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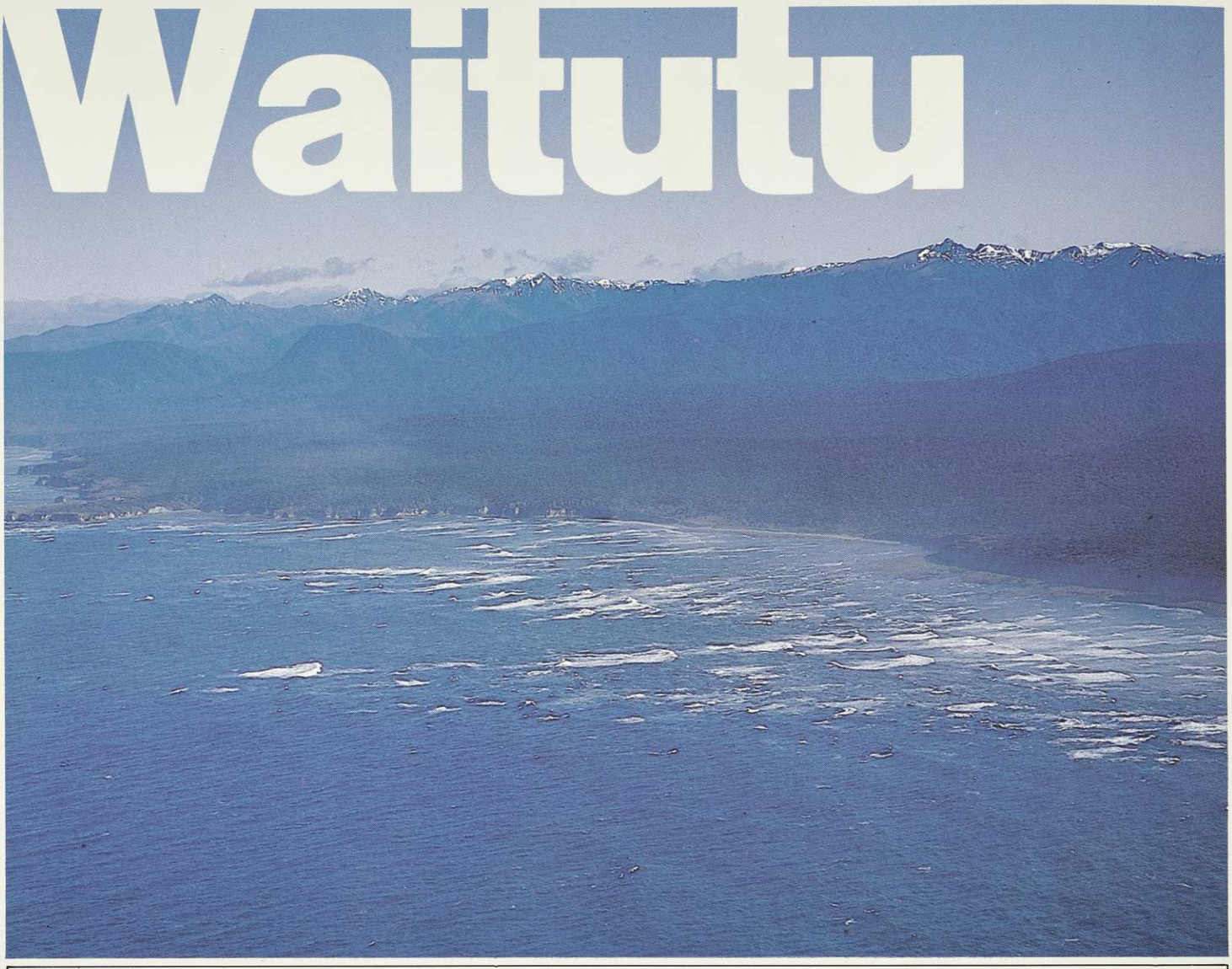
Waitutu



FROM THE MOUNTAINTOPS TO THE SOUTHERN OCEAN

As *Forest & Bird* goes to press, discussions regarding the future of Waitutu forest are continuing. The milling agreement between the Maori Incorporation and Feltex has fallen through, and it is hoped the new Government and the Maori owners can find a satisfactory solution.

If so, it will be a tremendous achievement for conservation, and for Maori-pakeha relationships also.

The last extensive forested plains still untouched in 1984 are in Waitutu — described as potentially one of the world's top 10 ecological reserves by David Bellamy — and are mostly in Maori ownership. Despite the extreme rarity of this forest, it would be wrong and unreasonable to expect the Maori owners to preserve the forest without compensation.

One solution to the problem could lie in the example of Maori agreement in 1971 to lease Lake Waikaremoana to the Urewera National Park Board. This was for a term of 50 years, with a provision for a rent review at 10-year intervals, and with the right of renewal for a further term of 50 years. The rent was at 5.5 percent per annum of Government Valuation of the lake bed ($143,500 as at 1974).

In our picture, the forest backs the spectacular Southland coast for 23 kms. Behind it on higher ground lies the Waitutu State Forest, and behind that again, the mountains of Fiordland National Park.

Photo: Michael de Hamel

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Cover: Mt Achilles (2558 metres) and Mt Alma, Two Thumb Range, South Canterbury, from Erewhon Station. In 1963, 6526 hectare of steep mountain land including these peaks, was surrended from the huge Mesopotamia pastoral lease. The Two Thumb Range is a magnificent natural area popular for skiing, climbing, tramping and hunting. It is a prime candidate for National Reserve status. (See inside for stories). Photo: Barney Brewster.

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A Ministry for the Environment

The new Government's commitment to establish a Ministry for the Environment is welcomed by our Society.

For too long we have had to put up with an unsatisfactory strategy claimed to integrate conservation and development. The strategy employed has been one of a small green dot in each big red bureaucracy. Groups of professionals with environmental planning or management responsibilities form small units within large development-orientated departments. Then there is the Commission for the Environment, an unattached small green dot reporting to the Minister.

Under this system, procedures to ensure that the physical and social environment is fully considered as each new development project emerges have been neither integrated nor adequately coordinated. The information and advice necessary has been restricted because the environmental planners and managers needed are scattered in small units on the fringes of the departments in which they work. The green dots are more of an appendix than a counterweight to the corporate ethic which flourishes in development-orientated departments. Under this system the resolution of conflicts between conservation and development occurs deep within the bureaucracy so that our elected politicians rarely have to exercise value judgements on issues.

The scattered green dots system has been tried for a long time in New Zealand and has largely failed to achieve an integration of conservation and development.

A Ministry for the Environment which draws most of the green dots together and is backed by statutory procedures would greatly improve the present situation. There would be effective avenues for environmental planners and managers to influence policy. These same people would be in a stronger position to ensure that proper weight is given to conservation in developing policy. Value judgements would be brought out into the open to be made properly where they should be: by the elected government after due public process. Such a Ministry would make it clear that environmental planning and management activities are no longer subordinate to the main thrust of development activities.

With a new government committed to reform, New Zealand has reached an historic turning point in relation to its environment and natural resources. What is really needed is a searching review of the overall failures of the present system and a constructive effort to design a more effective one.

The new government's policy is to establish a Ministry which will operate through a division of planning and one of nature conservation. We hope the Ministry will incorporate within it a number of existing divisions of other departments — most notably those relating to wildlife, water and soil conservation, native forests, national parks and reserves, and town and country planning. The Commission for the Environment will be given statutory independence, will report to Parliament, and will audit environmental impact reports.

We applaud the policy and look forward to its complete and thorough implementation. Our task as conservationists will be that much more straightforward with such a Ministry in place.

Dr A. S. Edmonds, President

Contributors to Forest & Bird may express their opinions on contentious issues. Those opinions are not necessarily the prevailing opinion of the Royal Forest & Bird Protection Society.

NEW ZEALAND'S

Tussockland Heritage

by Gerry McSweeney* and Les Molloy†

Sandwiched between native forests and alpine herbfields, and spreading a tawny mantle across the South Island's eastern ranges, New Zealand's tussock lands rival the world's other great natural grasslands such as the prairies of North America, the pampas of Argentina and the steppes of Russia.

These tussock grasslands have evolved over thousands of years. In many ways these metre high bunch grasses resemble forests. The tussocks can be decades old and dwarf the tiny herbs growing on the grassland floor. Tussock grasslands contain a unique group of plants and animals adapted to temperature extremes, drought, heavy snowfalls, fire and even to erosion of the unstable mountain ranges.

Unfortunately these plants and animals have less successfully adapted to increasing pressures from agricultural development. Our tussocklands are under threat and are rapidly disappearing.

Subalpine tussocklands extend the length of the Southern Alps and along the North Island's axial ranges. The volcanic uplands of the Central North Island support fire-induced red tussock grasslands gradually reverting to shrublands. However by far the most extensive tussocklands occur east of the Southern Alps along a belt of montane country from Marlborough to Southland. They once covered nearly 5 million hectares, nearly 20 percent of New Zealand's land surface. Today they cover about half that area.

Natural and Polynesian fires shaped much of the eastern South Island tussock landscape, especially at lower altitudes. These fires destroyed beech, matai, totara and kanuka forests and allowed tussocks growing at higher altitudes and alongside streams and clearings to invade the formerly forested sites.

By the time of European settlement the tussockland pattern was as follows:

☐ Snow tussocks (*Chionochloa* species) occupied both the moister, high altitude areas and most of the montane zone. In eastern Otago these tussocks extended almost to sea level (some still survive in a small reserve at Shag Point, North Otago at 50 metres altitude).

☐ Short tussocks (*Festuca* and *Poa* species) covered the dry, low altitude areas including the dry basins and riverbeds of Otago, Marlborough, the Mackenzie Country and parts of the Canterbury plains.

☐ Red tussocks (*Chionochloa rubra*) were widespread on damp valley floors, poorly drained moraines and throughout the Southland plains.

Snow tussock grasslands — Danseys Pass North Otago.
Photo: Quentin Christie, Soil Bureau.

Changes since European settlement:

The extent of relatively unmodified tussockland remaining today can be determined from the New Zealand Land Resources Inventory (1). While the merging of tussockland into shrublands and pasture complicates this analysis, it appears that about half the original tussock grassland has now gone. At higher altitudes, there remains at least 1.5 million hectares of subalpine tall tussock and scrub mixture. At the other extreme there is probably only 650,000 hectares of lower altitude short tussock now remaining after a century of conversion to pasture grasses and overgrazing. In the intermediate montane zone, snow tussocks have

* *National Conservation Officer RF & BPS*
† *Soil Scientist, Vice President Federated Mountain Clubs.*

been modified by fire and grazing so that today only about 600,000 hectares remains in snow tussock cover.

Southland red tussock grasslands have almost entirely given way to exotic pastures. Less than 10 hectares of red tussock is reserved on the entire Southland plain. Fortunately, near Te Anau the proposed 3,100 hectare Gorge Hill red tussock reserve provides a last chance to preserve a small part of Southland's pre-European landscape.

Tussocklands under threat:

Places like the Mackenzie Basin, Lindis Pass, the Remarkables, the Shotover and Kawarau Gorges have long been celebrated by New Zealand's poets, painters and photographers. Their wide open spaces and stark solitude never fail to impress even the most jaded visitor.

Our tussocklands have always been seemingly unchanging elements in the New Zealand landscape. So much so, that earlier generations took for granted the tussocklands continued co-existence with extensive pastoralism.

However, dramatic changes in the high country landscape are now taking place. Extensive sheep farming is giving way to more intensive agriculture with pressures for freeholding of public pastoral lands. Massive hydro-electric developments are underway or already completed. There are pressures for irrigation development, exotic forestry, tourist villages and skifields.

Each new activity may be in itself be relatively insignificant, but collectively they represent a major assault on our surviving tussocklands.

Where are our tussockland reserves?

Efforts so far to protect tussocklands have been pathetic. Perhaps this reflects the widespread belief that extensive pastoralism did not threaten natural values. The runholder has been de facto caretaker of our tussockland heritage while the state has concentrated on managing forested national parks and reserves. There has also been a distinct lack of appreciation of the natural values of non-forested natural ecosystems. How else can we explain the incredible situation where in 1980 only 9 hectares of the former 1 million hectares of short tussock grassland in Otago was protected in scenic reserves?

We have been obsessed with reserving mountains and forests while the best (and often the last) remaining examples of lowland and montane tussock grasslands and their special plants and animals have been disappearing. Today's challenge is to identify where these grasslands remain and what stops them from being reserved.

Although most of our surviving tussocklands are on Crown-owned land, much of this land is under leasehold tenure with a right of perpetual renewal. Therefore the public interest in these Crown Lands can only be safeguarded by conditions that the Department of Lands and Survey (acting for the Land Settlement Board) can negotiate with the lessee.

In fact, pastoral lease provides considerable scope for the protection of natural and recreational values. However, rarely have such opportunities been taken — primarily because pastoral lease administration has focused almost entirely on farming.

Pastoral leases and the Land Settlement Board:

Ten percent of New Zealand is Crown land administered as pastoral lease. All of it is South Island high country, including tussock grasslands, peaks, glaciers, rivers, lakes and even significant native forests.

The Land Settlement Board (LSB), established under the 1948 Land Act, acts on the Crown's behalf. By its very name, the Board recalls an earlier era of pioneering and simpler land use objectives. Virtually everyone involved with the high country considers the LSB to be an anachronism — the settlement phase in New Zealand's marginal lands is largely past, and the Board (despite some sincere attempts to improve its policies) has failed to win the confidence of recreational, nature conservation and scientific interests. It overwhelmingly reflects the political, departmental and farming interests represented on it. However, no recent Government has been prepared to reconstitute the LSB into a more balanced "Crown Land Commission".

Obstacles to tussockland reserves:

To date it has proven extremely difficult to secure reserves in tussock grasslands. In addition to the legal obstacles outlined above, there are a number of institutional impediments:

☐ the considerable political power of the small group of influential high country runholders.

☐ the agricultural research establishment committed to increasing the pastoral productivity of the high

Central Otago's block mountains have acted like islands. Each mountain range has its own special insects such as the Rock and Pillar weta, *Hemideina maori* found beneath rocks on the summit of the range.
Photo: John Child.

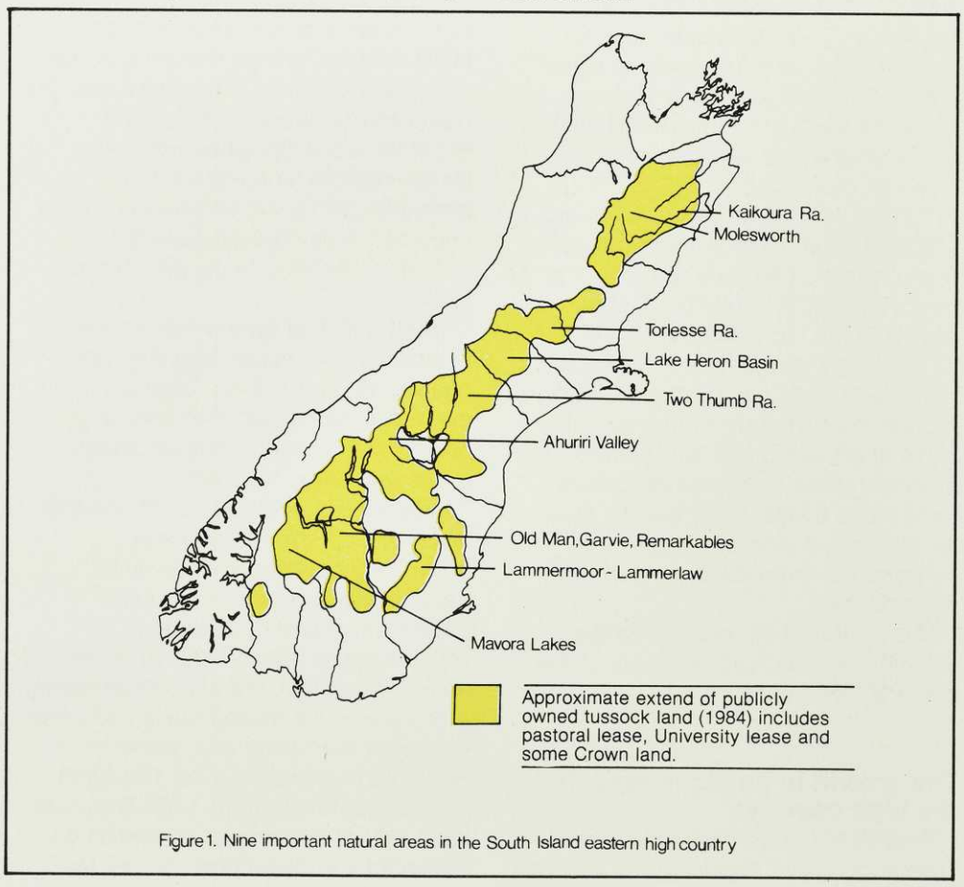
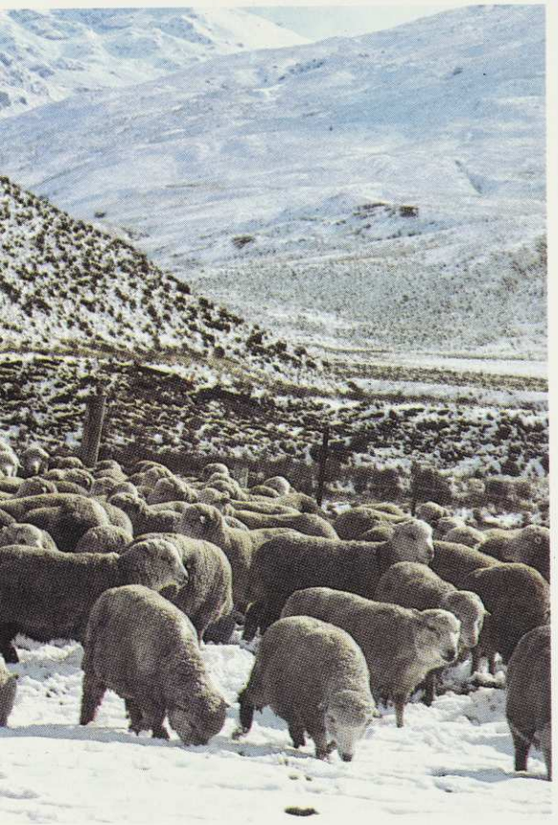


Figure 1. Nine important natural areas in the South Island eastern high country

Plants have adapted to the exposed alpine environment, with cushion forms common. Mountain daisy, *Celmisia sessiliflora*, Old Man Range.
Photo: Brian Enting.

