers that the extensive Class 7 plateau in the Waikaia catchment can sustain some short term grazing by sheep, but attaches a high value to these lands for watershed protection.<sup>(15)</sup>

The southern Garvies have a narrow zone of Classes 7 and 8 along their crest, with Class 6 predominating below 900 m. This extensive tract of developable hill country lies downvalley and south-west of Piano Flat, and includes substantial areas of the Dome Bum and Nokomai Valleys.

Approximately 50 tonne of moss was extracted in 1980 from Whitecombe Station at the head of the Waikaia bush for export. Orders for a further 300 tonne per annum were obtained,<sup>(13)</sup> however extraction has apparently ceased.

### 3.6 District Scheme Zoning

South of Rocky Mount the whole area is within Southland County. Class 8 land, as defined by the Ministry of Works and Development,<sup>(12)</sup> is zoned Rural B (Water and Soil Conservation) in the district scheme.<sup>(16)</sup> Retirement from grazing, pastoral farming in accordance with an approved run plan, reserves and recreation are predominant uses within this zone, whilst farming and tourist facilities are conditional uses.

The remainder of the Garvies is zoned Rural A with 'farming of any kind' and commercial forestry as predominant uses, and all other non-conforming rural industries as conditional uses. The Southland Council's rationale for permitting forestry over Class 7 lands is to ensure that more productive land within the County is not 'locked up' by forestry.

The northernmost end of the Garvies is within Vincent County's general Rural 1 zone which permits forestry as a conditional use. However the County Council 'is conscious of the value of the landscape qualities of the countryside as an asset for recreation and tourism'.<sup>(17)</sup>

### 3.7 Land Tenure

Between the Old Woman Range in the north and the Maitai Gorge in the south, the area is predominantly occupied under pastoral lease. There are three such leases, with Nokomai and Glenaray Stations being among the largest in the South Island. Since 1976 over 6,800 ha of Pastoral Land has been reclassified as Farm Land on the lower Waikaia flanks of the southern Garvies. This is currently being freeholded under deferred payment licences. A 44 ha domain (recreation reserve) at Piano Flat in the Waikaia Valley is vested in the control of the Southland County Council.

The 10,580 ha Waikaia State Forest occupies the mid Waikaia Valley and parts of some western tributaries. Since 1978 it has been an Open Indigenous Forest, and available for hunting on foot only. The forest is now vested in the Department of Conservation as Stewardship Land.

### 3.8 State Forest Management

The character of the recently disbanded forests administration has been well displayed in the Waikaia Valley. Despite the Forest Service stating in 1978 that the Waikaia State Forest has no productive role,<sup>(18)</sup> in 1982 the Service concluded that in addition to the primary roles of protection and recreation the forest also possesses a potential for timber production, on a limited scale, from areas that do not conflict with the primary values.<sup>(19)</sup> It was proposed to 'virtually clearfell' approximately 800 ha of red beech within a 'Long Term Indigenous Production' zone, describing the individual areas of treatment as 'very small, in keeping with the scale of the market (speciality timbers for local industry) and the limited area suitable for production'. However, the only existing timber demand is for split posts 'but no effort is made to encourage this'.<sup>(19)</sup> Up to 300 cubic metres/annum for posts and strainers has been removed in recent times from scattered 'decadent' red beech trees.<sup>(20)</sup> In the service's 1983 Mountain Forests Regional Management Plan Preview<sup>(20)</sup>, timber extraction within the Waikaia forest was proposed 'by the tree' or on a group selection basis with the objective of encouraging uses which put the intrinsic qualities of the wood to best advantage.<sup>(19)</sup>

It was proposed to zone the immediate environs and upstream from Piano Flat 'intensive recreation', with the greater area of the forest 'amenity recreation' to protect the scenic backdrop as viewed from Piano Flat, or 'protection' to reflect the primary uses of the forest.<sup>(19)</sup>

The current designation as Stewardship Area provides minimal legal protection of the forest from mining, or from disposal or lease.

