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Forest & Bird

February 1985

The whio, or blue duck, is at home in alpine and sub-alpine regions, where pairs are often found feeding in fast flowing mountain streams. However, this confiding bird with its distinctive whistle — hence the Maori name whio — is becoming more and more rare as developments threaten its precarious existence. An article on page 11 of this issue describes how attempts are being made to preserve Tongariro State Forest from large scale development, and so help protect such magnificent endemic species.

Photo: Craig Potton

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Cover caption: Rising sheer from the still waters of Doubtful South, the towering slopes of Commander Peak (right) dwarf a tourist boat. Rolla Island lies in the centre, with Mt Danae in the background. Supertankers that Triune Resources Ltd plan to use in this fiord could be hundreds of times the size of this boat, and would mean the creation of a major port in the heart of Fiordland, one of the world's largest national parks. Photo: Les Hutchins, Fiordland Travel Ltd.

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Forest & Bird

Managing Our Natural Areas

Early last December I was a privileged guest of the Wildlife Service on South East Island, a nature reserve off Pitt Island in the Chathams. Used by sealers and whalers from about 1815, the island was later developed for farming, and bush was cleared from large areas.

South East is now the most important island for wildlife in the Chatham group. Seven different species of petrel breed here. It is the last refuge for the New Zealand shore plover, Chatham Island petrel, and most Chatham Island oystercatchers. The full range of Chatham Island bush birds lives on the island: the tui, parakeet, fantail, tit, warbler, snipe. And now black robins have been introduced along with Chatham pigeons.

Bought by the Crown in 1965, the last sheep were removed in 1961. The island has no rats, mice, cats, mustelids or opposums.

Other islands in the Chathams make their contributions to the unique natural history of the group. Pitt Island now has two large, fenced nature reserves in which the best of the original forest is conserved with its great variety of endemic plants.

On Chatham Island the southern tablelands peat areas support communities of the giant jointed rush, *Sporodanthus*, as well as an endangered speargrass and two spectacular tree daisies. The endangered Chatham Island taiko may well breed here too. Mangere Island, also a Crown-owned nature reserve, supports a small black robin population, as well as Forbes parakeet, although the area of forest remaining is woefully small to ensure their long-term survival.

Like the main islands of New Zealand, the Chathams reveal a long history of farming development, exploitation of natural resources and indifference — sometimes unconscious — to wildlife and plants. Today they are threatened by large-scale peat mining. The challenge on the Chathams, just as on the mainland, is to ensure that remaining natural areas and native wildlife have a secure future.

Too often our response to that challenge is ineffective, and reflects the artificial divisions within government. Dedicated people within the Wildlife Service, Lands and Survey, the Forest Service and parts of DSIR have done excellent work for conservation. But often that good work founders because of conflicts between departments responsible for natural areas and those committed to development.

One only has to look at the latest conflicts over Te Paki, the Waitere kiwi block, South Island high country wetlands and the Buller native forests.

Our endangered plants and birds, including those on the Chathams, are not exempt from such conflicts. Their future is threatened by our inability to develop species survival plans.

We need a strong advocate for the natural environment which will bring together skills and resources. Such advocacy belongs in a Ministry for the Environment, of the sort that our Society has been calling for. But to take on this vital role, it must have more than the planning division offered in the Government's recent white paper.

It is imperative that we have a ministry with a strong nature conservation division, integrating the management of wildlife, natural waters, native forests, wetlands and other habitats. This was the policy of the Government going into last year's election. It must be the outcome of their present deliberations.

Dr A. S. Edmonds, President

TOURISM
The sleeping giant awakes

Towards the end of last year the Director General of Lands and Survey, Bing Lucas, addressed the 57th annual conference of the Royal Australian Institute for Parks and Recreation held in Launceston, Tasmania. The subject of the address was "Parks, Recreation and Tourism" from a New Zealand perspective. We reproduce here an abridged version of the speech.

Tourism is big business. Internationally it is the second largest industry behind oil, while in New Zealand it is the sixth largest sector in the economy.