Although traditional extensive sheep country, increasing numbers of cattle and agricultural intensification are changing the high country and modifying natural values. Romney-Merino cross wethers, Nokomai Station, Garvie Range.
Photo: Liz Brook.



country. This group, represented by the Invermay and Tara Hills research stations of MAF and the Grasslands Division of DSIR have been able to commit large research budgets to, in effect, eliminate tussock grasslands. In sharp contrast, the Protected Natural Areas programme operates on a financial shoestring.

☐ Forest Service research which has changed much of its emphasis recently from protection forestry to promoting the establishment of exotic production forests in the high country.

☐ the failure of the former National Water and Soil Conservation Authority to require the surrender from a pastoral lease of erosion-prone land retired from grazing. [Millions of taxpayer dollars were made available to pastoral lessees for alternative land development to compensate them for this steepland retirement.]

☐ the dearth of information on the scientific and recreation values of this pastoral high country.

The growth in public interest in the high country:

However, today we have cause for greater optimism regarding the eventual reservation of significant large areas of tussockland. The following reasons show why:

☐ greater public awareness of the values of open space in the high country, especially by active groups that are not so well catered for in our national and forest parks — canoeists, fishermen, horse-trekkers, 4-wheel drive parties.

☐ strong public interest in the protection of wild and scenic rivers.

☐ the momentum building up in support of the DSIR Protected Natural Areas programme and the good work of the National Parks and Reserves Authority in continually promoting the need for a system of reserves *fully representative* of our natural landscapes and biota.

☐ growing recognition that nature-oriented tourism can help conservation.

☐ increasing co-operation between public interest groups including Forest and Bird, Federated Mountain Clubs, NZ Deerstalkers Association and the Acclimatisation Societies who have joined together to press for the protection of natural and recreationally important areas before there is any further freeholding of pastoral lease land.

☐ the traditional sympathies of the Labour Party towards retaining high country as public lands. Labour's 1984 election policy stated that they would only allow the freeholding of pastoral lease land once there was "comprehensive protection of soil and water values, recreational and environmental values". They also promised to restructure the Land Settlement Board to ensure representation of recreational, scientific and conservation interests. Since taking office they have moved quickly to invite Professor Alan Mark and former Federated Mountain Clubs' President Alan Evans to sit on the LSB. They also have invited similar representation on regional Land Settlement Committees.

Priorities for tussockland reserves:

Some of the best opportunities for scientific reserves of low altitude tussocklands have now been lost. A landmark case was the Nardoo block of Waipori in eastern Otago outlined in detail by Professor Alan Mark in the November 1980 issue of *Forest & Bird*.

Here, the LSB successfully opposed the inclusion of low altitude snow tussock grasslands in the Nardoo reserve.

By contrast, reservation of the magnificent red tussock grasslands of Gorge Hill in Southland has been approved in principle by the LSB. Perhaps the tide is now turning. Visitors to the Fiordland National Park or the Mavora Lakes will now approach the forests and mountains on a scenic highway surrounded by red tussocks swaying in the wind.

The Protected Natural Area programme survey teams have begun to work through the high country identifying sites of special scientific interest and opportunities for representative reserves.

As well as reserves which protect some of the special scientific features of the high country, there are tussock landscapes which are worthy of particular recognition because they are landmarks which loom large in New Zealander's consciousness. In an earlier article (*Forest & Bird*, February 1982) one of us (LFM) suggested a number of possible candidates for National Reserve status — Old Man Range, Lindis Pass, and the Remarkables.

Other areas are clearly also suited as National Reserves to complete this list. If conservation, recreation and landscape values of the high country are to be preserved in the long term a range of protective mechanisms are needed including:

☐ strict *scientific* reserves, not necessarily large, to protect important examples of flora and fauna, soils or

geology (the Castle Hill Nature Reserve in Broken River Basin is a notable example).

☐ large *representative* reserves, where some extensive pastoralism may be managed along with recreation and soil, water and nature conservation objectives.

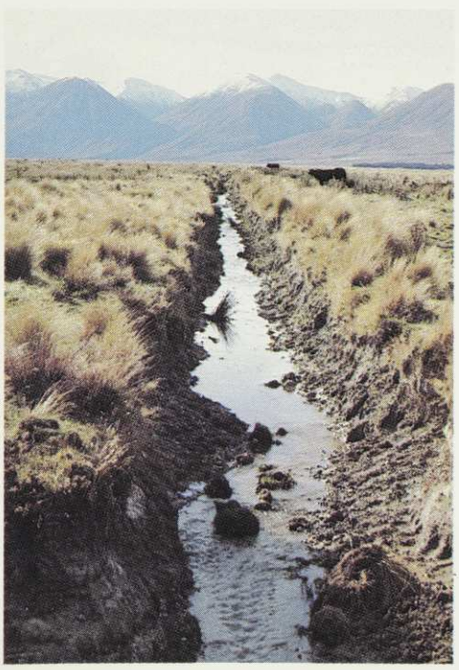
☐ ensuring that where possible development of high country land outside the reserve areas takes account of landscape and conservation values.

To show the diversity of tussockland landscapes and biota we have invited the following brief articles on six areas from Marlborough to Southland. The Torlesse Range, Lake Heron basin and Two Thumb Range in Canterbury also deserve consideration as National Reserves. Each area represents different facets of high country landscapes and ecology.

One of the greatest challenges we face in seeking protection for these outstanding areas is to first make people aware of these places. If this and other difficulties can be surmounted there is no doubt that a network of national reserves can be established through the South Island high country to rival even our National Park system. What a wonderful way to celebrate our 1987 National Park Centennial!

References:

(1) Blashke, P. M.; Hunter, G. G.; Eyles, G. O.; Van Berkel, P. R.; 1981: Analysis of New Zealand's vegetation cover using land resource inventory data. *N.Z.J. Ecology 4*: 1–9.



High country wetlands are threatened by agricultural development. The Lake Heron wetland shown here is part of the Mt Arrowsmith pastoral lease. Development assisted by a Rural Bank loan involved construction of this illegal drain (no water right), cultivation and mob stocking with cattle. The Cameron Fan wetlands are now protected by the Rakaia river draft conservation order and this drain should immediately be filled in.

Photo: G McSweeney.

Public or private interest? Pastoral lease land and the Land Settlement Board

Crown land is administered under the Land Act 1948 by the Land Settlement Board. There is currently around 5,500,000 hectares (22% of New Zealand's land area) of Crown land, including many of our finest natural areas.

The Land Settlement Board's composition is Chairman (Minister of Lands); 3 reps of Department of Lands and Survey; 1 rep each from Treasury, MAF, Valuation Department and Rural Bank; 4 private members all farmers. [N.B. Professor Alan Mark, and Alan Evans have just been invited to attend LSB meetings.]

Pastoral Lease high country of the South Island, the largest single category of Crown land, comprises 2,700,000 hectares (10% of New Zealand's land area).

The remaining 2,800,000 hectares of Crown land consists of Unalienated Crown Land (UCL), mostly mountain crests in the South Island, land development blocks and a variety of leased Crown land (for farm, urban and industrial purposes).

Pastoral leases confer the following rights and obligations on the lessee:

☐ a perpetually renewable lease, at 33-year intervals

☐ no right to freehold

☐ exclusive right to pasturage but *no* right to: soil and water, trees (and shrubs), wild, introduced animals, and scenery.

☐ de facto trespass control

☐ restrictions on stock numbers

☐ restrictions on burning and cultivation.

In 1983 there were 369 runs under pastoral lease; 15 in Marlborough, 122 in Canterbury, 200 in Otago and 25 in Southland –- the average run size being 6,850 hectares.

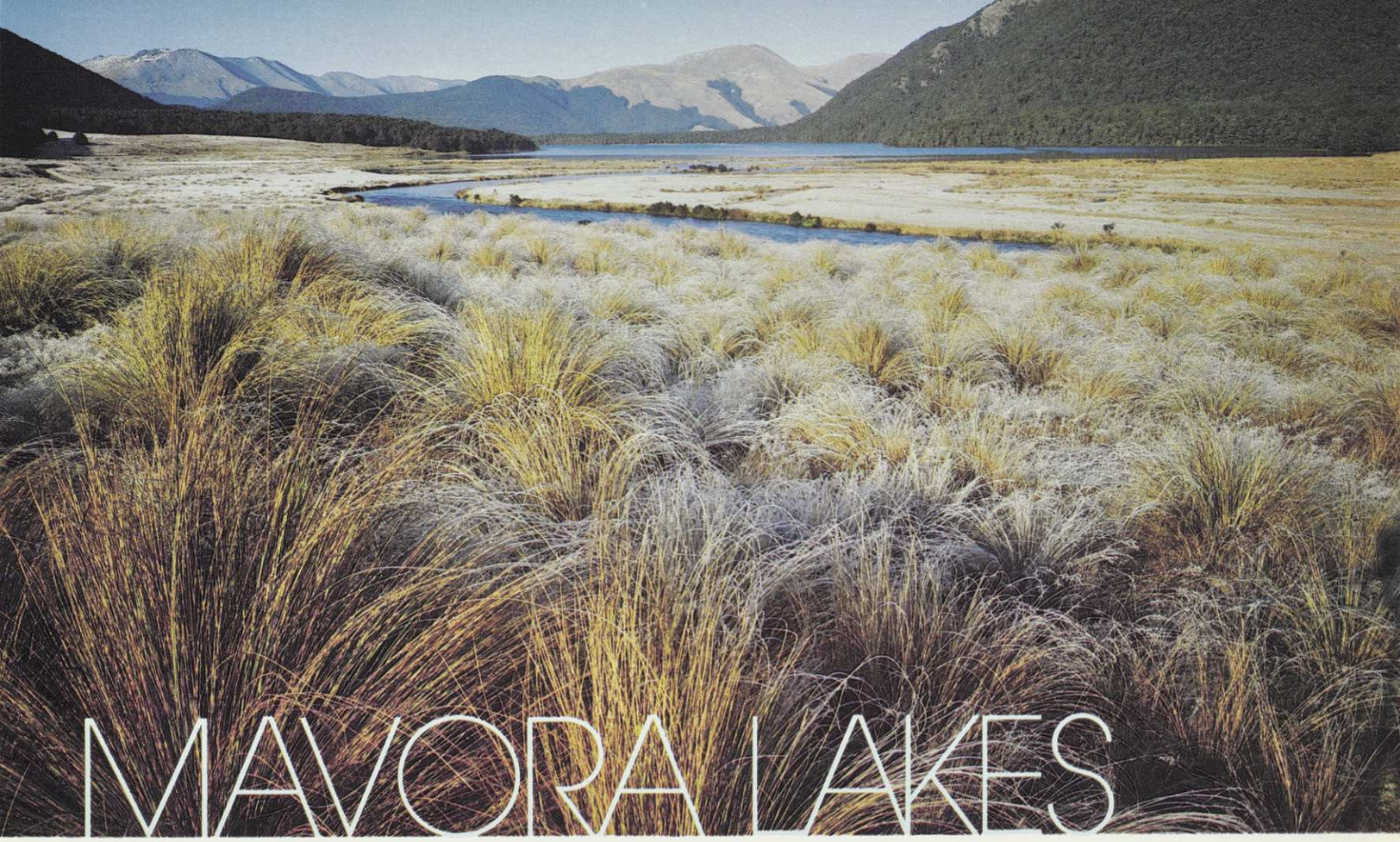
Crown income from this leasehold land is very low: $172,000 in 1982/83 (ie, 0.68¢ per hectare). The imposition of more realistic rentals has been widely criticised by lessees.

Unlucky lizards and other animals may fall prey to New Zealand falcon which range across the South Island tussocklands. Earnscleugh Station, Central Otago.

Photo: G Loh.

Vast areas of rock screes support specially adapted succulent scree plants and animals. The scree skink, *Leiolopisma otagense* var, *waimatense* is known from only a few localities, including the Clarence Valley in Marlborough shown here.

Photo: B W Thomas, DSIR Ecology Division.



MAVORA LAKES

National Reserve or Pastoral Park?

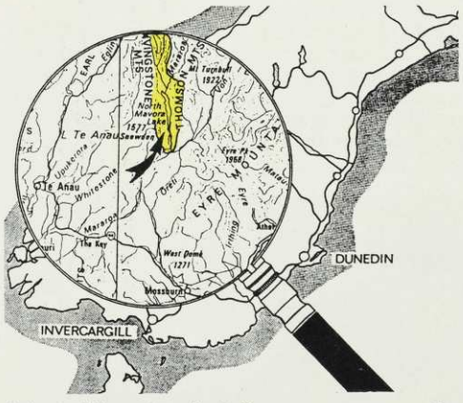
A red tussock wetland and south Mavora Lake. Many red tussocks have been grazed to extinction by cattle, yet the Pastoral Park management plan proposes continued cattle grazing in this valley. Mavora should be a scenic reserve. Photo: Barney Brewster

By Les Hutchins*

A unique blend of the stark, barren, mountainous qualities of Lake Wakitipu and the heavily forested mountainous lakes and fiords of Fiordland best describes the Mavora Lakes region.

The North and South Mavora Lakes — set in pristine surroundings of mountains, tussock, scrub and forest — lie in the glacial Mararoa Valley, more than 600 metres above sea level. Passes from the valley run north to the Greenstone Valley and east to the Von and Upper Oreti Valleys.

The main Te Anau-Queenstown highway is a 37 km away, while Invercargill is 140 km to the south-east. The area is especially important to the people of Otago and Southland because of its fine camping, fishing, tramping and boating. It seems inevitable that it will become more popular with tourists thanks to its strategic location — halfway between Queenstown and Te Anau.



Adapted from Lands & Survey management plan.

Recently Lands and Survey made public their draft management plan which proposed a "Pastoral Park" concept for these two magnificent lakes and their surroundings. The well presented plan discussed the recreation possibilities and recommended picnic areas, a visitor centre and camping grounds.

It also recommended limited grazing of the valley floor wetlands and tussock. The authors should be congratulated for an excellent document. However, there was one very unfortunate omission; the public were not asked if they wanted the area to be given permanent protection under the Reserves Act 1977, instead of its management as a "Pastoral Park", which has no legal basis other than as Crown land.

In the past, New Zealand's mountains and forests have been reserved for national parks and reserves, but little thought has been given to protecting landscapes representative of what the country used to be like — for example, wetlands, tussock, scrub, sand dunes and coastal areas.

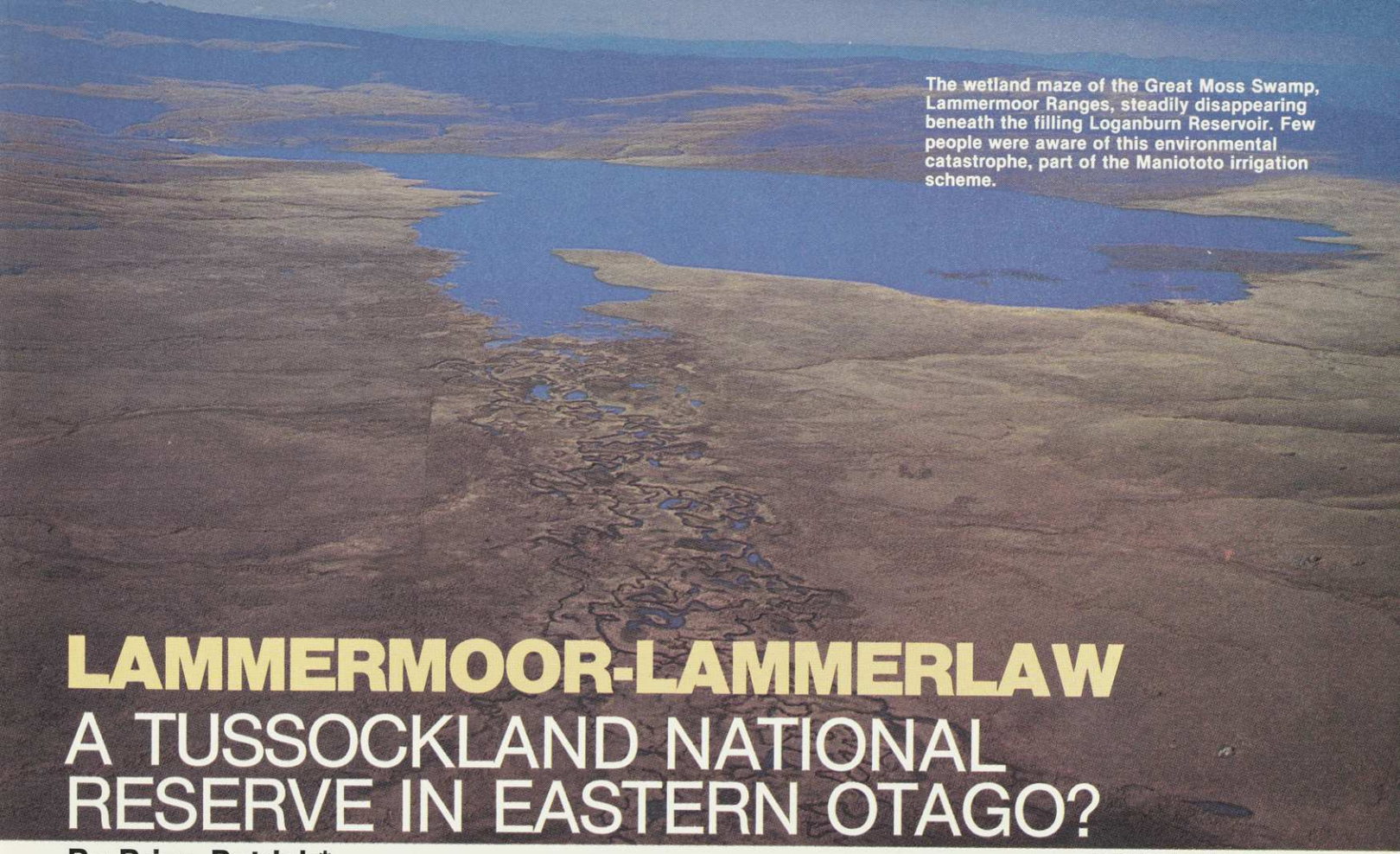
The 1977 Reserves Act says areas representative of New Zealand's original character should also be reserved. The Mavora Lakes fit the bill precisely.