### 3.9 Roading

The Waikaia Bush Road, dating from the 1860's, traverses the State Forest and climbs over the Old Man Range before descending to Roxburgh. During the 1960's the section through the forest was upgraded for 4WD use to assist the working of the two pastoral leases at the head of the Waikaia Valley. The road was metalled only for the first 2 km from Piano Flat, with the remaining 8 km through the forest being a clay surface. This provided difficulties for all weather access by heavy vehicles associated with farm development.

To further assist farm development, in 1985 the Southland County Council upgraded the first 10 km of road to all weather standard, to reduce farm development costs on the two properties. The Council acknowledged, however, that farm development programmes would probably continue whether or not the road was upgraded.<sup>(13)</sup>

The Council's actions have compounded a serious nature conservation and public safety problem, as beyond the upgraded road through the State Forest there are no natural barriers in the tussock grasslands that can be utilised to stop vehicles from reaching the fragile and hazardous country at higher elevations. The Southland County Council shares the concern of the adjoining Tuapeka County that vehicles may become snow-bound during winter on the Old Man Range. However the safety and nature conservation problem is year-round, which the present controls do not address. (See also 4.2, and *Old Man Range 4.4 / 4.5 / 6.4 - 4.4*).

### 3.10 Hydra-electric Development <sup>(14)</sup>

Three possible hydro-electric sites have been investigated in the Waikaia Valley, two in the Mataura Gorge, and one in the Nokomai.

The Waikaia schemes involve a 100 m high dam in the middle reaches of the State Forest which would inundate 5 km of forested gorge. An adjacent scheme utilising head from Welshmans Creek, would tunnel through to a power house in the Waikaia Gorge. A third scheme utilising head in the east and west branches of the Waikaia, has been designated as one of five schemes that are most likely to be developed in the near future within Southland. 400 m of head would be provided by diverting the flows of both branches, from the vicinity of the neck in Weaner Spur, through tunnels to a power house near the confluence of the branches. Nineteen megawatt installed capacity would be generated, with the scheme being economic within 1981 criteria. As a 'run-of-the-river' scheme it would probably not have a major impact on the local environment, excepting access roading and transmission lines. These factors would have direct impacts on recreational and landscape values within the wider Waikaia-Old Man Range area. If the scheme were to supply Southland, transmission lines would parallel an upgraded road the length of the Waikaia Valley, including through the State Forest. As the scheme 'may be more suitable for development by the Otago Electric Power Board' due to shorter transmission distance, then transmission lines and roading could straddle the southern end of the Old Man Range at over 1200 m.

The Mataura Gorge possibilities include a 30 m high dam at one of two narrow sections, and a tunnel diversion of Dome Creek to a power house beside the Mataura River. The first scheme would have major land use and environmental impacts. The only dam site in the Nokomai (upstream from the lower

flats) would produce a very low output. None of these proposals are within the five most likely to be developed in Southland.

A draft National Water Conservation Order has been issued over the Mataura River and tributaries, including the Waikaia to its headwaters, but is subject to appeals.

### 3.11 Protected Natural Area Surveys

As part of the Old Man Ecological District, the northern Garvie Mountains were surveyed during 1984-85 by workers for the Department of Lands and Survey.<sup>(10)</sup> A common boundary is shared with the Nokomai Ecological District; this was surveyed during 1987.<sup>(4)</sup>

On the basis of predominantly vegetative criteria a substantial portion (23,300 ha) of the Garvies are recommended for protection. This includes the entire range crest from the Old Woman Range to, and including, the cirque lake system. Generally only the uppermost Nevis crests are included for protection. Portions of the more modified Nevis and Waikaia plateaus are also included in the proposals.

Forest and modified grasslands on the true left bank of the Waikaia were surveyed in 1986 by the Umbrella PNA team.<sup>(21)</sup>

PNA's north to south and east are -

#### 3.11.1 Northern Garvie Mountains <sup>(10)</sup>

5200 ha between the Old Woman Range and Rocky Mount area, including the largest glaciated valley in the Garvies, are given first priority for protection.

Slim snow tussock is the major vegetation cover, being the largest unmodified area in the Old Man Ecological District. It extends to the ridgeline crest of the mountains, Wetlands are numerous and diverse. Large flocks of paradise shelducks and grey ducks utilise tarns for feeding and nesting. Serious threats to the area are identified as fire and cattle.