The importance of tourism is noted by the Government and others: at last year's Economic Summit Conference, the then President of the Manufacturers' Federation, Earl Richardson, termed the industry "the sleeping giant" of the economy. At the same conference, a tourism spokesman predicted the number of overseas visitors could increase from 583,000 to one million by 1990.

The way the environment is protected, managed, marketed, presented and enjoyed is a key to having satisfied customers who will tell others. If it is managed sensitively, the environment will remain a sustainable resource to be enjoyed in perpetuity, both as the people's heritage and the base for tourism to thrive.

Three main points emerge in discussing tourism:

- It can provide an economic justification for conservation, and by enabling people to enjoy protected areas, can promote public awareness and support for them.
- If overdeveloped or uncontrolled, tourism can endanger natural areas, cause visual and cultural pollution and destroy the very resource on which it is based.
- There is a need for close communication and co-operation between the tourist industry and park managers.

Visitor expectations: a changing scene

In 1980 Professor Brian Henshall of Auckland University prepared the report: "Tourism for Tomorrow: A Strategic Analysis of Tourism in NZ". The study listed the relative importance of factors which make New Zealand attractive to tourists. In order of importance these were: natural beauty and climate; cultural and social harmony; accessibility to the region; exemplary attitudes towards tourists; the groupings of attractions within the country; prices; sport, recreation and educational facilities; shopping and commercial facilities.

A further survey asked visitors and New Zealanders to identify what they would like to do on their next holiday. At the top of both lists was "visit a national park" — at 71 percent for New Zealanders and 70 percent for overseas visitors. Next highest in both lists was "visit a museum" and in third place for overseas visitors was "visit botanical gardens". High on the list for overseas visitors were visiting arts and crafts and Maori cultural centres, and seeing a New Zealand family in their home.

It seems that a psychological change has taken place. As the Henshall report said: "The new tourist wants to do more than 'collect' countries: just going there is not enough. They want to experience a country — meet the people and gain a real insight into the culture." Some call this a change to "inner directed" tourists — people less concerned with following fashions but more responsive to inner needs. They want to share in the life of the country they travel through. For example, one of the factors attracting West Germans to New Zealand is the country's nuclear free image.

With the move away from the "been there seen that" syndrome, travel patterns in New Zealand have changed significantly.

Another study, "New Zealand Tourism: Issues and Policies" published last year showed that 66 percent of our visitors come from Australia and North America, followed by the UK and Japan, with rapid growth from West Germany and South-East Asia.

On average these people stay for 27 days, and many of them now drive themselves. The proportion who see New Zealand through the windows of a coach has dropped from around 70 percent to 57 percent, and this is predicted to come down even further.

I recall recently, when walking the Milford Track, meeting a South Australian family who were spending four days enjoying what is quite a strenuous walk. But the highlight of their time had been the excitment of white-water rafting on the Tongariro River.

Promotion of tourism used to focus on luxury hotels from which the scenery could be viewed. Now, adventure and outdoor action holidays are advertised. Television has enabled people to see the wonders of the world on a small screen — an experience not dissimilar to looking through the window of a coach. What television or the coach cannot offer is a sense of participation, whether tramping, riding, exploring a glacier, skiing or relaxing in a hot pool.

Pressure in key areas

Not only are more people visiting less traditional tourist areas, they are also putting pressure on a few key destinations.

Mount Cook and Milford Sound are both priority places to see. Both require redevelopment which is happening slowly — in the case of Mt Cook, redevelopment started in 1973, but it is not yet finished as costs have had to be absorbed in competition with capital works demands in ten national parks. A Milford Sound development plan was agreed to by all parties in 1980, but needs an estimated $3.2 million to implement, and debate on where to find this continues.

But tourists who stay an average of 27 days will not spend all that time at Mt Cook or Milford Sound... they will visit a wide range of places and seek a wide range of experiences away from cities and main tourist resorts.

As tourists become more mobile and more discriminating they demand better presentation. A whole paper could be devoted to the presentation of natural and historic places and the importance of integrity, sensitivity, accuracy, imagination and quality, in visitor centres, on-site interpretation and signs.