The area is large — 35,000 hectares — natural in character and virtually unmodified. Given scenic reserve status, the area would then be an ideal candidate for elevation to a National Reserve.

Analysing public submissions on Mavora will be difficult for the decision makers. Although the draft management plan did not ask for public comment on whether the area should be reserved or not, this is clearly an option to be considered, and most submissions have so far favoured such a move. There was also widespread opposition to continued cattle grazing within Mavora, because of damage to vegetation and water quality.

Mavora is a large slice of public land with unique qualities which demand very sensitive management. We have not inherited this land, we have only borrowed it from our children.

**Managing director, Fiordland Travel Ltd; member National Parks and Reserves Authority.*



The wetland maze of the Great Moss Swamp, Lammermoor Ranges, steadily disappearing beneath the filling Loganburn Reservoir. Few people were aware of this environmental catastrophe, part of the Maniototo irrigation scheme.

LAMMERMOOR-LAMMERLAW
A TUSSOCKLAND NATIONAL RESERVE IN EASTERN OTAGO?

By Brian Patrick*

Photo: Quentin Christie, Soil Bureau

The Lammermoor-Lammerlaw ranges lie on the eastern edge of Central Otago and rise gently to just over 1200 metres. They are the source of the Taieri River and contribute to the flow of the Clutha to the south.

The broad, poorly drained summit is a mosaic of extensive tall tussock and numerous fragile cushion bogs. The gully systems harbour diverse shrub communities while the southern slopes have a few relic stands of beech forest that survived both Polynesian and European burning.

The Teviot Swamp and the Great Moss Swamp on the range are important wetlands that have been transformed into lakes, the latter recently to form the Loganburn Reservoir, part of the Maniototo irrigation scheme.

Upgrading of the road to build the Loganburn Dam has assisted agricultural change of the adjoining area, and development is threatening to spread south into the heart of the Lammermoors. The lessee of Rocklands Station, which extends across much of the Lammermoors, has a major development programme underway. He recently applied for a permit to burn the Lammermoors' western slopes. Burning, followed by over-sowing and increased stock will destroy the snow tussock and jeopardise future options for the area.

Immediate action is needed if the Lammermoor-Lammerlaws are to be safeguarded against future destructive development. These cold, wet, windswept ranges are unsuited for agriculture. If the upper slopes were fenced as a reserve, farmers could concentrate on farming the better country below about 900 metres. The reserve would benefit farmers by maintaining a well vegetated and stable upper catchment. Furthermore, the tall, fine leaves of the natural tussock cover intercept frequent fogs, thus supplying additional water. It is the water from these ranges that provides Dunedin's municipal supplies, hydro-electric power and irrigation water for the dry Maniototo basin.

The ranges are of great scientific interest. On the southern slopes of the Lammerlaws, scientists, spearheaded by Professor Alan Mark, want to preserve an altitudinal sequence of snow tussock in the Nardoo Stream catchment. Their efforts have been frustrated by an unsympathetic Land Settlement Board which has opposed reservation of lower altitude parts of the grassland sequence.

The natural diversity of the ranges is high. Minimal research has already turned up two new moth species that are restricted to these ranges, one an *Orocrambus* species found amongst sedge-filled bogs, the other a *Notoreas* species that flies rapidly in the hot sunshine over its larval food-plant, an undescribed species of *Drapetes*.

The area is at a biogeographic crossroads. Its plants and animals show links with those north to Danseys Pass and the Rock and Pillar range, inland to the Old Man Range, eastwards to the Maungatua Range and southwards to the Invercargill region.

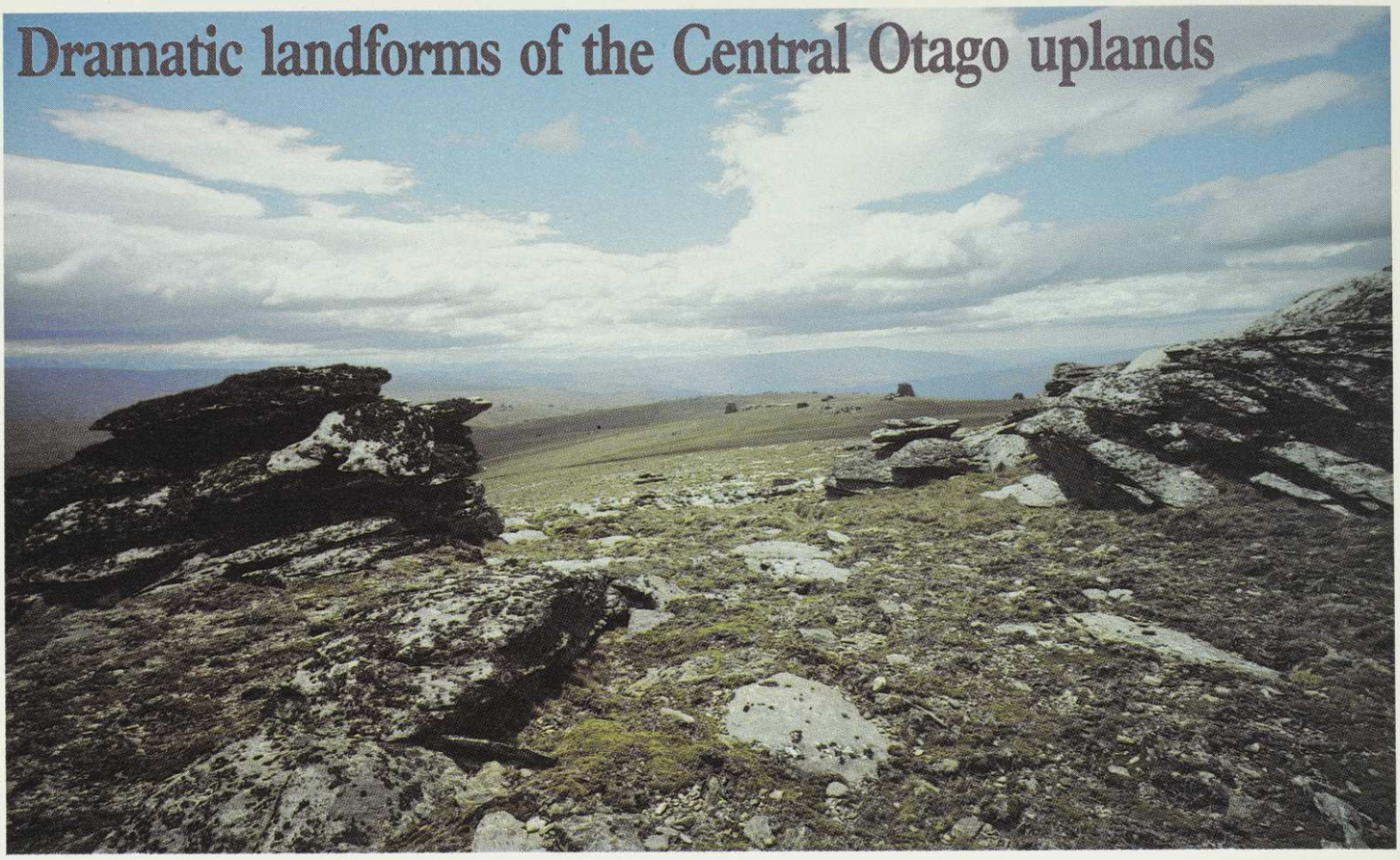
The Lammermoor-Lammerlaws are also scenically magnificent. Imagine ourselves without access to such ares as these, areas of vast tranquility with no network of roads, tracks and sign-posts? They are ideal for cross-country skiing, but all recreational activities must contend with the area's remoteness and rapid climate changes.

I believe the best status for these ranges would be as a National Reserve. Classification as a National Reserve must be preceded by designation as some other kind of reserve, so elevation to a scenic reserve as soon as possible is needed if we are to conserve this important tract of our natural heritage.

The moth, *Lythria siris*, occurs only on the Lammermoor-Lammerlaws, Old Man and Rock and Pillar Ranges of Otago.
Photo: B Patrick

**Society member, amateur entomologist*

Dramatic landforms of the Central Otago uplands



The summit of the Old Man Range: wind blasted and sculptured.
Photo: Brian Enting

by Alan Mark*

Most people who live or travel in Central Otago are aware of the gentle tussock grassland clad slopes, flat skylines and generally dry climate of this region.

The few who venture on to the uplands, however, experience a unique environment of extensive plateaux studded with impressive pillars of schist rock, called tors, up to 16 m high. These tors contrast strikingly with the short snow tussock and dwarfed cushion vegetation that, like the tors, reveal obvious signs of wind blasting and sculpturing.

The relatively severe climate of these uplands, particularly the persistent strong winds and frequent freeze-thaw cycles even throughout summer, is reflected in the fascinating tundra-like plant cover on all but sheltered sites. Among about 30 genera of alpine plants there, almost all are represented by their smallest species.

Ski touring on the summit of the Garvie Ranges
Photo: P Gresham

Despite the severe climate there is a surprising amount of bird life: pied oyster catchers, banded dotterels and pipits are conspicuous, especially while nesting here during early summer.

The curious and striking patterning of the ground is a special feature of the range summits. Soil hummocks and stripes, solifluction terraces and lobes, stone nets and stripes, occur in different situations, each with a distinctive micro-pattern of plant cover. Leeward edges of the plateaux are scalloped into a series of small cirques where snow often persists through most summers.

Although it is the climate rather than terrain that is rugged on the Central Otago uplands — mean annual air temperatures are close to zero — they nevertheless have an interest and value for naturalists and scientists in many fields. They also offer a range of recreation both in summer and winter and, given promotion, I predict will be of growing interest for tourism.

The virtual absence of any formal reserves in all of Central Otago has given rise to the Protected Natural Area programme, aimed at identifying the needs of, and areas for, an adequate system of representative reserves. The Central Otago uplands, however, are sufficiently distinctive and important nationally that they justify special recognition in the same way that Grasslands National Park in Canada, Flinders Range National Park in Australia, Torres del Paine Parque Nacional in Chile were all created recently from grazing land, and a Prairies National Park is being considered in USA.

Of the various mountains in Central Otago, those southwest of the Alexandra are notable because their greater extent has ensured that the most remote parts have been barely modified by more than a century of pastoralism. Moreover, it is possible to link up with the Remarkables-Hector mountains of the Lakes Region to create a most impressive Central Otago Uplands tussock grassland reserve: the Old Man-Garvie-Remarkables Scenic Reserve, that would surely qualify as a national reserve.

This reserve would include the upper slopes (above about 1400 m) of the Old Man Range which has easy road access from Alexandra. The Old Man Range is remarkable for its ecological diversity and its many impressive tors (including the region's tallest, Obelisk, at its highest point), even if it does not have the same degree of naturalness as the Garvie Mountains further west.

Much of the area proposed for the

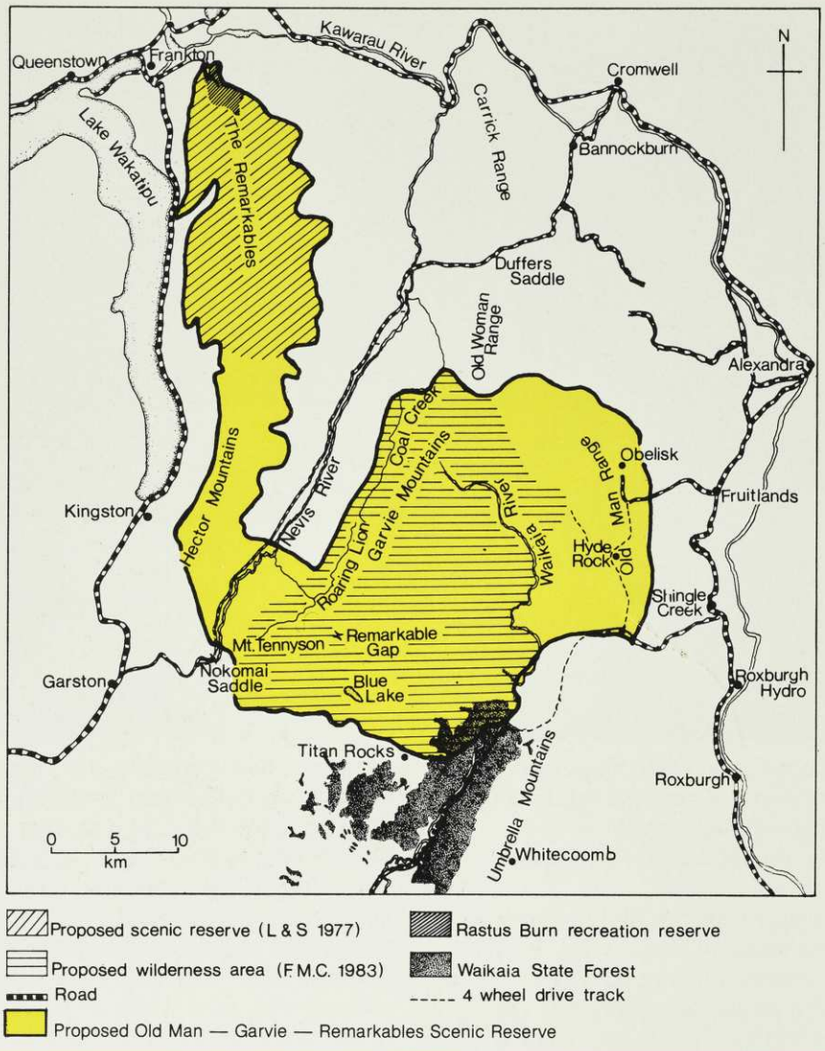
Remarkables-Hector Mountains was recommended for reservation as scenic reserve by the Lands and Survey Department Remarkables-Hector management study in 1977. The Hector ranges would include the only known location of the recently discovered brown woolly chafer beetle (*Prodontria pinguis*).

The potential for wilderness recreation has already been recognised for a large part of the remainder — the Garvie Wilderness is one of ten recommended by the 1981 Wilderness Conference.

Only land with limited or negligible productive potential (Class 7 and 8) would be involved over perhaps 17 pastoral leases including the 50,988 hectare Glenary run, this country's largest pastoral lease. Some lessees may be willing to surrender their title to part of the least productive area of their run in exchange for a right to freehold some of their lower altitude more productive country.

The Government's review of procedures for freeholding pastoral lease land should ensure that this can occur and thus open the way to protect one of New Zealand's finest natural areas.

* *Associate Professor of Botany, University of Otago. Society National Executive Councillor.*



AHURIRI VALLEY

by Bruce Mason*

The Ahuriri River and its wetlands are of international importance. They are home for many of our endemic black stilts, the world's rarest wading bird — little wonder that the river was protected by a draft conservation order last year.

Another 54 species of birds associated with the river and its delta have been recorded by the Wildlife Service, 34 of which are indigenous or endemic to New Zealand.

To date, the Ahuriri — the southernmost tributary of the Waitaki catchment — is the only major waterway in the upper Waitaki that has not been dammed or diverted.

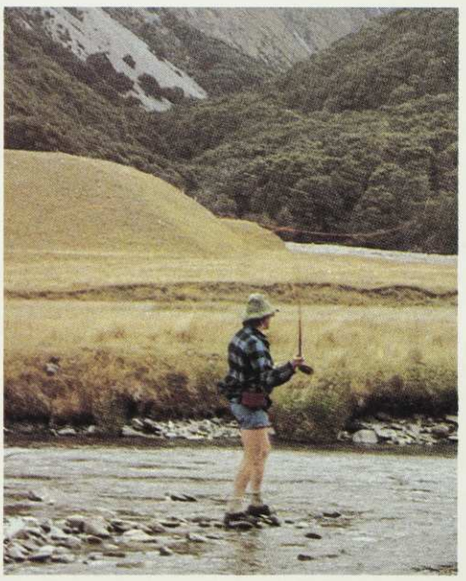
Man has hardly changed the Ahuriri's natural landscape. Alpine grasslands dominated by snow tussock occupy a zone above the forest and below alpine fellfields. Pockets of mountain beech cling to valley walls, reflecting the effects of fire and grazing, while towards the moister valley head silver beech becomes more or less continuous.

Short tussock and exotic grasses now dominate the lower valley walls and floor, although isolated examples of original native vegetation remain in the swamps near the river.

The first ascents of the Ahuriri's major peaks were made in the 1930s. However, plenty of climbing challenges still remain, especially on glacier-shrouded Mt Barth and on the sheer south face of Mt Huxley.