#### 3.11.2 West Branch Waikaia River <sup>(10)</sup>

750 hectares of the gorged west branch below the Northern Garvies PNA are recommended for first priority protection. The valley harbours the only remnants of formerly extensive forest and scrub communities (celery pine, Hall's totara). Fire and grazing threaten these remaining pockets.

#### 3.11.3 Central Garvie Mountains <sup>(10)</sup>

This 5900 ha area takes in the Kennys Creek tributary of the West Branch and the Gorge Creek (also known as the 'Figure 2 Country') headbasins, north and south of Rocky Mount. An altitudinal sequence extends down the western face on to the 'Nevis plateau', and down the Roaring Lion gorge. It is recommended as a comprehensive second priority alternative to the northern and southern Garvie proposals. Although high altitude communities are intact, lower areas are disturbed by burning and grazing, with resultant induced exotic components. Accelerated erosion is prominent on some steeper slopes, particularly on areas recently burnt (Class 8 land). Stock grazing is heavy on sunny slopes of Kennys Creek.

This area incorporates the spectacular Rocky Mount as a first priority PNA. Slim snow tussock in the Mount's northern cirque basin extends to 1800 m - its highest altitude in the Old Man District.



Spring time at Blue Lake,

#### 3.11.4 Southern Garvie Mountains (10)

This first priority area (2650 ha) extends from the deep upper cirque basins of Lakes Gow, Scott, and Skeleton east of the range crest, to the extensive boglands at the south end of the 'Nevis plateau'. The largest lake and best known feature, Blue Lake, is a second priority area, as an alternative to the upper lakes system, or alternatively as a complementary and valuable addition to the first priority area.

Wetlands are the most extensive and spectacular in the district. However damage by trail bikes has occurred wherever access to the high country is available, being particularly severe around Blue Lake. Modification to *Hebe odora* scrub and tussocklands around Blue Lake is severe in places as a result of recent burning.

#### 3.11.5 Upper Dome Burn (4)

1530 ha of this relatively lightly glaciated catchment is recommended for protection. It is particularly significant for its extensive 'string bog' and inland wetland systems near Mt. Tennyson. These appear like mire systems that could be expected in Arctic regions, being a little-known phenomenon in the Southern Hemisphere. They are assessed as having international significance.

#### 3.11.6 Gow Burn (4)

2450 ha of this heavily glaciated valley is identified as a

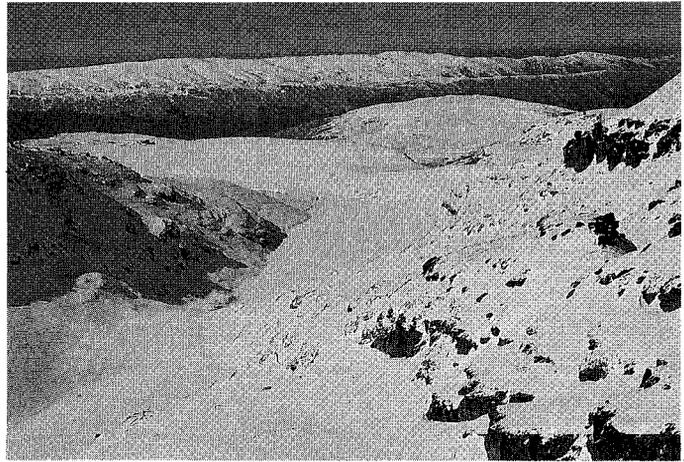
priority area. It encompasses a considerable altitudinal range and includes forest and non-forest ecosystems from montane to high-alpine zones. The area partly overlaps with 3.11.4. The Lake Gow cirque has extremely high landform values.

#### 3.11.7 West Waikaia

2620 ha, being the majority of the beech forests on the true right bank of the Waikaia, upstream of Titan Rocks, is identified as a *representative* area for protection.<sup>(4)</sup> It is apparent however that the whole forest deserves protection; the *priority* attached to the PNA however should assist forest management planning.

#### 3.11.8 Welshmans - Camerons Creeks (10)

1500 ha of 'basin and range' topography on the southern extent of the Waikaia plateau is recommended for first priority protection. The area is dominated by mixed tussocklands (red, narrow-leaved, slim), wetlands, and shrublands typical of former bushline associations. A bog pine community is the only example recorded for the district. It is extremely vulnerable to disturbance by fire, grazing, or from disruption to the wetland regime.