Growing awareness of our Maori heritage poses a challenge in sensitivity as we endeavour to interpret places and events through Maori as well as European eyes. For example, we need to avoid the inbuilt tendency to say that Abel Tasman "discovered" New Zealand when Polynesian navigators did so centuries earlier. And we need to avoid the risk of prostituting a culture.

The good, the bad and the ugly

There are many examples of what to avoid, and I want to draw from further afield as well as from New Zealand for some examples of the good, the bad, the ugly and the beautiful.

Ten years ago the Nepalese Government decided the approach to Mt Everest

Planes and helicopters in wilderness areas are not always welcome — especially by people who have made the trip the hard way! Chancellor Dome, Fox Glacier, towards Mt Tasman.
Photo: Bruce Bostill

At the Whakarewarewa thermal area, one hotel dominates, providing a few guests with a view but intruding into the experience of thousands. The author believes such problems can be overcome with better planning.
Photo: Bing Lucas

A youthful "porter" rests in the Khumbu region of Nepal. Tourism has put pressure on timber supplies in area where regrowth is slow.
Photo: Bing Lucas

The 40-metre long Mangaparua Bridge was built in 1936 to provide access for settlers of the isolated and now abandoned Mangaparua Valley. Today this "Bridge to Nowhere" attracts trampers, canoeists and tourists.
Photo: Bing Lucas

It is scenes such as this — Lake Matheson with Mts Tasman and Cook in their reflected glory — which have always attracted tourists to New Zealand. Increasingly, those tourists are coming not just to look, but to seek adventure in such surroundings.
Photo: Bing Lucas

needed protection because of the high numbers of trekkers. They invited the New Zealand Government to help establish the Sagarmatha National Park. In this high altitude, roadless region, timber grows slowly and cannot meet the demand for tourist construction and firewood for trekking parties. Now with national park management, campsites and simple lodges have been built, alternative fuels are encouraged and a reforestation programme has begun. A visitor centre shows sensitivity towards Sherpa life and beliefs.

In some North American National Parks camping sites have had to be closed while they recover from over-use, and in certain very popular areas development has spoiled enjoyment of natural wonders. Therefore, today at Yellowstone geysers are seen from walking tracks placed to keep as natural an atmosphere as possible, while roads have been relocated so they do not intrude on the natural wonders.

Generally in New Zealand our relatively low use has kept us clear of such problems. However one hotel development in Rotorua which dominates the Whakarewarewa thermal area gives a relatively few guest rooms a view but intrudes into the experience of thousands enjoying the thermal features.

Not all development disasters in natural areas lie at the door of the tourist industry. US park planners, seeking to cater for visitors to Carlsbad Caverns National park in Texas, established a car park above one of the major caverns. This reduced the seepage which kept stalactites and stalagmites healthy. Then the micro climate of the cavern was altered by establishing a cafetaria underground and a passenger lift to the surface. Consequently, the condition of the cavern deteriorated significantly.

What is done outside a national or historic park can create a negative impression. So can advertising signs and distortions of culture with plastic Navajo "teepees" in Arizona, signs and wires in New Zealand and souvenir stalls in Japan's Fuji National Park. The use of names of no significance to the region and garish motel signs act as a repellent to me. In Rotorua, I'll always stay at a motel with a Maori name ahead of one with a name imported from Las Vegas, especially if it has the added attraction of its own thermal pool!

Shattering roar

Aeroplanes in isolated regions can spoil a wilderness experience. Recently a tramper on the Milford Track recounted how, "just as you approach the top of the McKinnon Pass the atmosphere can be shattered by the reverberating roars of the tourist planes flying low overhead."

A similar problem exists in Mount Cook National Park where ski-equipped aircraft have enabled thousands of people to experience the awesome grandeur of the mountains. At the same time, it is easy to understand the reaction of climbers being greeted by an aircraft bringing tourists onto the snow. At Mt Cook, flights are controlled as far as possible, showing that management can deal with such conflicts.

Tourism has often been the catalyst for conservation. Competition between two major Canadian railway systems led in large measure to the establishment of Banff and Jasper National Parks. McKinnon, who established the guided Milford Track last century, played a significant part in developing the public appreciation which ultimately led to it becoming a national park.