The valley is attractive tramping, camping and deerstalking country. Spectacular Canyon Creek and its hanging upper valley is a dramatic place to visit. Range crossings north and south lead into the Dingle Burn and the Maitland via Snowy Gorge Stream.

As the only unmodified river left in the Mackenzie Basin, the Ahuriri is becoming increasingly important for canoeists and anglers. The two metre high "Ahuriri drop" and a mid-valley



Fly fishing, Ahuriri-Canyon Ck junction. The Ahuriri is a magnificent fishing river and acclimitisation societies, along with our Society, strongly support efforts to protect the South Island high country's rivers and wetlands.

Birchwood Station wetlands and the Upper Ahuriri River. Canyon Creek is in the centre distance, with Mt Barth (2416m) to the right.

Photo: Barney Brewster

gorge offer good white water, while the river has an international reputation for trout fishing — important for the growing tourist industry at nearby Omarama.

Up valley from the Ahuriri Plain there are nine pastoral leases over Crown lands. Farmers do not occupy all areas — much of the beech forest is State Forest and the upper valley floor is Unalienated Crown Land (UCL). There are no reserves of any consequence outside of these areas; thus the Ahuriri's scenic and recreational attractions now under threat from farming development urgently need better protection.

Public or Private Interest — the Birchwood Case

Birchwood Station is the only pastoral lease in the Ahuriri valley head and has long been the focus of public attention. Farming interests have always dominated alternative uses of Crown pastoral land and Birchwood highlights the conflicts between public and private interests.

It is clearly an historical mistake that Mts Huxley (2484m) and Barth (2416m, Thurneyson Glacier included), and the extensive alpine barrens of the Barrier Range were included in pastoral tenure. It is incredible that they remain so.

The public is not always welcome at Birchwood Station. The first indication is a "Private Property — Trespassers Will Be Prosecuted" sign on the public road leading to and beyond the homestead.

Visitors have found to their annoyance and inconvenience that access to the State Forest and ungrazed portions of the run has often been refused, sometimes even after prior consent has been obtained. Ironically, the Forest Service has put several thousand dollars into upgrading the road access to the State Forest to encourage public use. The work has also improved farm access for the runholder.

Sections of the road formation deviate from the legal road, but rather than relocate this, as is within its power, the Crown proposes to close the legal road and issue a 33-year special lease over the road formation to the runholder — over a road that is effectively maintained by the taxpayer! While public access will be permitted, the runholder will hold discretionary rights over who drives on it. No doubt the prospect of needlessly walking along 8 km of metalled road will continue to act as a deterrent to public use.

Lands and Survey consider this arrangement an improvement on a long-standing access problem. But recreational users were not even consulted before this was done. Now we are appealing against this decision.

In return for the runholder surrendering his legal rights over a few hectares of non-legal road, he has been offered the incorporation of 730 hectares of valley floor (UCL) into the pastoral lease at no additional charge. This relatively productive land is probably the best bargaining point the Crown could have in decades to reach a full accommodation of wider community interests. This opportunity must not be lost.

A single purpose, exclusive tenure system at Birchwood has proven to be inappropriate. Instead a range of land uses should be integrated there. Immediate priorities are:

☐ Fencing and protection of wetlands and river margins from grazing, burning, over-sowing and drainage.

☐ Surrender of all alpine country from the lease (about 15,000 hectares), not just the Mt Barth-Huxley area (circa 5000 hectares) which has been agreed.

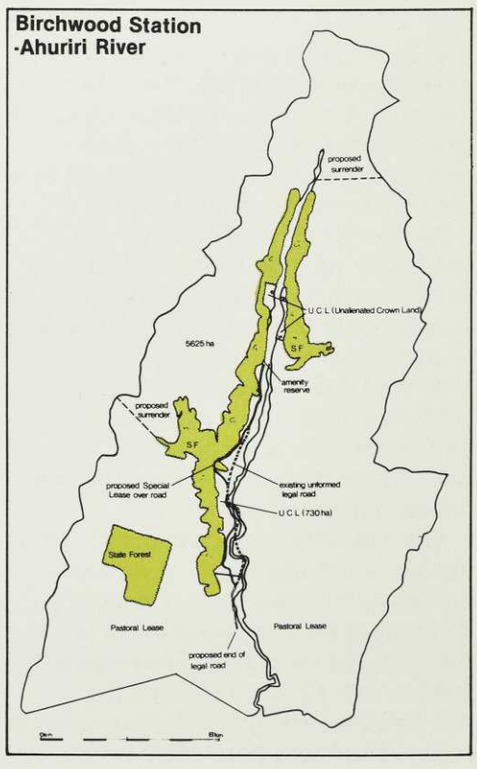
☐ Open public access to the State Forest at Canyon Creek.

☐ Public foot access to the Ahuriri River, the Dingle Burn State Forest and all surrendered high country.

☐ Reservation of beech forest within the pastoral lease and exclusion of stock from this forest.

Will private interest continue to prevail in the allocation and use of public lands? A new balance of interest is necessary, but not on the historical models currently practised.

**Researcher, Federated Mountain Clubs and Royal Forest and Bird Protection Society.*



Looking over Kaikoura to the Seaward Kaikouras. A local Maori group has proposed National Reserve status for the range.

This unnamed nocturnal gecko *(Hoplodactus* sp) from the Seaward Kaikoura Range appears restricted to the alpine zone, living on exposed rocky bluffs on the steep tussock and shrub-covered slopes.
Photo: B W Thomas, DSIR Ecology Division

MARLBOROUGH'S KAIKOURA RANGES

by Barry Dunnett*

On a fine day any visitor to the Kaikoura coast cannot fail to be drawn by the beauty of the scene. Nowhere in New Zealand does the sea touch so close to such high mountain tops.

The two ranges of the Kaikouras form great parallel humps which dominate the area. The ranges have been rounded through erosion with winter snows covering extensive screes of summer. The Seaward Kaikouras nurture a valuable remnant of the great forests which once covered almost the whole area. They also host many plants and animals which occur only in Marlborough province, while some are even restricted to the Kaikoura ranges.

Here is an area ripe for preservation. Recent changes to Government high country policy have prompted local people to make several reserve proposals for public lands in the Kaikouras. Last year a local Maori group, the Kaikoura Tribal Committee, proposed National Reserve status for the Seaward Kaikoura Range. In 1983, the North Canterbury National Parks and Reserves Board identified a large section of the Seaward Kaikoura Range as a possible National Reserve. Soon after, a detailed submission was presented to the Board by three Kaikoura residents, supported by Marlborough MP Doug Kidd; Federated Mountain Clubs and the Royal Forest and Bird Protection Society.

Although these proposals recommended reserve status only for the Seaward Kaikoura Range, Forest and Bird submitted that an enlarged reserve to include the Inland Kaikoura Range, with a linking corridor across the Clarence Valley, should be investigated. At present the reserve proposal is being studied by a sub-committee of the North Canterbury Parks and Reserves Board.

Why are the Kaikouras special? They are scenic and very accessible and therefore important for hunting, tramping and climbing. The ranges have high soil and water protection value in an area of extreme erosion. Apart from the Catlins area, the Kaikoura forest remnants are the largest on the South Island's east coast.

Forests extend in a narrow but continuous belt along the eastern slopes of the Seaward Kaikoura Range north to the Clarence Gorge. They contain fine stands of lowland mixed podocarp and beech forest which include many plants near their southern distribution limits (eg tawa, rangiora, wharangi). In the northern section of the Seaward Kaikoura grow stands of the rare weeping Broom (*Chordospartium stevensonii*). The forest contains most native bird species with only the kaka, weka and kiwi absent. Above the treeline are located the only two known breeding colonies of the Hutton's shearwater (*Puffinus huttoni*) — one on a reserve, the other on leasehold land. These colonies contain approximately 50,000 active burrows. A variety of giant weta and a special gecko occur only on the range.

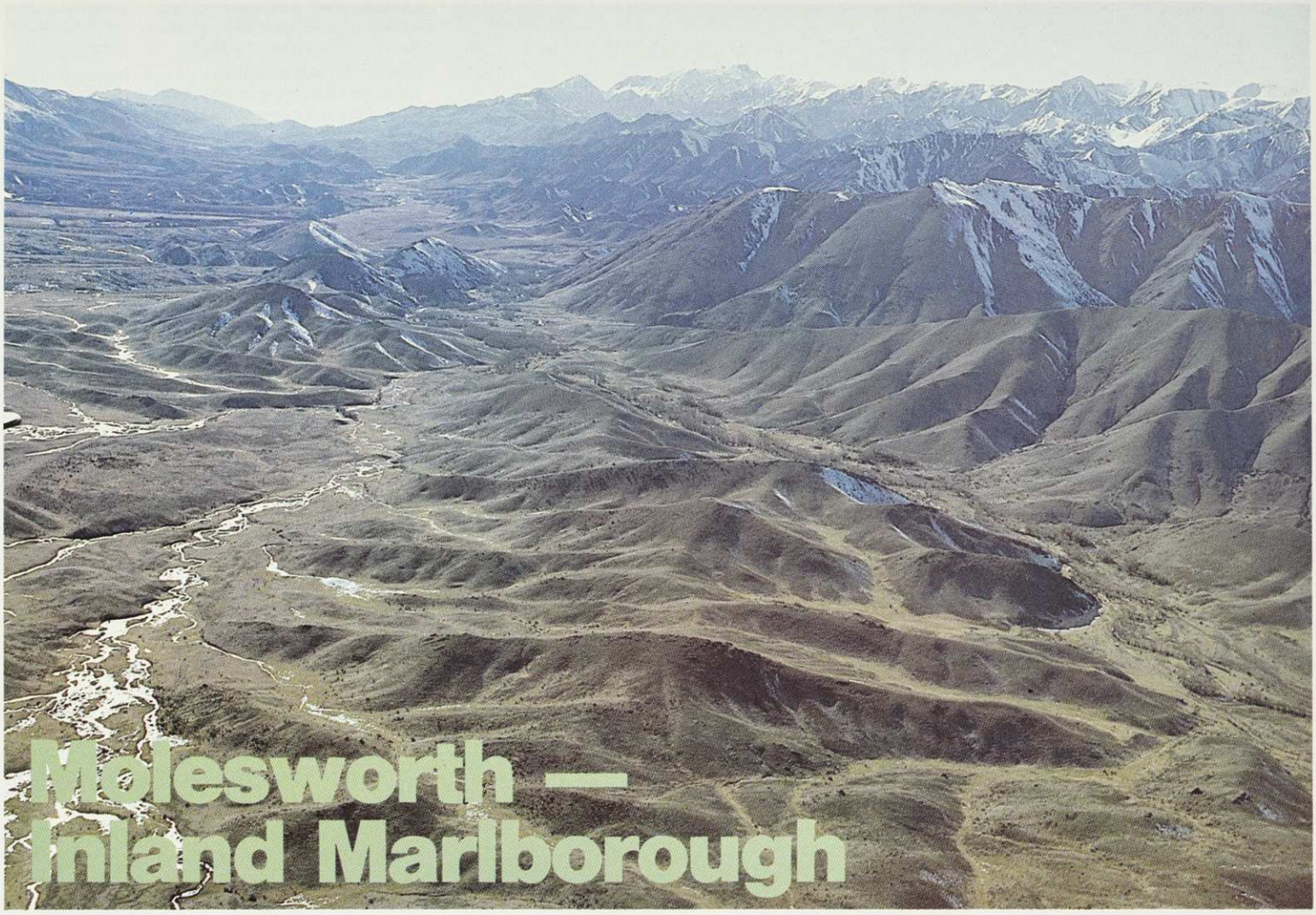
The Seaward Kaikoura Range is a patchwork "quilt" of land tenure with blocks of unalienated Crown land, a Nature Reserve, State Forest and Scenic Reserves. A continuous reserve which preserves the range's main landform and biological features would also involve other leasehold Crown land extending to the 2,610 metre summits of the range.

A continuous, large reserve would ensure that the area is managed effectively and would permit unrestricted access along the range.

On 14 May 1984, the Lands and Survey Department announced the surrender of 3,422 hectares of land from a Seaward Kaikouras Crown lease, while the balance of the leasehold land containing good grazing land was freeholded. The retired land has now been gazetted as the Mount Manukau Scenic Reserve.

Lands and Survey Marlborough Commissioner, Ian Mitchell, sees this reserve as "the key to a tentative proposal for a chain of reserves along the top of the Seaward Kaikouras". Such forward-looking policies are an example for management of the rest of the South Island high country.

**Kaikoura resident and keen tramper.*



Molesworth — Inland Marlborough

by Les Molloy*

East of the Spenser Mountains, the backbone of Nelson Lakes National Park, the landscape quickly changes to reflect a reduction in rainfall (7,000 mm down to 700 mm annually) and historic burning of the vegetation.

The result is a remarkable tussock grassland landscape, a series of glacial basins and ranges tucked between the Spenser and Inland Kaikoura mountains. Features of this landscape are:

☐ the scenic mixture of beech forest and tussock grassland mountain valleys, such as the upper Waiau, Clarence, Wairau, and Begley and Paske tributaries of the Rainbow.

☐ Lake Tennyson, a blue jewel set in a tawny tussock landscape, with its scientifically interesting moraine wetlands;

☐ the active Wairau, Awatere and Clarence faults;

☐ the vast, treeless, short tussock grasslands, open spaces and rare plants of the Acheron, Clarence and upper Awatere valleys (see photo).

Most of the drier tussockland lies within Molesworth Station, a huge (180,000 hectares) area of Crown land administered by the Lands and Survey Department after the Crown took over the Molesworth, Tarndale, St Helens and Dillon pastoral runs in the 1930's and 1940's. Fires and overgrazing by sheep and rabbits had severely depleted these tussocklands.

Today, Molesworth's recovery — through control of burning, replacement of sheep by cattle, control of rabbits and aerial oversowing of grasses and clovers — is a tribute to farm managers, scientists and soil conservators within Government agencies.

People are attracted to Molesworth by its wild open spaces. There is scope for walkways, fishing, horse-trekking, canoeing, hunting and possibly even 4-wheel drive safaris compatible with pastoral farming.

A recent Lands and Survey study found that only 5–10% of the most scenic and recreationally-important land in inland Marlborough and Awatere Counties had any formal protection. There are no scenic or scientific reserves between Lake Tennyson in the west and the alpine summits of the Inland Kaikoura Range.

Public access to the area is difficult. There have been long-standing access difficulties through Rainbow Station in the mid-Wairau. The Hanmer to Tophouse "road" (installed by NZED to service its transmission line) is only suitable for 4-wheel drive.

Lands and Survey may make it easier for the public to visit this area when the Molesworth draft management plan is released next year. Certainly there is public demand for access, as shown by the popularity of the St James Walkway opened recently through tussocklands near Lewis Pass.

Although Molesworth's vegetation is much modified, its landscape is outstanding, some of its plants and animals only occur here and the whole area is different from anything else in New Zealand's protected area system. Its recreation and conservation values urgently need better recognition.

*Soil Scientist. Vice President Federated Mountain Clubs.

Molesworth Station in the dry headwaters of the Awatere River. The Inland Kaikouras are in the distance.
Photo: Quentin Christie, Soil Bureau

Vegetable sheep, *Haastia pulvinaris*, has adapted to stable screes. Mt Princess, East Spencers.
Photo: Les Molloy

THIS FROG NEEDS PROTECTION

Photo by courtesy of N.Z. WILDLIFE SERVICE.

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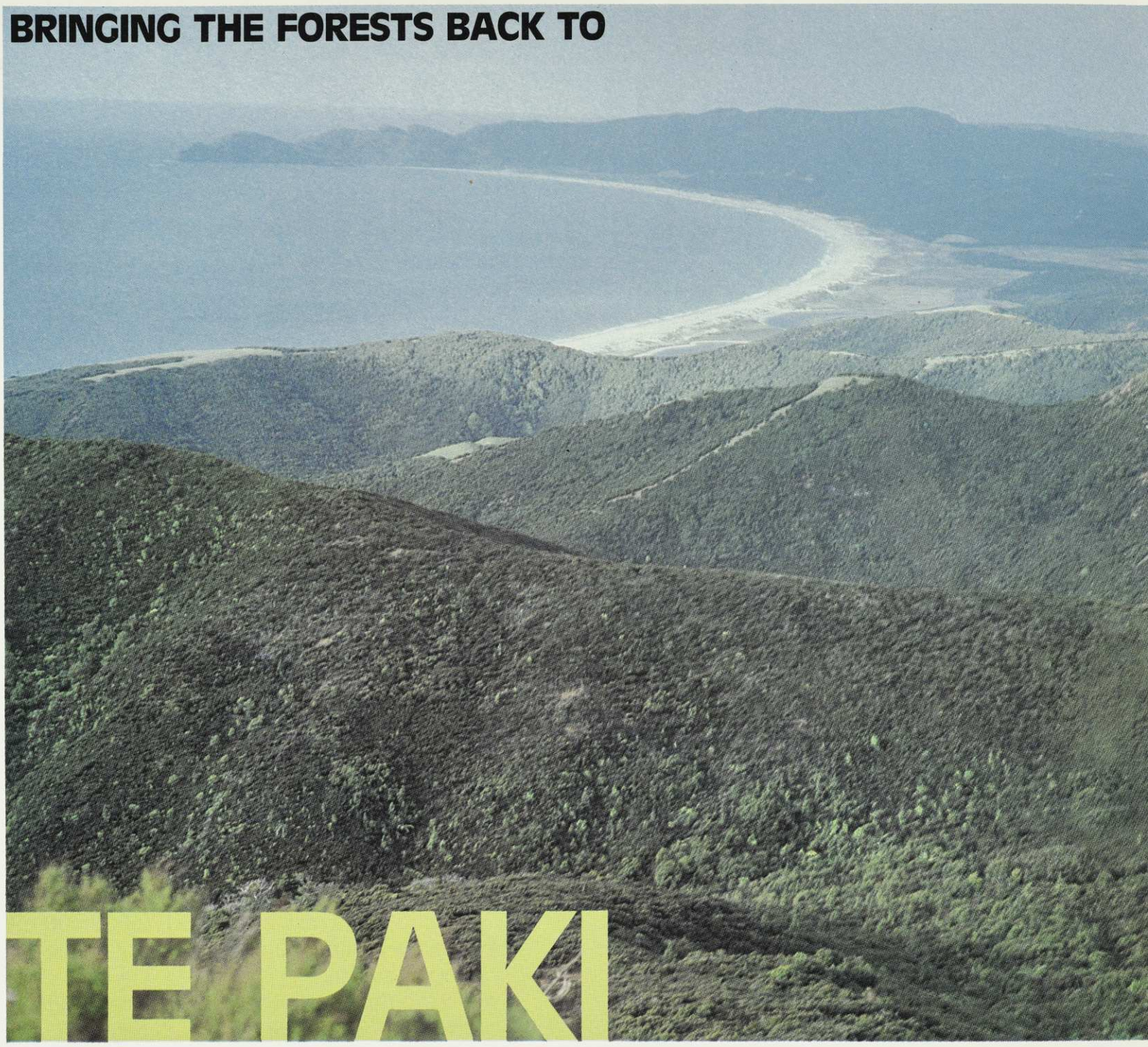
BRINGING THE FORESTS BACK TO TE PAKI



by Mark Bellingham, Forest and Bird northern regional field officer

At the northern tip of the North Island, native vegetation still extends from the Tasman Sea to the Pacific Ocean.