Blue Lake and the 'Waikaia plateau', towards the Waikaia Bush and Umbrella Mountains.

Modification by burning, grazing, and exotic intrusion (browntop, sweet vernal) is severe across most of the southern plateau, however disturbance is only localised within the recommended PNA.

#### 3.11.9 Upper Nevis Valley (10)

580 ha, from the alluvial valley floor to the western lip of the 'Nevis plateau', are recommended for second priority protection. Extensive modification of upper snow tussock slopes by past, and recent burning (up to 1300 m) is resulting in accelerated erosion along many mid to upper slopes. Red tussocklands on the valley floor are the most extensive low altitude example in the district. This area is an alternative PNA to Welshmans-Camerons Creeks.

#### 3.11.10 Waikaia Tors (21)

The largest and most prominent tors in the Umbrella district are recommended for first priority protection due to their species-rich vegetation. The tors plus a 10 ha buffer straddle the much used, and abused, Waikaia Bush Road.

#### 3.11.11 Waikaia Bush (21)

1350 ha of former state forest/stewardship land plus modified tussock and shrubland is recommended for first priority protection. This coincides with the bulk of the forest proposed

by the Forest Service in 1982 for 'long term indigenous production'.<sup>(19)</sup>

### 3.11.12 Conclusions

Protection of PNA's, *in isolation from other values*, could probably be achieved by:

- \* banning fires;
- \* excluding cattle and vehicles;
- \* reduction in sheep pressure (stock limits in adjacent unfenced blocks), assisted by exclusion from Class 8 and other fragile lands by strategic fencing (e.g. across Weaner Spur and upper valley entrances).

These measures could be superior to ring-fencing along the recommended boundaries which would be very expensive to construct, visually obtrusive, and impracticable to maintain at higher elevations due to snow damage.

As the PNA Programme is designed to delineate a *representative* rather than an all-embracing protected areas system, many areas with high natural values lie outside the priority areas. The additional values of landscape and recreation have not been assessed, although the PNA's partly coincide with areas of greatest recreational interest. A broader complex of protected areas is required to meet recreational requirements as well as to provide protective buffering for the priority natural areas within. (*Refer also to Old Man Range 3.8*).

## 4. Recreational Opportunities

### 4.1 Picnicking and Angling

Piano Flat in the main Waikaia Valley, has long been a focus of public recreational interest in the region. The presence of a large and easily accessible tract of indigenous forest, at the edge of the settled Waimea Plains, has been an obvious outlet for recreational use.

Picnic and 'play' facilities are established in the Piano Flat domain. Grassed forest glades and river scenery provide a pleasant setting for camping, picnicking and brown trout fishing. There are two short walking tracks in the surrounding forest suitable for day visitors. The visual focus tends to be inward towards river and glade, as only limited vistas of open range-top are available from the valley floor.

### 4.2 Trail Biking

The Waikaia Bush Road has become a major attraction for trail bikers in particular. On most weekends activity is intense, with a severe localised impact on forest floor vegetation and on picnickers at Piano Flat. Over one hundred unregistered bikes have been intercepted by the Ministry of Transport in one day's operations. There is a considerable speed hazard from these machines, to walkers in the otherwise pleasant environs of the flat.

The Waikaia River provides a natural barrier to vehicles throughout the beech forest, except at the 'Canton Bridge' at the head of the forest. This bridge allows vehicle access to Bush Hut, and the outlet of Blue Lake 12 km beyond.

The impact of trail bikes on alpine bogs along the Old Man Range section of the Waikaia Bush Road is probably the severest of all vehicle impacts on alpine vegetation in Otago and Southland. However, nature has occasionally retaliated, with bikes being *devoured* by particularly 'bottomless' bogs

and 4WD's being stuck for extended periods. There are also regular reports of hypothermia occurring to bike riders during the summer months. 4WD vehicles becoming bogged and mishaps by trail bikers regularly result in search and rescue operations.