The growing demand for resource-based tourism is typified by Te Rehuwai Safaris operated by a Maori group on Maori land and in Urewera National Park, combining a recreational and scenic experience with contact with Maori spiritual, cultural and social values.

World-wide, there is growing interest in "nature tourism". A notable example is the three-day package offered by Tiger Tops in the Royal Chitwan National Park in Nepal's lowlands. This combines staying at a jungle lodge, wildlife viewing from elephants, and seeing the Asian rhino and with luck the Bengal tiger, punting on rivers, riding and walking jungle trails and tent-camping. This organisation employs its own biologist.

The economic value of nature for tourism can be a powerful weapon in added justification for the protection of nature. I recall looking at a fine stand of trees in Mount Rainier National Park and hearing the Park Superintendent say, "The loggers would love to get hold of them but the real dollars in those trees are tourist dollars and we can sell them over and over again". At the Thyangboche Monastery at the approaches to Mount Everest I heard the same thought expressed by the High Lama. Discussing the potential of tourism to provide income and employment for the region, the High Lama said, "here, the mountains are our mines".

The tourist industry in New Zealand has such a stake in the positive values of the environment that, rather than being a contributor to environmental degradation, it should be a strong force for environmental quality and, increasingly, it is. Indeed, there is keen support from tourism as we plan to celebrate the centennial of our national park system in 1987.

Let us remember that true conservationists are people who know that the world is not given to them by their parents but borrowed from their children.

The Council for Recreation and Sport is pleased to sponser these pages.

Special offer to Forest and Bird Members — limited edition

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In buying one or both of these beautiful prints you will be aiding the Society to continue its conservation work, since half of the proceeds will be donated to Forest and Bird.

We hope there is no further need for such last minute rescue programmes. But if there is, Forest and Bird members can know that, with their support, their Society will be leading the fight to save our endangered species.

Old Blue was no ordinary bird; yours has been no ordinary assistance.

Pauline Morse is known for her artistic work with the Wildlife Service and a recently published field guide to Fijian birds.

Only $35 each, or $60 the pair!

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Half the proceeds to go to Forest and Bird!

Old Blue, missing feared dead, was no ordinary bird. When the Chatham Island black robin population slumped to just seven in the 1970's, she almost singlehandedly rescued the species from extinction, and in the process became the world's best known bird and New Zealand's best loved one.

The dramatic tale of the black robin — how it struggled to survive on a windswept 5-hectare island for a century, how a cross-fostering programme was set up to increase its numbers — is one that Forest and Bird members know well. For it was the Society which helped to buy Mangere Island, to where five of the remaining seven birds were transferred from Little Mangere Island in a last ditch effort to save the species. And it was the Society which aided the Wildlife Service to plant 120,000 native trees, vital to the birds' survival.

The Society now has pleasure in making a special offer to its members: two delightful prints of black robins by artist Pauline Morse. One depicts Old Blue, mother and great grandmother who died at the age of 14; the other a fledgling, one of the 19 surviving adult robins. Old Blue is pictured against *Olearia traversii*, the shrub planted in its thousands which was indispensable to the species' survival.

Limited edition of 2000

The Fledgling

Orders: ***Black Robin prints, Forest and Bird, PO Box 631, Wellington.***

PUNAKAIKI:

This fortress built by nature for herself

by Nicky Hager

Looking out from the entrance to the Fox River Caves and over to the bluffs on the opposite side of the river. A 2 km long passage extends from here.
Photo: Derek Shaw

Anyone who spends time around the Western Paparoas cannot help but develop a special affection for the curious jumble of landscapes in this relatively small area. From the sculptured coastline and spectacular coastal bluffs through to the limestone canyons and out into the wide forests and mountains beyond, a visitor can discover a beautiful and unexpected world during a day-walk from the main coast road between Westport and Greymouth on the West Coast.

The limestone geology is the key to the landscape. Limestone provides fertility for the rich forests; it has dissolved to form a landscape of sink holes, disappearing streams and marvellous caves; it has been cut away forming the towering canyons which make the area so accessible; and, where the sea has worn into the stratified limestone on the coast, if has formed into the remarkable Pancake Rocks at Punakaiki for which this area is best known.