Te Paki's forests, shrublands and herbfields are beginning to recover from 1,000 years of human influence. When the Maori first arrived here, moa, kakapo, kokako, kaka and many other birds were found amidst lush forests. The coastal area had rich and plentiful populations of fur seal, fish and shellfish.

However, over the last thousand years the vegetation has been progressively cleared for gardening and settlements and, more recently for farming, gum-digging, exotic forestry and mining.

In 1966, the Crown bought the 17,600 hectare Te Paki Station from the Keene family to preserve this area in public ownership. The main objectives of the purchase were to protect the natural features of Te Paki and to develop farmable areas.

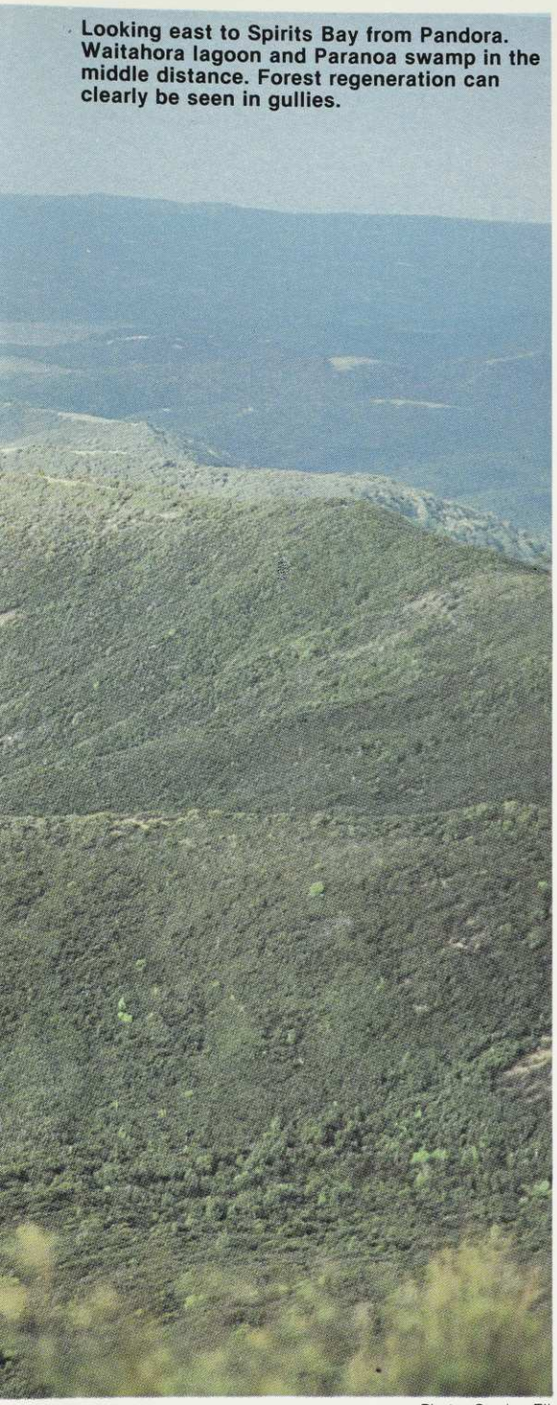
A natural island in a sea of change

The 4,380 hectare Mokaikai block was purchased in 1973 and is to be managed as a scenic reserve. Another 493 hectares of sand dunes adjoining the Te Paki stream was acquired by the Crown in 1983 bringing the total Crown land holdings at Te Paki to 22,692 hectares.

A draft management plan for the Crown land at Te Paki was released on 6 August 1984. Great emphasis has been given in the plan to protection of Te Paki's natural and culturally important areas. The plan also recognises the national importance of Te Paki for recreation and tourism. Unfortunately the plan's proposal to clear 2,250 ha of shrublands at Spirits Bay detracts from its otherwise excellent proposals.

Today 20% of the Te Paki region is covered in pasture and the Northern Pulp company's pine plantations on part of the Te Hapua No 42 Maori Incorporation lands. The major proportion of Te Paki which remains in natural vegetation contrasts sharply with the land alongside the 100 km drive north from Kaitaia to Te Paki. Apart from the Kaimaumau swamp and small shrubland and lake areas in Aupouri exotic forest, Te Paki is the last large natural area remaining on the entire Aupouri peninsula.

After the Crown acquired Te Paki, fire control and some reduction in wild stock have allowed generally healthy forest regeneration, noted by O'Brien in 1971 (*Forest & Bird* No 181) and even more apparent today. At Radar Bush young kauri and the podocarp monoao



Looking east to Spirits Bay from Pandora. Waitahora lagoon and Paranoa swamp in the middle distance. Forest regeneration can clearly be seen in gullies.

Photo: Gordon Ell.

covered with water and Te Paki-North Cape formed a number of islands. There are 10 sub-species of the large pupuharakeke, the flax snail and a Te Paki sub-species of pupurangi, the kauri snail (*Paryphanta*).

Many of the endemic plants occur on the serpentine soils of North Cape Scientific Reserve. Here the harsh environment and mineral rich serpentine soil have caused a range of plant species to show a convergence to low growing and straggling forms. The endemic tanekaha is no more than 1.5 m high and creeps across the ground, as do the special *Coprosma* and *Pittosporum* species found here. Many of the plants retain their low-growing habitat, even when grown in cultivation.

There is a large serpentine quarry in the middle of the Scientific Reserve that threatens the habitat of many of these plants. Hopefully the mining licence will not be renewed and the quarry will be permanently closed to allow North Cape's special plants to recolonise the scars. Closure of the quarry is also favoured by the draft Lands and Survey management plan.

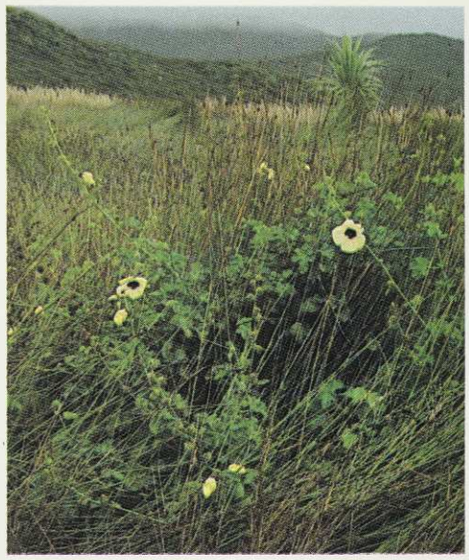
Shrublands — forgotten habitats

Naturalists have studied Te Paki's forests, geology, landsnails and insects. However the scrub, shrublands and kanuka forests have been largely neglected.

The high natural value of the kanuka forests and scrub in the Spirits Bay catchment has only been recognised recently. The eastern half of the catchment has an unusual stunted manuka and sedge (*Lepidosperma filiforme*) community unique in Te Paki. The western and southern catchment is in medium and tall kanuka forest, which shows good signs of regeneration into

Tropical morning glory, *Ipomaea palmata*, a threatened plant species growing beside the Waitahora lagoon, Spirits Bay.

Photo: Mark Bellingham.



The rare *Hibiscus diversifolius*, one of only three plants that have survived stock grazing on the Spirits Bay sand dunes.

Photo: Mark Bellingham.

The rare Northland green gecko, *Naultinus grayii* occurs throughout Te Paki's shrublands. Elsewhere in Northland it has disappeared as its shrubland habitat has been destroyed.

Photo: Mark Bellingham.

(*Halocarpus kirkii*) are emerging from introduced hakea and native kanuka. The smooth canopy of kanuka and manuka is broken by podocarp, broadleaf, tree fern and cabbage tree crowns.

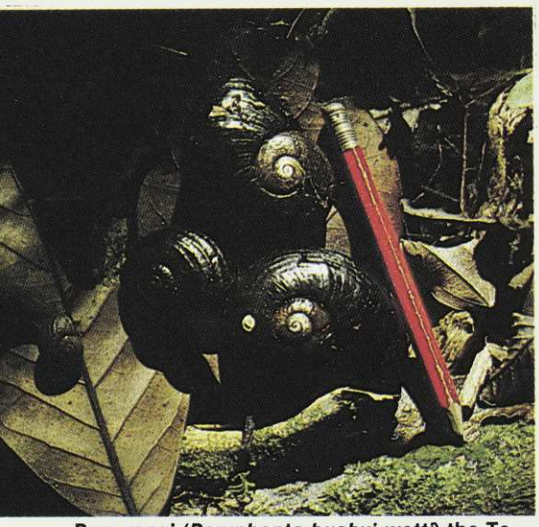
Plants and animals found nowhere else in New Zealand

A Wildlife Service report in 1982 ranked Te Paki's forests and shrublands as outstanding wildlife habitat. Wildlife Service scientist, Colin Ogle said in the report "all native vegetation, including shrublands and scrub, of the Far North (Cape Maria van Dieman to North Cape) should be preserved and protected".

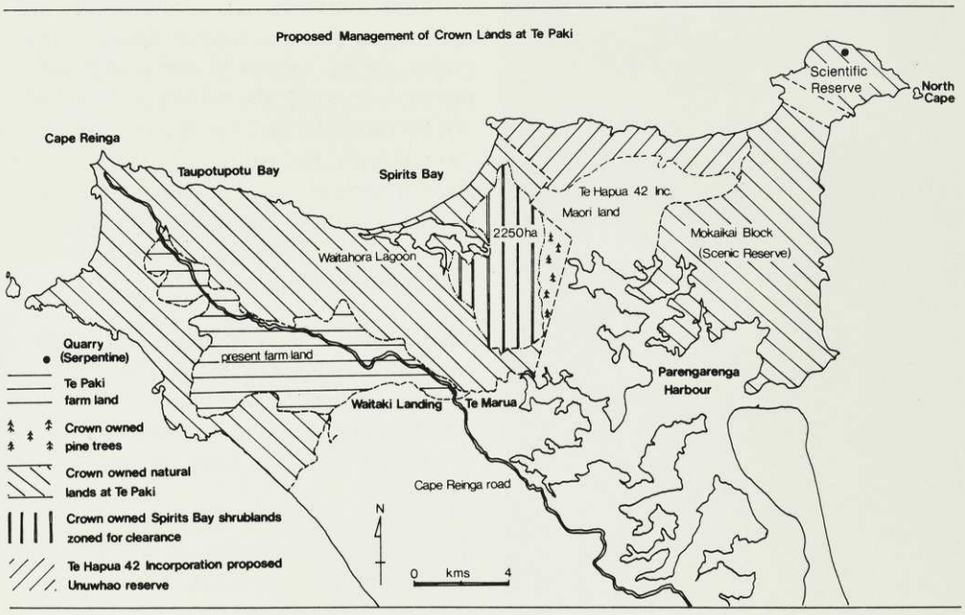
The Te Paki region is important for its high number of endemic plants, land snails and other invertebrates. This partially arises from the long period of isolation during recent geological time when the Aupouri Peninsula was

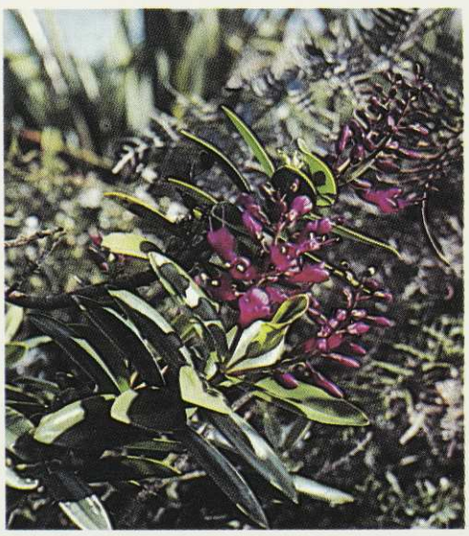
The huge west coast sand dunes beside the Te Paki stream.
Photo: John Coster, Lands and Survey.

The serpentine soils of the North Cape Scientific Reserve support low growing shrub species including many plants found nowhere else in the world. The serpentine quarry seen here in the middle of the photo is steadily destroying the reserve.
Photo: Gordon Ell.



Pupurangi (*Paryphanta busbyi watti*) the Te Paki kauri snail in tall forest on Kohuronaki hill, Spirits Bay.
Photo: Mark Bellingham.





***Hebe macrocarpa* var *brevifolia* occurs only in the North Cape Scientific Reserve.**
Photo: Anthony Wright

broadleaf forest, although stray cattle are badly browsing some gullys.

These kanuka forests have a significant population of the Northland green gecko, that is now mainly confined to Te Paki. North Island fernbird can be found in the Paranoa Swamp in the lower catchment and throughout low scrub areas.

The draft Te Paki Management Plan identifies farming potential in the Spirits Bay catchment. It zones a 2,250 hectare area of shrubland for clearance. Not only will this destroy the chance of scrub regeneration, but it is also likely to degrade the extensive Paranoa Swamp/Waitahora Lagoon wetlands with sediment and fertiliser run-off.

Public submissions on the Te Paki management plan closed on 4 October, and there has been widespread public opposition to the Spirits Bay clearance. We hope that Lands and Survey will reconsider this proposal.

Wild cattle, horses, sheep and pigs have seriously damaged coastal and forest areas, particularly in the Spirits Bay dune system and surrounding kanuka forests, the North Cape Scientific Reserve and many of the pupuharakeke (*Placostylus ambagiosus*) snail colonies. Proper eradication measures would soon solve this threat to many areas in Te Paki. Once this is achieved the Te Paki forests will show an even more impressive burst in their transition from fire-tolerant scrub communities to mature forest.

The Unuwhao reserve proposal

The Te Hapua people have proposed to reserve the Unuwhao bush, to protect its cultural and natural values, while retaining the reserve in Maori ownership. Their foresight will not only protect this magnificent piece of coastal pohutukawa and kohekohe forest, but will also link a forested reserve from Cape Reinga to North Cape and through to the Parengarenga Harbour.

The wilderness feeling of Te Paki draws many visitors from other parts of New Zealand and overseas. The coastline and dune systems are the present drawcard, but as Te Paki's forests regain their former glory, this region will become one of the natural jewels of New Zealand. The area deserves national recognition as a National Reserve.

Will the Tuamoto sandpiper suffer the same fate as the Tahiti sandpiper, here depicted by Georg Forster in 1774? The Tuamoto sandpiper is similar in form but duller in plumage.

The Tuamotu sandpiper: little known, little cared for

by Rod Hay*

The Tuamotu sandpiper (*Aechmorhynchus cancellatus*) is now close to extinction, and one does not have to look far to see why: the spread of humans across the Pacific has been accompanied by rats, cats and dogs, animals that the bird had not previously known.

It is a familiar story. But what is to prevent the Tuamotu sandpiper sliding towards the fate of its close relative, the Tahiti sandpiper, which became extinct not long after Cook's travels? The key is information on the bird, followed by action to help it survive.

The sandpiper is found in the Tuamotu Islands, one of the least biologically known archipelagos of the Pacific. Most of its 76 atolls, with nearly 400 islets, are little known, although Mururoa and Fangataufa are certainly not in that category, thanks to the French nuclear test programme.

While humans are found on all the major islands, remote wilderness still remains, albeit in a fragile fashion.

The Tahiti sandpiper (*Prosobonia leucoptera*) is only known from three specimens collected from Tahiti and Eimeo in the Society group in 1774 during one of Cook's forays into the Pacific. In fact only one single mounted specimen remains — to be seen in the Rijksmuseum von Natuurilijke Historie in Leiden in the Netherlands. Its distribution during Cook's day appears to have been very limited, and its extinction, due to unknown causes, was very swift.

The Tuamotu sandpiper was not discovered until Cook's third expedition, which included a stop at Christmas Island, 2000 km to the north of the Tuamotu achipelago. In contrast to the Tahiti sandpiper, this species was widespread, though ironically it has never again been found where it was originally discovered.

In the 1920s, field naturalists from the Whitney South Sea Expedition, Quayle and Beck, collected or reported sandpipers from at least 16 atolls, although they had already gone from others by then (Holyoak and Thibault, ms.). The then current attitude of "collect before it disappears" means that 60 of the specimens are today found in the American Museum of Natural History.