To an experienced trail bike rider, once above the bushline, there are few obstacles to lengthy over-land traverses. Steep cirque topography and deeply incised creeks provide the only major limitation for machine use. At this stage, bike use is relatively light away from the vicinity of existing track formations. (*See also Old Man Range 4.4 14.5*)

### 4.3 Tramping

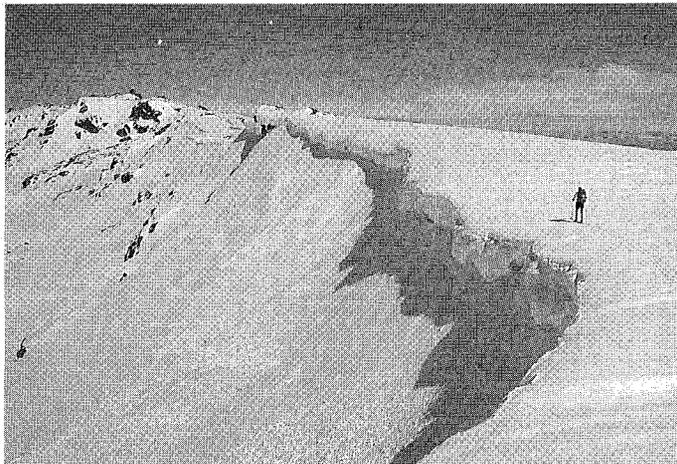
The Waikaia beech forests have long been attractive for easy tramping in pleasant surroundings. Since the 1930's mountain clubs have used the area for introductory bushcraft instruction.<sup>(22)</sup> As one of the few large indigenous forests close to the east coast it is well suited for this. The Titan Rocks and Blue Lake in the Garvies, and Gem Lake and Whitcomb Creek in the Umbrella Mountains are usual objectives for such trips.

Above bushline the vast extent of gently rolling tussock uplands provide an often bleak and exposed environment for summer tramping. The rapid onset and high frequency of fog causes navigation difficulties. The general lack of topographic features, except in the cirque lake basin system, provides generally unattractive conditions for the general trumper. However, botanical attractions, especially in the alpine zone, are great for the more specialised visitor. The general absence of conspicuous, man-induced changes to the landscape, or of developments such as huts and vehicle tracks, combined with the grand scale of this upland, provide opportunities for *remote experiences* in a tussock grassland setting. Activity above bushline at any time of the year requires caution. Storm-proof clothing, compasses and tents are essential, as severe storms, including snowfalls, are experienced year-round. Several miners and even a shepherd familiar with the terrain (at the Titans) have lost their lives. The gentle topography belies the climatic hazards of this high country.

### 4.4 Cross Country Skiing

Under winter snow cover, these same rolling uplands have considerable potential for the cross country skier. Relative ease of travel and mobility can provide exhilarating experiences over this vast upland. In conjunction with the Old Man and Old Woman ranges, the Garvies are the largest contiguous tract of winter snow cover in Otago and Southland.

*Northern Garvies winter traverse.*



A combination of snow cover to distant horizons, an absence of developments within or visible from the uplands, relative remoteness and a necessity for self-sufficiency, make the Garvies a *winter wilderness experience* to an extent greater than other similar ranges in Otago.

Before the general availability of 'nordic' skis in the late 1970's, a few hardy souls were known to have traversed the Garvies on alpine skis, using climbing skins and touring bindings.

Winter conditions can be extreme, with frequent and sudden fronts from the south and west. Conditions are generally more severe than on the rain-shadow Central Otago ranges to the north. Alpine navigation and survival experience is an essential prerequisite. There are only two huts which are suitably located to be of use on ski expeditions. Tenting, snow caving, or iglooming is required on extended traverses. Most north-south traverses, with side trips, would be 4 to 7 days duration.

In spite of these limitations, or because of them, the personal rewards arising from a well prepared and competent ski expedition can be great. A small but increasing number of cross country skiers are seeking out these challenges.

## 5. Zoning

### 5.1 Remote Experience

The northern Garvie Mountains, from the saddle with the Old Woman Range in the north, to the vicinity of Mt. Cameron is zoned *remote experience*.

Recreational criteria have prevailed over natural criteria in determining the boundaries for this zone. As the PNA survey highlights, substantial areas are moderately to severely modified in a botanical sense, however this has only a limited effect on overall recreational values. The bulk of the Nevis and Waikaia plateaus fall into the modified category, however they are integral parts of the wild land resource. The whole zone is characterised by large-scale landscapes of considerable variety, with few conspicuous signs of human activity.