The limestone has also served to protect its own domain. In an area where most native forest was lost as early as the gold mining days, the tall limestone coastal escarpments have so far held back the loggers from the forests behind. This is why the area is the centre of much discussion at present: it not only provides an opportunity for the creation of New Zealand's 11th national park — a park based on lowland country to complement the various mountainous parks — but is also viewed as a possible source of timber for the nearby Tauranga Bay sawmill.

The idea of a national park in this region first surfaced in 1976 and immediately met with controversy. While conservation and recreation groups strongly promoted the proposal, other groups denounced it as an unjustified "locking up" of much needed West Coast resources.

The current proposal is for a 28,000 ha Punakaiki National Park, a reduced version of the original plans.

From the point of view of national park supporters, it has always been possible to justify a park by its ***national*** importance. But from a West Coaster's point of view, the question "what's in it for the local people?" has remained unanswered. The answer to this now seems to be tourism.

Trumans Pack, near Punakaiki. Constant pounding of the Tasman Sea has created marvellous sculptures in the coastal limestone.
Photo: Craig Potton

Few places could compete for intensity of greeness with little Welsh Creek, off the Fox River.
Photo: Derek Shaw

Mt Mendel, looking north from Mt Faraday. Climber Les Molloy has remarked that the Paparoa Range probably offers a challenge to the alpine traveller unsurpassed in any other range of equivalent height (including the Tararua Range) outside Fiordland.
Photo: Andy Dennis

The West Coast has a history of exploitation of natural resources for distant markets with little left to show for it but mining tailings, pakihi swamp and cutover forest. An important issue now for this region, and many others in New Zealand, is whether there is more economic benefit to be gained by leaving the native forest that remains rather than chopping it down and sending it away.

At a recent meeting of the West Coast United Council, Budyong Hill of the Buller Conservation Group gave the councillors a different type of argument for establishing a Punakaiki National Park than they are used to hearing from a West Coaster. He argued: ''The Henshall report on New Zealand tourism concluded that 71 percent of overseas visitors aimed to visit a National Park and that 78 percent actually did visit one. The Punakaiki proposal is an opportunity for the West Coast, and in particular Buller, to get a bit more of a slice of the cake''.

Making an area into a national park has a profound effect on how much it is used for recreation. Whereas a Forest Recreation Survey in 1981 found that many people are uncertain of their right to enter state forest land, national parks are widely known for being open to everyone and designed to encourage recreation. The result is that the name ''national park'' has associations for New Zealanders and many overseas visitors which make it the best advertisement a natural area can have.

West Coast holidays at present often involve long periods of driving between a few fairly predictable stops. A large part of the reason for this seems to be ignorance of the available attractions.

Bruce Knight, a ranger at Punakaiki, estimated that about 80 percent of the people who end up spending some time at Punakaiki have discovered the area's attractions by accident. After pausing in their day's travel to look at the Pancake Rocks, they would notice a photo in a display or ask a question and realise that there was a lot more to be seen.

With large numbers of people already travelling the Coast Road through Punakaiki — but not stopping for long — the key to the economic benefit of tourism is whether they can be encouraged to lengthen their stay around Punakaiki. This is where the publicity value of national park status is important.

Once developed, a park would have heaps to offer. Andy Dennis, author of *The Paparoas Guide*, has described the potential for seven short nature walks, 14 walking tracks close to the main highway and two major tramping tracks in and around the proposed park area. In addition he notes the caving, exploring, hunting and water sport potential. With services like a national park centre and the high publicity that national park status automatically affords an area, a large increase in visitors could be expected.

In practice, the ***main*** economic effect of extra visitors comes from ***extra nights*** spent in an area because accommodation and meals are the main travel costs. An economic study of the Punakaiki National Park proposal (Stephens and Wells, 1983) estimated that a park would lead to at least a 10 percent increase in accommodation demand in the Westport to Greymouth area. Even a small increase like this, when added to the extra Lands and Survey jobs that would be required, was found to promise some 60 new full-time and part-time jobs in the region. On top of this, the study predicted extra economic activity in the area flowing from the work of park establishment and maintenance.