Similar collecting today could have disastrous consequences. Recent records are limited to the islands of Marutea du Sud and Maturei-Vavao, where they are probably breeding (Lacan and Mougin, 1974), Pinaki and Nukutavake (King, 1981) and the sighting of a single bird on Rangiora (Holyoak, 1973a). Recent breeding records do not exist and no detailed studies of the species have been carried out.

Philip Bruner (1972) has summarised the little known about the birds' ecology. Known locally as the kivi-kivi, they measure only 16–17 cm in length, and exhibit two colour-phases: a dark form with a dark brown head and upper back and underparts heavily streaked with brown on a light buff background, and a light form with similar markings but much paler in tone. Both forms have a light streak over the eye and brown tail and wings.

Apparently they interbreed freely and the colour differences do not relate to sex. They are very active, keeping up an almost constant peeping call, similar to that of a small plover like the wrybill or banded dotterel.

Their diet is mainly insects — ants, wasps, crickets and beetles — along with some seashore invertebrates. Like many species which have evolved in the absence of ground predators, they are exceedingly tame and have been caught by hand. They are most vulnerable during breeding, with chicks remaining on the ground for weeks until they can fly. The nest is a loose structure of twigs and grass in a depression in the sand amongst coral rubble.

A plan for conserving the species has been prepared for the South Pacific Regional Environment Programme and the International Council for Bird Preservation.

It says a survey of the following atolls has to be made to see if the bird has survived since reports of the 1920s: Fakareva, Kauehi, Taenga, Katiu, Tuanake, Hiti, Tepoko, Vanavana, Teneraro, Vahanga, Tenarunga and Maria.

Also suggested is a study of breeding and habitat needs on Marutea du Sud, Maturei-Vavao or Nukutavake, and investigation of the feasibility of establishing a reserve on, for example, Maturei-Vavao.

It is vital to avoid the "colonial" attitude of coming from afar and not involving the locals in the work or sharing information with them. A "reserve" for the species may not be a reserve in the sense with which we are familiar, but may be an area in which certain conditions to land use apply in recognition of wildlife.

Cats, dogs and rats other than the Polynesian species should be restricted. Other conservation measures such as relocation and captive breeding would have to be considered carefully in the light of research results and local acceptability.

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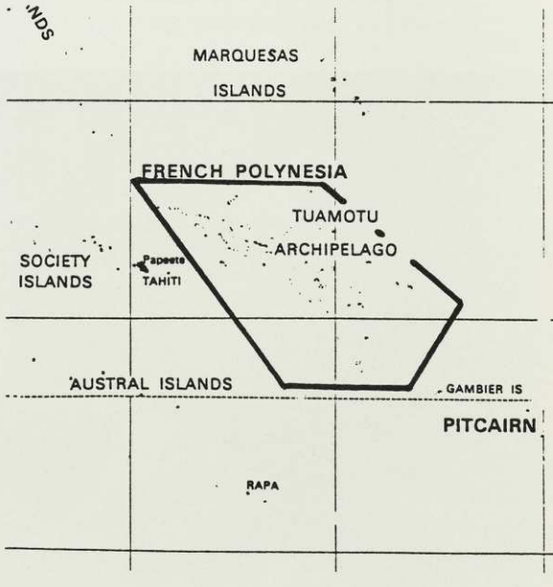
**Ornithologist, South Pacific conservation*



"Another look at the world: environmental interpretation in National Parks and Reserves"

by Pete Mounsey and Dave Bamford, Department of Lands and Survey*

A small group of people huddles in the dappled light of the forest floor. Their attention is focussed on the delicate green hooded orchid beside the track, so unobtrusive that all would have mistaken it for a grass and walked right past it, if the National Park Ranger had not pointed it out. A child has been enlisted to demonstrate one of the characteristics of the flower. With exaggerated caution, as if performing some delicate surgical operation, she gently touches the flower's exposed labellum with a twig. There is a gasp of wonder as the labellum flicks back like a spring trapdoor, just as it would if an insect landed on it. Suddenly the air is alive with enquiring voices. Does the flower eat the insect? Can the insect escape? How? Why? To each of these questions the ranger responds. Each answer weaves a picture of the fascinating interactions between plant and animal in the forest environment. The demonstration of the orchid's pollination technique leads into a discussion on adaption and symbiosis. With curiosity well and truly aroused, the discussion can extend to the more general themes of the interdependence of all living things and the unique natural balance in any ecosystem. The walk continues through the forest and these themes are developed and reinforced, using concrete examples as cues. Gradually, as if by osmosis, the awareness grows in the walkers that they too are inextricably enmeshed in this web of inter-relationships.

Every plant, landform, animal and artifact has a story that waits to be told. Yet not all people can read their subtle codes — they are messages that require interpretation. The ranger introducing the group of people to the world of the hooded orchid was doing just that — interpreting a particular characteristic of a plant into terms that were sensible to the group.

Telling nature's story

This sense of the word "interpretation" originated in the US, where it has developed into a specialist skill among park rangers. It is only in recent years that park interpretation has taken hold in a big way in New Zealand. It is recognised as a integral part of park management. Accordingly, it must compete for priority with other work such as animal and noxious weed control, facilities development and maintenance, safety services and track development and so on. The effectiveness of these functions is being constantly evaluated. Staff and finances are limited, so for effectiveness read *cost*-effectiveness. For interpretation, this means reaching as many people as possible within a given time. Summer nature programmes provide the answer.

Every summer, in National Parks and Reserves, and in State Forests throughout New Zealand, summer nature programmes are organised and run by the Department of Lands and Survey and by the Forest Service. Conducted walks and a host of other activities give a range of people the opportunity to appreciate and understand their park environments. For a period of four weeks or so during the Christmas holidays, after a considerable period of planning, park rangers put aside other duties to organise the activities.

In addition, a substantial number of seasonal interpreters are employed to assist rangers and other staff for the duration of the summer nature programmes. These people come from all walks of life. They have in common a good knowledge of natural or human history, a commitment to the preservation of natural and historical resources, and a strong interest in communicating these values to people.

Walks on the wild side

Why is interpretation now recognised as an integral part of park management? The reasons are many, but can perhaps best be summed up by saying that parks and people need each other. A public whose consciousness of the natural, cultural and recreational values of national parks, reserves and other protected areas is raised is more likely to respect and defend those values, thus helping management's cause.

The human need for these areas is undeniable. Apart from such utilitarian needs as watershed protection, species habitats and genetic diversity, people derive important psychological benefits from unspoiled environments. This need seems to become more deeply felt as our technology removes us further from intimate contact with the natural world. We need to periodically re-establish that contact. Similarly, historic sites, buildings and artifacts provide concrete links with our past that seem essential for a sense of cultural identify and continuity. The recognition that these special areas need preservation, while at the same time being accessible to the public for inspiration, enjoyment or recreation, is enshrined in the Reserves Act 1977 and the National Parks Act 1980, which speak of the parallel and complementary goals of preservation and use.

The philosophical and practical foundations of interpretation had been in place overseas for many years before

Every plant has a story waiting to be told — Tongariro National Park.
Photo: John Mazey

Tongariro National Park hosted New Zealand's first summer nature programme in 1962. Although limited in length and scope, its success provided the momentum for other national parks to follow suit.

By the early 1970s, nearly all of New Zealand's national parks were running summer nature programmes. Over the next decade, the increasing popularity of parks and reserves led to new developments. The growing recognition of the importance of historical and cultural resources lent a new sense of balance to interpretation. The special needs of children were recognised, and separate activities with a conservation theme were introduced for them. The inauguration of summer nature programmes in many scenic, historic and recreation reserves extended the range of opportunities available to the public.

A recent development brings the wheel full circle — summer nature programmes are moving into the cities. North Head Historic Reserve and Rangitoto Island last year offered a range of activities to Aucklanders. Quail Island Recreation Reserve and Akaroa Reserves ran programmes within easy reach of the people of Christchurch. People in Dunedin were able to take part in a number of guided visits ranging from the Taieri wetlands to the Moeraki Boulders, and Gabriel's Gully to the Maungatua mountains. This year, a summer programme will be based on the Wellington Reserves. So, 21 summers after those first experimental steps at Tongariro, interpretation has come of age in New Zealand.

Doing, not talking

Is interpretation another name for nature education? No, it is not.

"I suppose that nature interpretation explained in its simplest terms is this: It is opening the eyes of people; it is sharpening the noses of people; it is tuning the ears of people; it is sensitising the touch of people."

When the Canadian interpreter Yorke Edwards wrote these words, he was referring not only to an *aim* of interpretation, but its principal *means*. To be in the presence of an object in its natural context, and to explore it with all of the senses, gives the object a reality that mere words cannot convey. The symbols of words and pictures are constant intermediaries between ourselves and the real word — in interpretation they are used as adjuncts to the experience and not as a substitute for it. The medium is definitely *not* the message.

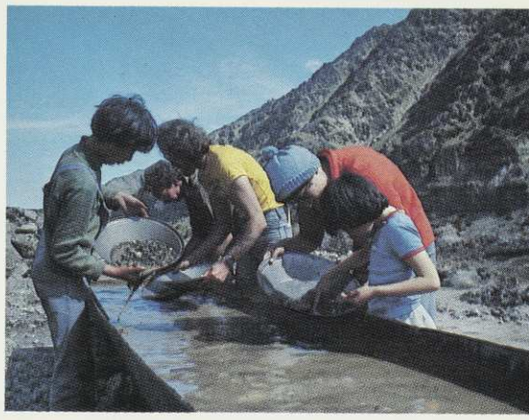
The Chinese have a saying to the effect that "I hear and I forget; I see and I remember; I do and I understand." It would serve as a motto for interpretation. Interpretation is *doing*, not talking. How are these principles applied in our national park and reserve summer nature programmes? In a word, diversely.

Guided walks to the Crater Lake on Mt Ruapehu every summer regularly attract well over a hundred people aged from 5 to 75. In the Arthur's Pass National Park visitor centre, an audiovisual on the history of transport over the Pass is given a sense of immediacy by the presence of a Cobb & Co stage coach. People may sit on the coach during the viewing. Visitors to Mount Cook National Park participate in Search and Rescue demonstrations.

Cave exploration is part of the programme at Waitomo. At Golden Point in the Otago Goldfields Park a gold stamping battery is still in operation. Shoreline fossicks at low tide in many coastal areas reveal the fascinating adaptions of life-forms where land and sea meet.

The human need for national parks and reserves is undeniable. On a field trip through Fiordland National Park, trampers come across the scented Easter Orchid (*Earina autumnalis*).
Photo: Dave Wakelin

Summer programmes are moving near cities. Here people attend a programme at Onawe Peninsula near Akaroa.
Photo: Lands and Survey



"I hear and I forget; I see and I remember; I do and I understand." This Chinese maxim is applied to good effect in the Otago Goldfields Park, where gold panning is demonstrated and practised.
Photo: Mark Hanger

The search for nature

For the youngsters, the delights of both adventure and contemplation are catered for. In the Taranaki Reserves programme, children wade up a creek lined by muddy banks and dense bush, clambering over logjams and slippery boulders, in search of the "Captain Capel" goldmine. Young visitors to Fiordland National Park go into the bush to look for evidence of animals that cannot be seen — tracks, birdsong, droppings, nests and other signs are sought. And if human litter is not considered in this joyful search then the ever present interpreter can point out that this too is the sign of an absent (or absent minded) animal.

Not only are different environments visited and explored, but the special charm of particular times of day is rediscovered in most areas. Sunrise at Lake Matheson in Westland National Park is a popular drawcard. An interpreter at Abel Tasman National Park limits group size for nocturnal glow-worm walks. The low numbers invite a more contemplative mood, as participants focus their senses on the special world of the forest by night. A twilight walk at Tirohanga in the

A summer bus tour on the Dunstan Trail in the Otago Goldfields Park. Native tussocklands have increasingly become the focus of conservation attention.
Photo: M Hanger

The Hochstetter icefall, Tasman Glacier, with Mt Tasman behind. In the past mountainous areas have been earmarked for national parks, but this philosophy has been changed to try and include other areas with unique characteristics.
Photo: Lyndsay Bell

**All photos by Lands and Survey staff.*

Marlborough Reserves reveals an increased level of bird activity. Dusk time visitors to Lake Rotokuru Reserve near Ohakune often have their patience rewarded with the sight of longtailed bats in flight over the lake.

At Motutapu Island in the Hauraki Gulf Maritime Park an overnight camp under the stars is coupled with an intimate look at history. People spend the night at the World War II gun emplacements there, and are picked up by boat the following day after investigating the evidence of early Maori settlement.

The spirit of the times

On nearby Kawau Island also the threads of history are woven together. Sir George Grey's residence at Mansion House, the Coppermine Trail and Maori Pa sites are all elements in the story of the island. But, as in all good interpretation, the revelation extends beyond that which is immediately visible, and endeavours to portray the total historical context, the spirit of the times of which the sites and artifacts are reminders.

Interpretation reaches out. It reaches from particular instances to general truths, and from the universal person to the particular person who is being addressed. Good interpretation reaches and touches the daily life and experiences of the visitor.

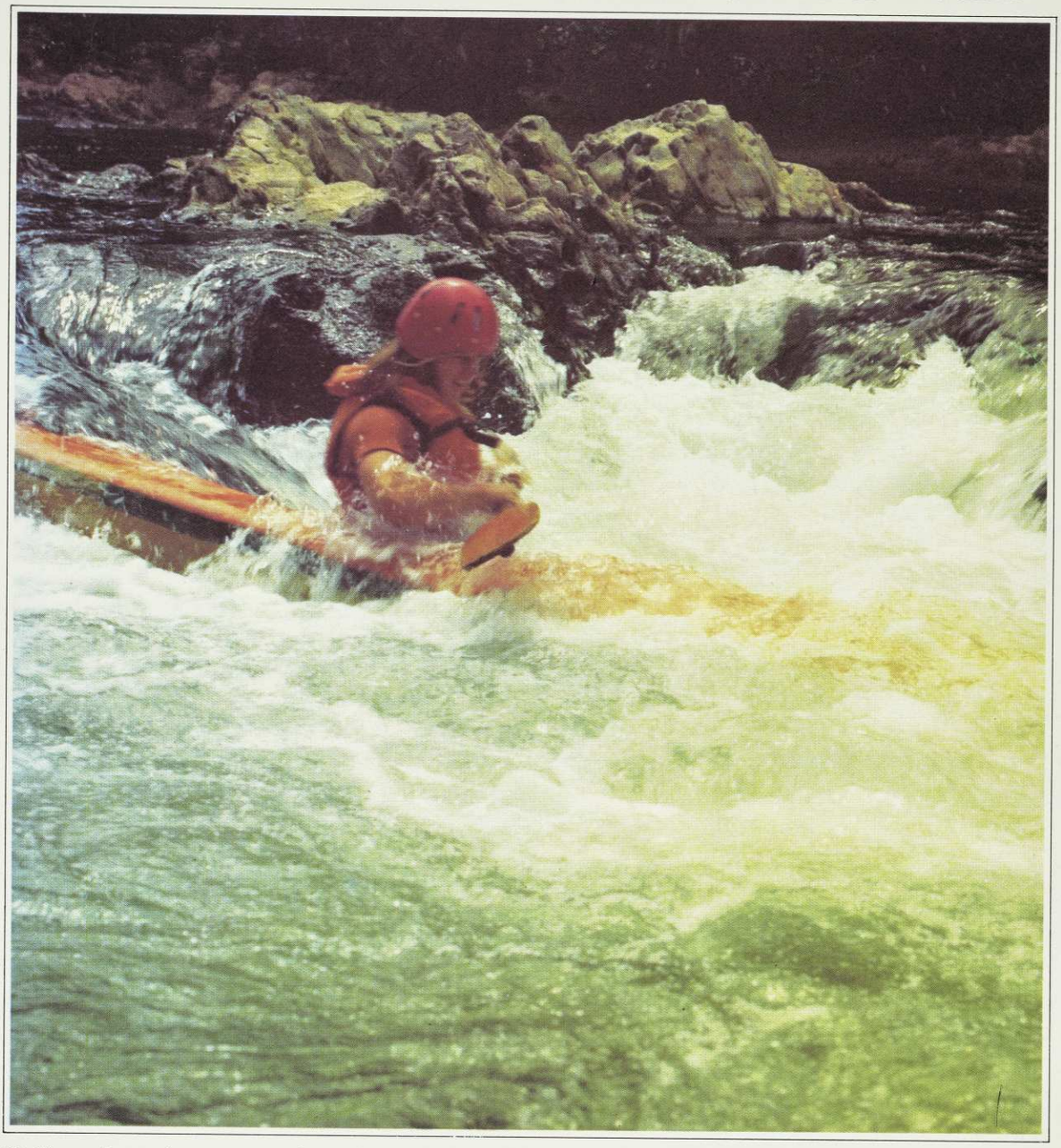
If the object of contemplation is historical, then interpretation aims to make people think: "These people were just like I am. If I were in their place, under similar conditions, my response to the question of getting by might have been no different from theirs".

In the presence of the natural world, interpretation strives to impart in individuals an awareness that "I too am part of this complex web of inter-relationships". If it does this well, then it has succeeded in one of its main goals, that of revelation. But this is not all. From revelation stems the understanding that will lead to wise and positive action to conserve these resources. "In wilderness lies the preservation of the world", said Thoreau. To preserve the wilderness is to preserve ourselves. Interpretation is a springboard to this realisation.

Summer Nature Programmes will be conducted in all National Parks and many Reserve complexes this summer. Activities generally begin on December 27, and continue to mid-January and beyond.

Information on programmes in areas you may be interested in is available from District Offices of the Department of Lands and Survey.

SHELL IN NEW ZEALAND



Shell continues its support of youth groups, including the Outward Bound School at Anakiwa.