The primary recreational value of the zone is for cross country skiing, however its secondary value for foot recreation in summer cannot be overlooked.

Two areas along the Waikaia boundary are zoned *remote experience buffer*. The wildland character of the **lower Weaner Spur and Bush Hut blocks** is gone and further pasture development is planned. Existing farming practices can continue provided the open space character is retained (no forestry, shelter belts, and discrete siting of farm buildings and tracking.) Recreation vehicles need to be excluded at the Waikaia River as no practical alternative exists to protect the *remote experience area* from their intrusion. The **Titan Rock block** retains a wildland character, and provides an important focus for short duration tramping and hunting. Separate vehicle and foot access is available and these opportunities should remain. *This buffer zone should be managed as a natural experience area*, with no farm developments, and vehicle access limited to as far as Titan Hut.

Since the time of the first proposal for a Garvies 'winter

wilderness' in 1981<sup>(23)</sup>, there has been considerable discussion within FMC's affiliated clubs and with Government's Wilderness Advisory Group as to the applicability of a 'seasonal' wilderness area, given that the whole area in question is occupied for pastoral use. This has led to the current re-evaluation of the original proposal. In terms of Government's policies it is clear that the area does not meet all the criteria necessary for Wilderness Area designation. However, there are only relatively minor management incompatibilities which can be accommodated within a Remote Experience Area, as defined by the Wilderness Policy.<sup>(24)</sup>

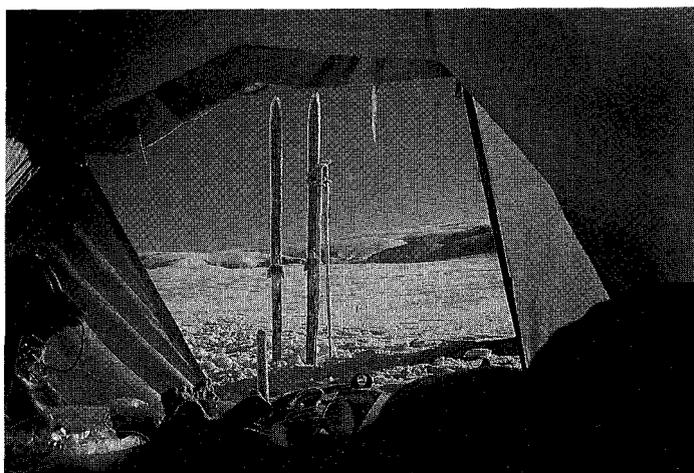
#### 5.1.1 Management Considerations

##### (i) Huts

Two mustering huts, serviced by horse and helicopter, exist within the zone. Continued pastoral use of the area will presumably require their retention. The huts will continue to be used by cross country skiers, if available, however their presence is contrary to the spirit of self-sufficiency necessary for a *remote experience*.

There are two prevailing schools of thought regarding huts in wild and hazardous environments. One believes that there should be 'refuges of safety' available in emergency situations; the other sees huts as focal attractions which draw ill-prepared people to them, due to the false sense of security, and comforts, that their presence provide. In the case of the Garvies there are far too few huts to provide even a modest prospect of a hut being in the right place at the time of greatest need. Therefore, an ability to travel independently of huts is still necessary. Providing more huts might satisfy the 'safety' school, but would remove self-reliance as a major component of the recreational experience. In effect, another of New Zealand's few remaining wildernesses would be developed to extinction.

Current winter recreational use indicates that many parties use one or both of the huts at some stage of their expedition. It is fair to surmise that some of those groups may not be as well equipped as they should be and it is more a matter of luck than design that no tragedies have occurred in recent years. Conversely, with no huts present, every party would have to carry tents or snow caving equipment thereby increasing their chances of coping *with* conditions encountered on route.



Morning, at minus 16 degrees celsius.

There are only limited historical reasons for retention of the existing huts as they are both third generation replacements for

earlier stone and iron structures. If in future they are no longer required for mustering, it is desirable that they be removed.