According to ranger staff at Punakaiki the predictions in this study are already being confirmed. Private entrepreneurs in the area are apparently confident enough that a national park will be established, that a motor camp is under construction at Charleston. County Council approval has been sought and gained for new motels at Punakaiki and land for other commercial operations is under investigation. Visitor interest in the area at present is thought to be fairly constant or only increasing slowly. But the expectation is that with the

boost of national park status the visitor activity will rise rapidly.

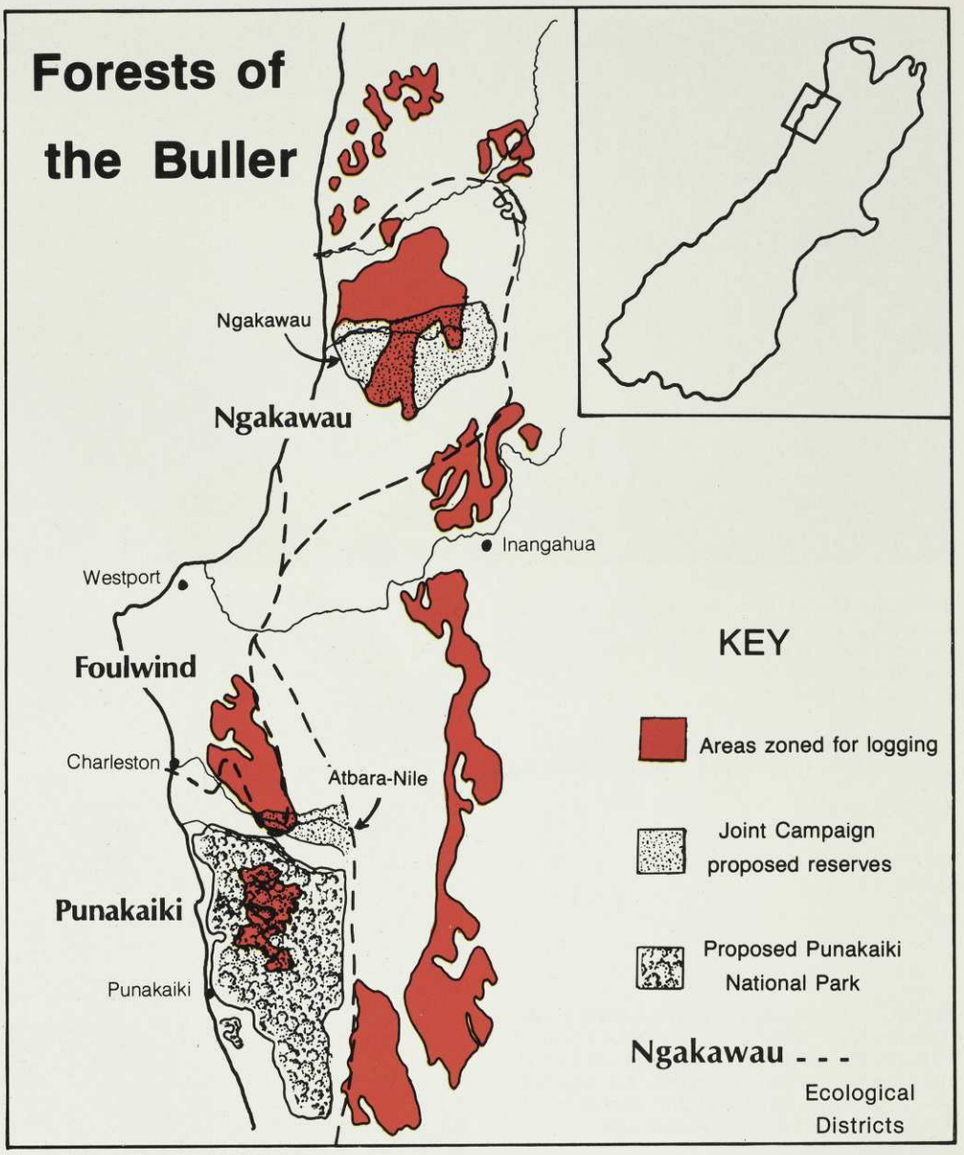
Providing that minor boundary changes avoid the park conflicting with mining areas, the main objection to national park establishment comes from the Forest Service. It currently administers much of the land that would be put into national park and has zoned part of this for logging.