Business must achieve its economic objectives in order to survive and to grow; but its survival is dependent on its acceptability to society and its environment. Shell, recognising its responsibilities as a corporate citizen within the community, continues to expand its contribution in areas devoted to: preserving the environment, fostering youth development in sports and the performing arts, in all areas that develop the talents and resources of New Zealand for the benefit of all New Zealanders.

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today, tomorrow, together

DSIR ecologist John McLennan with a North Island brown kiwi captured at Waitere: "The kiwi has always appealed to me enormously — as a creature, not just scientifically".

Photo: Graeme Harrison

Native shrubland in an exotic sea

By Allan Bell, DSIR journalist

Waitere is 1650 hectares of scrubland — still regenerating after decades of fires — which shelters probably the largest population of kiwis in an isolated remnant in the Hawke's Bay area. It lies 20 kms inland towards the Mohaka River from Tutira on the Napier-Gisborne highway. The Waitere block is Crown land, and last year it was scheduled to be cleared for farmland. It is also the site which the Agricultural Ecology section of DSIR's Ecology Division chose for a study on the effect of land clearance on kiwis. The research has been carried out from the section's base in Havelock North by Dr John McLennan and two short-term workers, Murray Potter and Mark Robinson.

The original research plan was radically modified by the discovery of the relatively dense population of North Island brown kiwi (*Apteryx australis*) at Waitere. Residents thought that no kiwis lived there, but in the first two nights fieldworkers located five birds.

When the Napier branch of the Royal Forest and Bird Protection Society heard of the kiwis' presence in January 1984, they called for the block to be reserved. The Lands and Survey Department halted clearance, and in August released a management plan, which is open for public submissions until November 16.

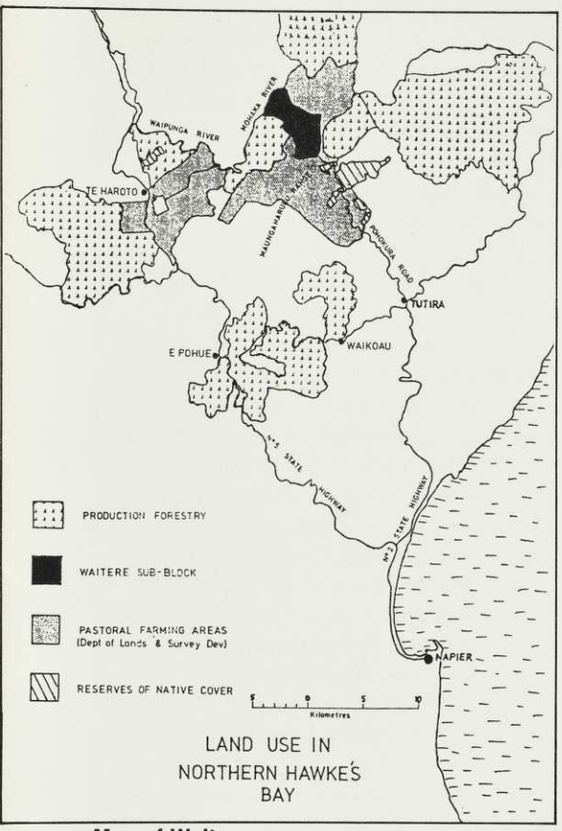
The management plan designates a third of the block to be cleared, with any resident kiwis being relocated. The remaining 1000 hectares will be under a three-year moratorium while Lands and Survey evaluate plant and bird life more closely. This moratorium zone contains at least 24 known kiwis, including three chicks. The Department is to study the feasibility of shifting these kiwis also, and maintains the right to cut a road across the middle of the block.

Scrubland studies

The Waitere study is one part of a large-scale project, under the leadership of Dr Mike Rudge, researching scrubland from the ranges to the coast. Thirty percent of New Zealand's land area is covered in scrub. A lot of wild habitat such as gullies, shelterbelts and riverbeds remains scattered across the highly

managed agricultural and horticultural land of Hawke's Bay. Yet the amount of scrub has been reduced by over half since the region was mapped 13 years ago.

Work by another member of the research team, Bruce MacMillan, involved a year of monthly five-minute bird counts at 21 sites across Hawke's Bay. He has shown that scrub is a valuable habitat for native birds, sometimes with a richer birdlife than native forest. Some birds largely live in the scrub, such as bellbirds which proved to be much more common in scrub than bush.



Map of Waitere.

Of particular value are the uncleared river valleys, which may serve as corridors by which birds migrate between the back country and the coastal plain. The research has also shown that, as well as being a possibly unique regional kiwi habitat, Waitere scrub is valuable for a large number of other birds, especially North Island robins and fernbirds.

Kiwis and land clearance

The study focussed on the kiwi because it is probably the most important species in Hawke's Bay to be affected by land clearance. The region lies at the southern end of the kiwis' range, and every other bird in Hawke's Bay that might be affected by land clearance is relatively well represented elsewhere.

Lands and Survey's plan to start clearing the Waitere block from 1983 gave a unique situation for determining the effect of land clearance on kiwis. While conservationists have argued that clearance destroys kiwi populations, developers have maintained that displaced birds simply move into a habitat nearby.

That stance is based on three untested assumptions: that there is in fact habitat close enough for the kiwis to disperse into; that they move out of cut scrub in the six to eighteen month period when it is down drying before being fired; and that kiwis' territorial behaviour does not limit their density — that they can continue to pour into habitats already occupied by other kiwis.

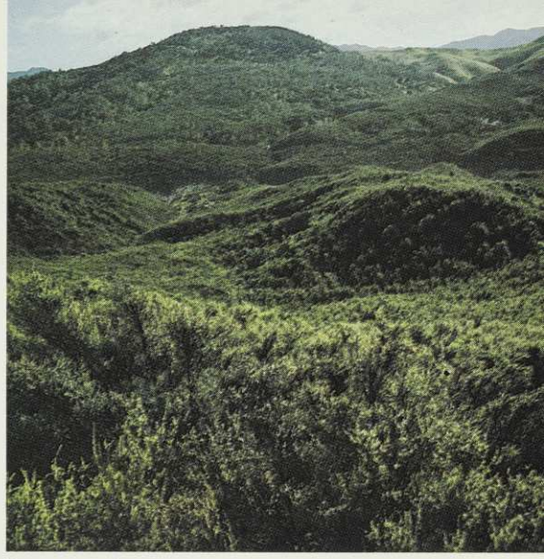
The study was begun in August 1982 to test those three assumptions by radio-tagging birds and following them during the period of land clearance. the plan included uplifting half the kiwis in the central valley, taking them to a reserve elsewhere in Hawke's Bay, and comparing their survival rate with that of the birds left behind. To date no one has done a follow-up study to find out whether rescuing kiwis from an area about to be cleared is in fact a successful stratagem.

The trials of tracking kiwis

In practice the study did not go according to plan. First, the difficulty of catching the required number of birds was greatly underestimated. Traditionally, kiwis are caught by playing back a taped call, so that the bird whose territory the fieldworker is in comes up to investigate the intruder. Thus fieldworkers had to go out to different parts of the block each night and plot the positions of kiwis' responses.

On some nights the birds do not call, and it requires up to 20 visits to an area before one can be sure not to have missed a resident kiwi. Birds which are too young to start calling (under 14–20 months) are also missed. In addition, for reasons that are not clear, the Waitere birds do not come in to a call, so a trained dog had to be used to track the birds in order to make the initial capture. In 18 months, only six birds were caught and radio-tagged.

The second problem was radio failure. Eighteen radios were put on the six birds in eighteen months. A maximum of three birds had radios at any one time, and for periods there were no transmitters working. Although an enormous amount of time was spent re-capturing birds after transmitters failed, radio-tracking still remains the only possible research technique. Little is yet known about the habits of brown kiwis simply because the technology required to study them has only recently become available. The two requirements are radios to keep in touch with the kiwis, and night viewing equipment to observe their behaviour.



Dense scrub covers the central valley of the Waitere block, looking towards the Mohaka River. Lands and Survey's management plan proposals put this area under a three-year moratorium clearance but threaten this valley with a major road.
Photo: G. Harrison

Finding out how many birds live at Waitere has been a long and laborious process, requiring bushcraft and physical fitness as well as scientific knowledge. The work has involved two days and nights per week in the field, trying to locate each radio-tagged kiwi during the day to describe their shelters, and at night following them through thick scrub with a direction-finding aerial.

A total of 24 birds have been found, but the true population is somewhere between 30 and 50. That represents a possibly unique concentration of kiwis in the region. Another researcher, Mark Robinson, has surveyed kiwis in existing reserves throughout Hawke's Bay, and has found them in only four reserves, and then only in low numbers.

Shelters, activity and ranges

There is now good information on four birds — their roosting sites during the day, their activity at night, and in particular the size of their ranges. Locations of 86 daytime shelters were found, and these proved to fall into three distinct types. The simplest makes use of existing cover, where the birds just camp for the day under a clump of bracken. Secondly, they actually excavate their own burrows — females as well as males, although previously it was thought only the males excavated. The third type of shelter is where they take advantage of the natural networks of tunnels which water has scoured out just below the surface of this pumice country.

They shelter in a large number of different sites, and normally use different burrows on successive days. However, when they are back in that part of their range again, they will often sleep in a burrow they have used several days previously.

Birds whose ranges include a lot of bracken roost mainly under bracken. That fact has important implications for

Photo: G. Harrison

John McLennan and his co-worker Murray Potter change the transmitter on a kiwi's leg. Belle, with muzzle and bell, is a young labrador trained to scent and track down kiwis.

Entrance to a natural tunnel which serves as a daytime shelter for a radio-tagged kiwi, tracked by following the signal from her transmitter.

Photo: G. Harrison

land clearance. Once the scrub is cut, leaving a dense layer of cover just a metre or so above the ground, the kiwis will probably cease to burrow altogether. ***In that case, if they are still there at the time of the fire, they will not have a chance of escape.***

The kiwis' level of night time activity is astonishing. They emerge at dusk and return to bed at dawn. They are active all night, every night, regardless of the weather. A bird may travel 1000 metres during a single night's foraging, covering the entire length of its range in a few hours. A kiwi located on one side of its range at 2am has been found on the other side at the end of the night.

The birds' ranges are very large, covering from 14 to 50 hectares. One pair was marked, and they shared the same territory. Also marked were two females, which occupied exclusive territories — although these may overlap with a male's territory. That result is a surprise, because the only previous study — done in Northland — found territory sizes of 3 to 5 hectares. Large ranges may be a characteristic of the Hawke's Bay brown kiwis, because birds subsequently radio-tagged in nearby native forest have similarly extensive ranges.

Conclusions

The finding on range size is important for the design of kiwi reserves. In the past people have considered that 20 to 50 hectares were probably adequate for a reserve, but we now know that would hold only one, maybe two birds. Taking a minimum viable population to be perhaps 20 pairs, reserves of 500 hectares or more are necessary. Most of the existing reserves in Hawke's Bay are much smaller.

Ironically, the Waitere study is being abandoned largely because it has been so successful in finding kiwis. This population and its habitat look valuable enough to merit full preservation, and the Waitere scrub is in any case too dense to allow observation of the kiwis' behaviour.

Research has now moved to an area on the other side of the Mohaka, where a privately owned tract of native forest and scrub called Haliburton's Bush also holds a significant kiwi population. Ten birds have been identified there, and eight radio-tagged. Their range size and night time activity are proving to be similar to the Waitere birds, while the forest habitat makes fallen logs a frequent daytime shelter.

Some research will continue on the Waitere kiwis. A small area of the block is to be cleared this summer, and during the burn-off smoke levels and temperatures in kiwi burrows will be monitored. If a significant portion of the block is cleared, as the management plans proposes, birds will be radio-tagged, followed throughout the clearance and then, if necessary, uplifted before the burn-off. That research will help answer the key question of whether birds do in fact move out before the scrub is burnt.

Waitere contains a viable kiwi population. However, to make it a worthwhile reserve for kiwis, the absolute minimum area that decision-makers will have to consider setting aside is 500 hectares — and preferably a good deal more.

WAITERE DESERVES FULL PROTECTION

Species conservation does not aim simply to preserve the last survivors of a species. It also seeks to maintain viable populations of a species throughout its natural range. Not only does this preserve species diversity. It also means people may have the chance to see the species throughout the country.

While we all support efforts to preserve the kakapo in southern Stewart Island's tangled scrub, few of us will ever get to see this bird, the world's largest parrot, once widespread throughout New Zealand.

The North Island brown kiwi is still common, although under pressure, in Northland and Taranaki. In Hawkes Bay it is threatened with regional extinction because of continuing habitat destruction by Government agencies and by the private sector using taxpayer funded grants.

Waitere contains Hawkes Bay's largest recorded population of kiwis — 30 to 50 birds. Full credit is due to the people of Hawkes bay for gaining a reprieve for these birds from Lands and Survey clearance. However our efforts could be in vain if the draft management plan for Waitere is implemented.

This zones 20% of the block for immediate clearance, places the remainder only under a three year clearance moratorium and threatens to dissect the block with major roads.

The publicly owned Woodstock farm-forest development block covers 7,550 hectares, most of which is now in pines or pasture, apart from the 1,650 ha Waitere shrublands. Waitere is now an island of native vegetation amidst a sea of developed land.

A balance between conservation and development has already been struck on Woodstock. Waitere's shrublands must now be reserved in their entirety as a home for kiwis, fernbird and other native wildlife.

David Appleton
Secretary, Napier Branch, RF&BPS
National Executive Councillor

A message from the Minister

One man who will play a key role in conservation matters over at least the next three years is the Government's Minister for the Environment, Russell Marshall. *Forest & Bird* has therefore asked him for his broad comments on what he see as the issues in conservation.

Before entering Parliament in 1972, Russell Marshall was an active member of CORSO, the United Nations Association and the Samaritans. He was also involved in campaigns opposing the Vietnam War and sporting contacts with South Africa. Married with three children, the 48-year-old cabinet minister lists his interests as classical music and genealogy.

Forest & Bird: What is it about your background that makes you a suitable Minister for the Environment?

Marshall: It's a good question. Firstly, I had the portfolio for 1982, so I have had some experience with it, albeit briefly, in Opposition. Secondly, it has been suggested to me — though I'm not sure if this is a reason why — that I lived in an area where there were no particularly controversial environmental issues. I was seen to be, in terms of party politics, neutral. Thirdly . . . it would be fair to say that many people who have liberal or even enlightened attitudes towards education also have liberal or enlightened attitudes towards environmental issues. Even before that 1982 experience — and certainly afterwards — I have maintained a general, overall philosophical interest in environmental and conservation issues.

Forest & Bird: When you entered Parliament 12 years ago you were fairly idealistic. Do you still retain a measure of that idealism?

Marshall: I'm still idealistic. I'm what you might call pragmatically idealistic in that I'm more aware of some of the difficulties and constraints that you have, but I don't think my idealism is tempered at all. In fact, it could be argued that one clarifies one's mind even more with the passage of time. The view I have about the changes that are needed is probably stronger now than it was 12 years ago. The more you know about a situation, the clearer your thinking becomes about it. I have, for instance, rather more radical ideas about education than I did 12 years ago because my knowledge of the area is much larger than it was 12 years ago.

Forest & Bird: How will a Labour administration treat environment issues?

Marshall: My optimism about the environment is based on the fact that my party is more sympathetic to environmental concerns in the large sense than Ian Shearer's party was. I don't expect to be dealing with such an unsympathetic Cabinet as he was. I would like to say that, in my view, Ian Shearer did his very best for environmental issues, and I think environmental groups are in his debt for the lonely battle in which he was engaged. Environmental issues are non-partisan, they are not necessarily party political ones.

Forest & Bird: Do you see yourself being able to devote enough time to the portfolio, especially since you have one other?

Marshall: I think it's a matter of exercising some stewardship over the time. One of the things which is clear is that I shouldn't spend a lot of time wandering around the country going to schools. It's an important part of the job but I don't have unlimited time. I intend to use other Government members to do some legwork for me. I remember being a backbencher in a Labour Government and being under-used. If I haven't got much time but we have the people with abilities which ought to be used, then we ought to use that opportunity.

Forest & Bird: What do you identify as the key issues in the environment area?

Marshall: The first one is the whole question of planning and development. The two things ought to be done together. There will be, in the establishment of the new Ministry (for the Environment), planning functions and environmental functions.

Forest & Bird: Could you talk about your working relationship with Koro Wetere. Will there be a lot of consultation?

Marshall: I have a long standing close relationship with Mr Wetere, particularly on Maori issues. He is a man steeped in Maoritanga, and he's not likely to ride roughshod over environmental issues. I expect to have a good working relationship with him and other ministers involved in development portfolios.

"I don't expect to be dealing with such an unsympathetic Cabinet as he (Ian Shearer) was."

Russell Marshall

by David Gregorie

Buttercup (*Ranunculus nivicola*).
Photo: Mike Aamodt

Eyebright (*Euphrasia* sp)
Photo: J Gardiner

Plants suffer from the cold just as animals and people do. Freezing weather can turn the sap in their leaves and stems into lethal ice. The frozen sap expands and ruptures the tiny cells in the leaves or splits the hardest wood, unless the plant is specially adapted for the cold.

Fortunately, the shrubs and herbs that live in our high mountain tussock lands and herb fields are well able to survive in conditions that would kill a soft lowland plant.

They have to endure sub-zero temperatures, gales and storms, and being buried under the snow for more than half the year. They often have only two or three months in the summer in which to grow, display their flowers and set their seeds. They have a lot of living to do in a very short time. And they must be able to survive during the long autumn, winter and spring with their life systems just ticking over, almost as if they were asleep.

Alpine plants have many methods of coping with the cold, some of them the same as you would use except that they are built in to the plant's system and are fully automatic. Plants don't have to think what to do or wait until they are told.