### (ii) Vehicle Use

Vehicle access to and through the zone in snow-free months causes the greatest diminution of wilderness values. It would be possible to physically exclude recreational vehicles by means of a lockable barrier on the steep eastern approach to the Canton Bridge, thereby allowing farm vehicle use to continue. Access tracks from the Nevis Valley provide the means for vehicles to reach the western boundary of the *remote experience zone* in summer. As this section of the western boundary is fenced, provided gates are locked, all but the most determined trail biker should be discouraged from proceeding further. Vehicle pressures on the western side are relatively light, and there is an absence of obvious destinations for vehicle use. The presence of extremely important and highly vulnerable wetlands in this quarter dictate that vehicles be totally excluded.

Provided the area remains undeveloped by further tracking and road access is not upgraded, the area is self-managing in winter, unless at some future time snow mobiles become generally available.

During summer, a combination of physical exclusion of non-farm vehicles plus public education provides the only real prospect of maintaining *remote experience values*. An on-site management presence is required during peak periods of visitation to the Waikaia State Forest, to ensure vehicle use restrictions are respected in the forest and beyond. Integrated recreation management is required over the Crown leasehold and Department of Conservation (DOC) lands described in this chapter.

### (iii) Grazing

During the unstocked period of the year (9 months) there is no conflict with recreational use, provided public access to the area is assured.

Protection of outstanding natural values identified by the PNA surveys is a high priority. The continued existence of fragile alpine wetlands and grasslands is not only of scientific concern, but is shared by thousands of New Zealanders who may never see the area but will rest content knowing of their wellbeing. It is also inevitable that increasing summer visitation will occur as a result of the description of natural values in the PNA reports, although this is likely to be relatively light.

General curtailment of burning will be necessary, plus the total exclusion of cattle from the high country. Amended stock block-limitations will also be necessary to exclude, or at least greatly reduce, sheep pressure on the most vulnerable and scenic localities (e.g. Jack Mac's Creek wetlands; southern 'Nevis plateau' bogs; wetland margins of cirque basin lakes.)

In the legal sense much could be achieved for the protection of PNA's by the removal of the very significant areas of Class 8 land, being land unsuitable for grazing, from pastoral lease tenure. Conservation Area status would assure rights of public use, and provide a statutory basis for management of these areas. In view of the anticipated light demand for summer recreation, reserve status for the above area is unwarranted in the Garvies.

Amended lease covenants over the areas remaining in pastoral occupation should be the option first explored to achieve the required level of protection and public use.

## 5.2 Natural Experience

The Waikaia Bush and outliers are zoned *natural experience*. The forest should continue to be managed for a variety of active and passive recreational activities, although vehicle use needs to be confined to existing road formations. The forest, in total, deserves stronger statutory protection against milling and mining.

Steps are needed to reduce stock penetration around forest margins.

## 5.3 Open Space

The Nevis Valley face of the 'Nevis plateau' and up-valley (true left bank) of the Waikaia Bush is zoned *open space*.

Although considerably modified, this zone remains important as a predominantly grassland setting, contributing to the overall impression of large-scale undeveloped uplands. The zone provides the western approaches to the *remote experience zone*, and a corridor between natural experience areas in the east. The undeveloped character needs retention despite ongoing pasture improvement. Forestry, and shelter belts should be prohibited, and further tracking and farm buildings require discrete siting. The adjacent Weaner Spur-Bush Hut *remote experience buffer* requires similar treatment.

Vehicle infringement into peat bogs alongside the Waikaia Bush Road requires active discouragement.



The 'Nevis plateau' from the Garvies crest.

## 6. Recommendations

### Remote Experience Zone

6.1 The wilderness values of the northern Garvie Mountains be protected and managed as a Remote Experience Area in terms of Government's **1985** Wilderness Policy.

6.2 Public foot access during non-grazing months be formalised, with legally defined access from Piano Flat and the head of the Nevis Valley, and covenants in leases providing for non-motorised public recreation within the area.

6.3 Public access over pastoral lease, when stock are present, to remain at the discretion of lessees.

- 4.4 Recreational management of the area provide for:
- \* hut removal when no longer required for mustering;
  - \* no recreational facilities or marked routes;
  - \* prohibiting all recreational vehicles including oversnow machines and aircraft landings;
  - \* limiting public information/promotion to that essential for protecting wilderness, natural, and farming values only.