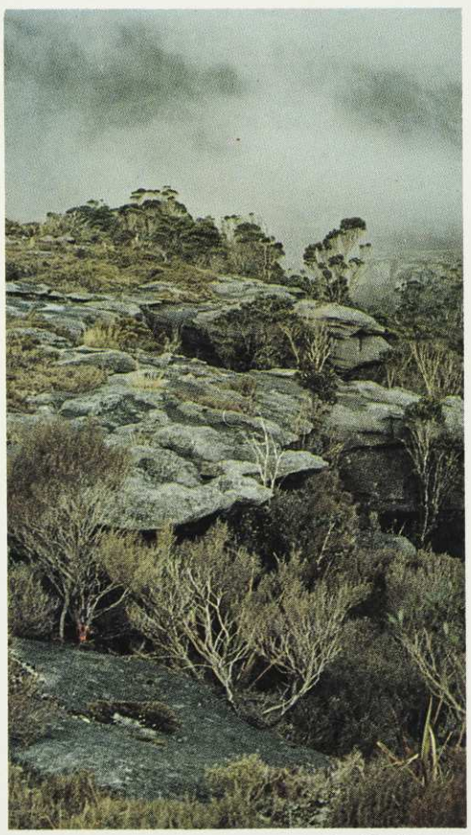
There are some 25 jobs at the Tauranga Bay sawmill which could be at risk with a national park. Unlike some communities, though, which are more dependent on sawmill employment, these jobs represent only about 1 percent of the Westport workforce. At the same time the tourism-related industries in Westport provide some 10 percent of employment and in Punakaiki already 50 percent.

While the contribution of sawmilling to the local economy has been declining for many years, tourism-related industries have been on the increase. The benefits of tourism to the region are already clearly visible in the jobs and businesses it supports.

In this context, national park establishment is far from being the ultimate form of "locking up" resources sometime suggested. Instead a national park can be seen as a way of opening up and developing an area for tourism —thereby creating a highly productive and renewable use for the resources.

For once, but certainly not for the last time, a local interest in resource development and job creation appears to strengthen the case for conservation.





Wind-swept coal measures on the Ngakawau plateau support a strange vegetation, especially adapted to survive in the toxins of coal-rich soil.
Photo: Peter Grant

BULLER RESERVES:

Custodians of time's secrets

by Peter Grant and Annette Lees, NFAC Researchers

Like the prow of a ship, a ridge of virgin forest between two waterways extends out from the Paparoa mountains onto a desolate sea of logged forest and exotic plantings — such is the area bounded by the Atbara Creek and Nile River in Buller, one of two regions on the West Coast lately singled out by the Joint Campaign on Native Forests for protection.

The other is the Ngakawau Forest, north of Westport, featuring a dramatic gorge, wind-swept coal plateau and a high perched basin of podocarp/beech forest.

In the wake of a recommendation by the State Forests Scientific Reserves Advisory Committee that existing forest reserves in Buller are inadequate, the Joint Campaign has produced scientific reports highlighting just why these two areas are so special.

The Atbara-Nile

Just to the north of the proposed Punakaiki National Park lie the Atbara Creek and Nile River, their sources high in the rugged Paparoa mountains. The

The picturesque Mangatini waterfall in the lower Ngakawau gorge is easily accessible via the Charming Creek walkway.
Photo: Guy Salmon

visitor enters the area off the Westport-Greymouth highway a little south of Charleston, reaching the virgin forest by following a long, winding gravel road, surrounded by forest in various stages of recovery from recent devastation.

In the once splendid valley of the Nile, logging roads run in all directions, completely enclosing the still-untouched proposed reserve.

Just to the south is the devastated Tiropahi Ridge, thrust like a dagger into the heart of the Paparoa forests. Peering out from the young pines on the ridge, across to the virgin forests of the Atbara-Nile, one begins to see why it is so unique.