You would cool off very quickly if you stood out in a cold wind after you had got yourself hot and sweaty from climbing. Your perspiration would evaporate and draw the heat out of your body. If you were sensible you would keep out of the wind, wear a parka and a woollen jersey to insulate your body, and expose as little skin as possible.

Some plants do much the same. Edelweiss and snowfield daisies have soft fluff on their leaves and flowers that looks and feels rather like fur or wool. It does the same job as a sheep's fleece

***Coprosma* berries** Photo: M Aamodt

Gentian, Mt Holdsworth
Photo: David Gregorie

or your woollen jersey — insulating the plant from the cold air.

Other plants have small, spiky or leathery leaves that reduce the amount of water flowing through the plant and evaporating into the air. South Island "vegetable sheep" plants are so compact and tucked in on themselves and so well insulated that they look rather like giant puffballs. The North Island vegetable sheep is smaller and greyish-green in colour. It doesn't look much like a sheep but you can see it is the same sort of plant.

If you like flowers and you are reasonably fit you will find a climb up above the tree line to the snow tussock a great experience. You will be surprised and delighted by the different kinds of shrubs and herbs that grow there — more than 300 different species.

You will need boots, a day pack, warm clothing including a parka, a woollen shirt, a warm jersey, long trousers in case the weather turns nasty, and food for two days in case you have to shelter overnight in a mountain hut. You will also need an experienced adult companion. The mountains are no place for the ignorant or the unprepared.

The plant you will most likely be looking for is the edelweiss and fortunately it is quite easy to spot — a small silvery grey plant with creamy white flowers with yellow centres.

You will find many kinds of buttercups ranging in size from tiny well hidden species to the giant *Ranunculus lyalli*, the famous white buttercup of the South Island. You would also amuse yourself seeing how many of the 50-odd different species of alpine daisies you can find.

You will have no trouble spotting a vegetable sheep, which are too big to miss, or the spaniard, which you should miss if you can. It is large, sharp, spiky and extremely uncomfortable if you blunder into it.

The woody plants will also catch your eye. Shrubs and small trees often have colourful berries or fruit that stand out against the grey-brown background. Mountain coprosmas have blue, white, red or orange berries, snow totaras have bright red drupes, while the heaths have fruit ranging in colour from white through red to purple.

But it is the small flowers that make a climb into the mountains so worthwhile — the gentians, eyebrights and harebells look so delicate that it is hard to believe they survive in such harsh conditions.

It may seem strange that so many of our alpine plants have such attractive flowers and berries, but there is a good reason for it. With such a short growing season the plants need as much help as they can get to have their seeds pollinated and spread around before the cold weather returns. Flowers are bright and eye-catching to attract the insects that carry pollen from flower to flower as they search for nectar. The insects too must mate and lay their eggs before the frosts kill them off.

The shrubs have colourful berries to attract the birds they rely on to spread their seeds. The birds eat the berries and the seeds pass unharmed through bird's gut so that they have some chance of landing on a place where they might grow.

New Zealand's alpine plants are precious. More than 90 percent of them are found nowhere else in the world and we have a responsibility to see that they are preserved. They are in some danger from the grazing animals that have been brought to New Zealand for sportsmen to shoot — tahr, chamois and red deer range across a great deal of the South Island high country and unfortunately these animals and domestic cattle and sheep like to eat our mountain plants.

North Island edelweiss
Photo: David Gregorie

Vegetable sheep (*Raoulia rubra*)
Photo: David Gregorie

Spaniard, Mt Holdsworth
Photo: David Gregorie

1. WHAT FUTURE FOR WAPITI, HIMALAYAN TAHR?

The Fiordland National Park Wild Animal Control Plan was approved by the Government in May. The plan allows wapiti to remain in the special area of the park for at least another five years during which time they will be controlled, primarily by recreational hunters, at levels which keep damage to the natural vegetation at an acceptable level. The plan has been widely recognised as a compromise between hunting and conservation interests. Unfortunately a group of Southland deerstalkers are now opposing the plan and seeking to relax it to permit "enrichment" of the wild wapiti herd and to restrict all year round access by foot hunters so the herd can build up. Such proposals run counter not only to National Parks policy but, we believe, also to Deerstalkers Association national policy. Our Society is urging the Minister of Forests to affirm his support for the operative control plan.

Meanwhile, the Government is developing a policy on Himalayan tahr based on results from a preliminary Forest Service census which puts the population of these mountain goats at a mere 1–2,000 animals. Extermination, if feasible, is clearly an option favoured by our Society, and may well prove the most cost-effective option. Failing this we favour control which maintains tahr numbers at their present low levels to allow continued recovery of the magnificent alpine vegetation of the central Southern Alps.

2. NEW ZEALAND RATIFIES WORLD HERITAGE CONVENTION

Ratification of this UNESCO Convention was approved by our Government on 1 October. New Zealand can now nominate its finest natural areas as World Heritage sites. Such areas would join a select group of the world's finest places including the Great Barrier Reef and Sagamartha (Mt Everest) National Park in what botanist David Bellamy describes as the cheapest tourist promotion you could ever hope for! Two prime candidates (perhaps ideal to commemorate our 1987 National Park Centennial year?) are Fiordland National Park — Waitutu and Mt Cook — Westland National Parks (including the Okarito lagoon and Ohinetamatea kahikatea forest).

3. *CLEMATIS VITALBA* — CREEPING DEATH

A special booklet enclosed with this journal describes the threats Old Mans Beard poses to our native forests. A dramatic poster is also available free from the Noxious Plants Council, Private Bag, Wellington.

4. PRIVATE FORESTS, MANGROVES AND ESTUARIES OF NORTHLAND

Our Central Auckland branch is hosting the Society's November Council meeting over the weekend 24–25 November. The meeting will consider threats to privately-owned forests, estuaries, mangroves and the coastal zone of Auckland and Northland.

5. KAINGAROA PLATEAU SHRUBLANDS — A UNIQUE RESERVE?

Kaingaroa, one of the world's largest man-made forests, was planted on land largely covered not by native forest, but by fire-dominated natural shrublands growing on Taupo pumice and volcanic ash. Virtually all these shrublands have now been lost to pines and pasture. The recently published register of Protected Natural Areas in New Zealand (available from Lands and Survey Head Office for $25.00) identifies no natural reserves in the entire Kaingaroa ecological district. DSIR studies suggest that a mere 1 percent of the Volcanic Plateau shrublands of 1840 survive today. A 600-hectare natural shrubland block of monoao (*Dracophyllum subulatum*) — kanuka dominant shrubland has just been identified on Crown land near the Otamatea Stream adjoining the Kaingaroa forest.

DSIR Botany Division has recommended the entire area become a scientific reserve and that development of the area to farmland proposed for this summer not proceed. The Otamatea reserve would provide an invaluable baseline against which to compare changes in soils caused by exotic afforestation. This example highlights the urgent need to secure representative reserves in the face of widespread land development.

Dr Gerry McSweeney
National Conservation Officer

SUMMER CAMP AT COOPERS BEACH, NORTHLAND

26–31 January

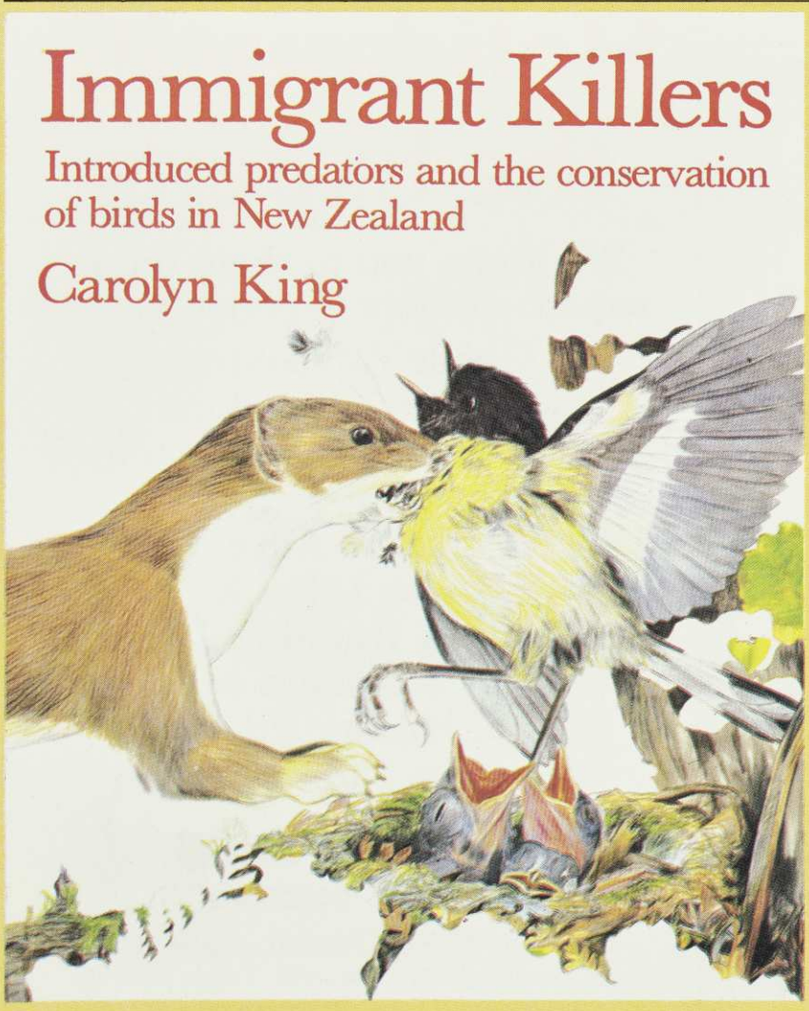
Accommodation is still available. For details apply to John McBain, Te Ngaere Beach, RD, Kaeo.

The appointment of David Collingwood in 1975 as the Society's first full time technical officer marked the beginning of the most important decade yet for conservation in New Zealand. With Manapouri just behind us, few anticipated the fast rising tempo of well founded conservation demands. Within months he was appointed the Society's first Conservation Officer and over the next ten years faced the challenges of Okarito, Pureora, and Whirinaki. These great battles put huge strains on the Society's resources, both management and technical. The Society's strength and success over this period must be chronicled elsewhere, but David Collingwood must be proud to retire assured that much has been achieved during his term of office. He leaves with our best wishes and grateful thanks.

A.A.T. Ellis

SOLD OUT!

The last four issues of *Forest & Bird* are completely sold out. If you have finished with your copy of Vol. 14 Nos 7 & 8, and Vol. 15 Nos 1 & 2 we would be very pleased to receive them at Head office, Box 631, Wellington, to fulfil the many requests for extra copies.



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Cut along the dotted line and post, together with your cheque or money order to:

The National Secretary
Royal Forest & Bird Protection Society of N.Z. Inc.
P.O. Box 631, Wellington.

Index to authors and subjects Vol 15, 1984

Author

Subject

SOCIETY'S LODGES AND HOUSES

Bushy Park, Kai Iwi

24 km north of Wanganui. Fine old homestead, lovely grounds, 89ha of native bush.

Electric stove, hot water, and other facilities available. Bring your own rations. Bedding supplied. Linen and towels $1.50 per bed*.

Fees: Members: single $12 per night; double $18 per night. Non-members: single, $18 per night; double, $25 per night. Children aged from 5 to 12 years, half rate. Day visitors, members and non-members, $2; children under 12 years, 50c; family group of two adults and children, $5.

Apply Custodian: C/- Bushy Park Homestead, Kai Iwi, R.D.8, Wanganui. Telephone Kai Iwi 879.

The park is closed to daytime visitors on Mondays and Tuesdays.

Patoka Lodge, Hawke's Bay

The lodge is situated 48km from Napier on the Puketitiri Road and 8km past Patoka, amid the 14ha William Hartree Memorial Scenic Reserve.

The Lodge accommodates 10 people. Extra mattresses and pillows are available to sleep up to 20. The lodge has a full equipped kitchen, including refrigerator.

Visitors supply their own linen and cutlery. The nearest store is 8km away. No animals are permitted.

For rates send a stamped addressed envelope to the Booking Officer, June Northe, 212 Kennedy Road, Napier, Telephone Napier 438-193.

Ruapehu Lodge, Whakapapa Village, Tongariro National Park

Ruapehu Lodge is now available for MEMBERS ONLY, and all bookings must be made with the Society's head office, P.O. Box 631, Wellington.

Fees: Winter season (1 June to 31 October) all members $7.00 per night. Summer season (1 November to 31 May) Adults $5.00 per night; Children $2.50 per night. Securing deposit (per person) $1.00 per night.

Full payment must be paid four weeks before occupation, (otherwise bookings may be forfeited) after which time there is no refund for cancellation.

No animals or pets are allowed in the lodge or the National Park.

There is no key at the lodge, but one will be posted ten days before occupancy. No member may occupy the lodge without first booking through Head Office, Wellington.

No member may occupy the lodge without first booking through Head Office, Wellington.

Tautuku Lodge, Coastal Otago

Situated 72km from Balclutha on State Highway 92, Tautuku Lodge on the Society's 550ha bush-clad Lenz Reserve in coastal south-east Otago

The lodge is fully equipped and accommodates eight or nine people. Bring with you food supplies, bed linen, blankets, towels, tea-towels etc.

For rates apply to the Booking Officer Miss M. Roy, Papatowai, Waipati, RD, Owaka, enclosing a stamped addressed envelope.

Turner Cottage, Stewart Island

Turner Cottage, is on Stewart Island and is a two-roomed dwelling furnished for three people.

For details write, enclosing a stamped, addressed envelope, to: "Turner Cottage", C/o Mrs N. Fife, P.O. Box 67, Halfmoon Bay, Stewart Island.

Tai Haruru Lodge, Piha, West Auckland

A seaside home situated in Garden Road, Piha, 38km from central Auckland. Eight minutes' walk from the Piha store, with right-of-way access to the surf beach and close to bush reserves and walking tracks in the Waitakere Ranges.

The lodge is fully equipped and sleeps six to eight persons. It has a large lounge with open fire, dining area, and modern kitchen.

You will need food supplies, bed linen, towels, and tea-towels.

Different rates apply for winter and summer, for rates send a stamped, addressed envelope to the Booking Officer, Mrs B. Marshall, 160 Valley Road, Henderson, Auckland. Telephone 836-5859.

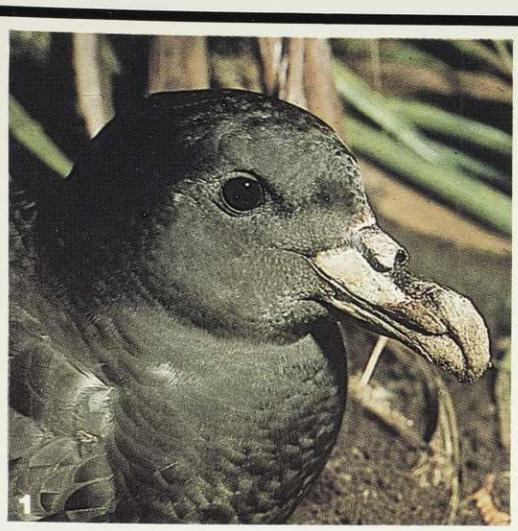
Waiheke Island Cottage, Onetangi, Waiheke Island

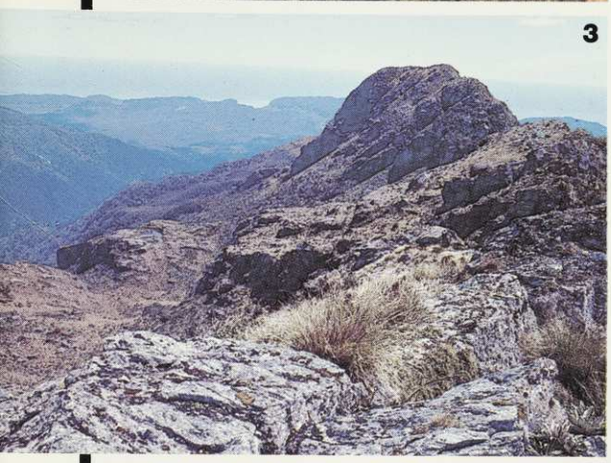
The cottage has comfortable bunk accommodation for eight people and has a stove, refrigerator, and hot water. Adjacent to a 49ha wildlife reserve, belonging to the Society it is in easy walking distance from shops and beach. It is reached by ferry from Auckland City (two or three return trips daily) and by bus or taxi from the island ferry wharf. Everything is supplied except linen and food. No animals are permitted.

Different rates apply for winter and summer. For rates send an addresed envelope to the Booking Officer, Mrs R. Foley, 23 Stoddard Street, Mt Roskill, Auckland. Telephone Auckland 696-769 (evenings).

Correction

The credit for the gecko photo on Pg 13 of the August edition should have read Mike Meads, not NZ Wildlife Service.





As this is being written, the future of the proposed Punakaiki National Park is uncertain. What is less uncertain, however, is the suitability of the area for a National Park. These photographs show just a few of its unique features, encompassing mountains, forest and sea.
1 The Westland Black Petrel (Wildlife Service). Punakaiki has the world's only breeding colony; ***2*** Coastal formations — Trumans Track, north of Punakaiki (G McSweeney); ***3*** Western Paparoas from Mt Bovis (G McSweeney); ***4*** Nikau Forest, Punakaiki Coast (G Salmon); ***5*** Fox River canyon (G Salmon).

FULIGULA NOVÆ ZEALANDIÆ. HYMENOLÆMUS MALACORHYNCHUS.

The New Zealand scaup or black teal. This is one of the plates included in the Society's facsimile publication of Buller's History of the Birds of New Zealand 1st edition 1873. Some of the facsimile are available for the post-publication price of $750 (a special reduction is offered to Society members).