6.5 The central core of Class 8 land be removed from pastoral lease tenure in accordance with Government's Destocking and Surrender Policy. This area be vested in DOC as a Conservation Area. Its recreational management to be in accordance with the Wilderness Policy.

- 6.6 Farming and PNA management within the zone entail:
- \* prohibiting cattle, except from the fenced block downvalley from the Welshmans-Blue Creek confluence;
  - \* prohibiting fires, vehicle tracking or other earth disturbances;
  - \* negotiating block limitations to exclude sheep from the most vulnerable (Class 8 and bogs) and scenic localities, assisted by strategic fencing where practicable.

#### *Remote Experience Buffers*

6.7 **The Titans Block** be managed as a *buffering natural area* entailing:

- \* retention of Crown ownership and leasehold tenure;
- \* prohibiting farm tracking and pasture development;
- \* 'stopping' legal paper roads beyond Titan Huts;
- \* provision for public foot access year-round to the Titan Rocks from state forest tracks, as a round-trip from Piano Fiat;
- \* barring all vehicles.

6.8 **The Weaner and Bush Hut Blocks** be managed as *buffering open spaces* entailing:

- \* retention of Crown ownership and leasehold tenure;
- \* barring all recreational vehicles, in the vicinity of the Canton Bridge, by a locked barrier;
- \* landscape controls on siting of farm tracking and buildings;
- \* no recreational or tourist developments.

#### *Natural Experience Zone*

6.9 The entire former Waikaia State Forest become Scenic Reserve, in recognition of its high fauna and recreational values.

6.10 A management plan be prepared for the forest identifying further opportunities for walking tracks, and informal camping and picnicking (including at the head of the forest and enclosed portions of Whitecombe pastoral lease).

6.11 The above plan address the issue of stock penetration in to forest margins.

#### *Open Space Zone (+ Part Old Man Range Natural Experience)*

6.12 The Crown purchase the lessee's interest in the Whitecombe pastoral lease and:

- \* destock the East Waikaia faces upvalley from the lower East Branch subdivisional fence;
- \* offer Pomahaka catchments minus PNA's for incorporation into adjacent pastoral leases (for exchange purposes);

- \* offer Class 6 lands, downslope from Christies Hut (excluding forest enclaves) and the lower East Branch subdivisional fence, for incorporation into Glenaray pastoral lease conditional on:
  - \* adoption of a comprehensive broom eradication programme by the lessee;
  - \* the same landscape controls as apply to the Bush Hut and Weaner blocks;
- \* prohibit the continued use of bum-offs to control weeds and forest margin regeneration;
- \* retain direct Crown control over the Waikaia faces above the former state forest and Whitecombe subdivisional fence (at approximately 850 m), to include the Waikaia Tors PNA and Waikaia Bush Road along the Pomahaka divide. Any grazing should be limited to sheep by means of grazing permit.

6.13 The Waikaia Bush Road be legally 'stopped' beyond Christies Hut to become Crown land administered by DOC. Management of the 'road' between Christies and approximately 1040 m on the Roxburgh side of the Old Man Range should initially entail:

- \* maintenance of the formation as an unmetalled, 4WD, summer-only track, with public use required to be confined to the road formation;
- \* minimum upgrading to make bog sections passable, to avoid further vehicle damage to adjacent bogs;
- \* an active user education campaign stressing public safety, and the reasons for restricting vehicle use to the road formation (*periodic ranger presence, signposting, and contact with vehicle user groups will be required*);
- \* erection of vehicle barrier/fencing and lockable gate at Christies for winter closure. (*This action will not unduly limit winter access for skiing, and is desirable on this side of the Old Man Range. The indeterminate snowline on this gentle, lower altitude country, unlike the Roxburgh side, does not always prevent vehicles from getting stuck*).

6.14 Should the measures in 6.13 fail to restrict vehicle use to the road formation then:

- \* permanently close the road for unsupervised vehicle use, except by arrangement with DOC.

#### *All Zones*

6.15 The Southland County Council amend its district scheme to exclude forestry as a use of the Rural A zone within the high country.

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