In ancient times, during the tumultuous Pleistocene ice ages, the sea reached far inland, and would have lapped at the Tiropahi ridge just below one's feet, cutting out and depositing wide flat beaches around the toes of the hills. In cold, icy periods the sea level dropped, leaving the newly formed beaches and river terraces stranded. While this was happening, the land was being slowly uplifted, so that the terraces were carried high enough to protect them from the next ice melt and rise in sea level. Six times the sea and rivers rose and cut out terraces, and each time like a moving escalator the terraces were raised a little higher.

The terraces have remained to this day, the oldest ones now standing 190 metres above sea level. They have been dubbed the Candlelight, Whiskey, Caledonian, Addison, Virgin Flat, Waites and Speargrass terraces. The present day beaches and rivers form what is known as the Nile Mile Terrace.

In time the oldest of them have been leached of nutrients, supporting hardy trees adapted to thinner soils: mountain beech, silver pine and mountain toatoa are common. The youngest terraces, by comparison, freshly coated with rich river silts and marine sediments, bristle with tall podocarps and beeches, and are lush with flowering plants, ferns and mosses.

Cupped between the Atbara and the Nile are three of the younger marine terraces — the Speargrass, Nile Mile and Addison — which are not represented in any other protected area, or in the proposed Punakaiki National Park. Here is the last chance to preserve a complete sequence of these terraces, each offering a bounty of hidden information about forest ecology and the changing patterns of time.

Sad mosaic of ravaged landscapes

From low marine terraces to icy mountains, the proposed Atbara-Nile Ecological Reserve would be spectacular and important. The forest falls between two ecological districts, Punakaiki in the south and Foulwind in the north.

The aim of dividing New Zealand into ecological districts — that each district should have examples of unmodified environment protected in reserves — has not

The virgin terrace forests of the proposed Atbara-Nile reserve, viewed over recent logging operations in the foreground. At the centre right, a small finger of pines has nudged its way into the native forest. At the rear, the Paparoas are shrouded in cloud.
Photo: Guy Salmon

yet been achieved in Buller. The Foulwind district is a sad mosaic of plundered landscapes, with only three meagre scenic reserves. The proposed Atbara-Nile reserve spills across into the Foulwind district and would add to it a magnificent virgin example of an otherwise lost ecology.

To the south, the Punakaiki ecological district encompasses the Tiropahi reserve, which includes three high marine terraces. Unfortunately these were logged and cleared many years ago. The nearby Atbara-Nile proposal would complete the terrace sequence, and would do so far better — by providing virgin forested examples of the distinctive landforms.

The Ngakawau — grandeur and variety

The forests growing over the mountains and plateau of the Ngakawau ecological district are stunning, both for their grandeur and their variety. To the east is the high Glasgow Range, stepping down to a broad plateau, the slopes of which fall away to the sea and to the Buller River. The dramatic cleavage of the Ngakawau Gorge splits the plateau in two, as the Ngakawau River has cut through coal measures and siltstone to the ancient bed beneath. Behind this plateau, the Ngakawau catchment opens out into a huge basin, draining streams flowing off the Glasgow and William Ranges.

High on the range tops grow natural scrublands and grasslands —communities which appear again on cold swampy areas of the plateau under the mountains' shadows.

Tall podocarp-beech forests grow in the amphitheatre of the Ngakawau's basin, standing on the narrow steps of rich river terraces. Although cut away during the same glacial times that formed the Atbara-Nile terraces, these differ as they are about 400 metres above the ocean and were unaffected by the erasing powers of a rising sea level. The older terraces are worn by leaching and erosion, with the highest a rare natural pakihi wetland.

Closer to the coast, wind-swept coal measures support a stunted and strange vegetation. Plants that grow here are especially adapted to survive in the toxins of coal-rich soil. The measures reach to the rim of the Ngakawau gorge cliffs, then stop. In the cool shelter of the river cleft grow a remarkable assortment of extremely rare plants, ferns, forest herbs and shrubs. Among these is *Celmisia morganii*, a mountain daisy now known only from the Ngakawau River.

Giant carnivorous snails, *Powelliphanta*, populate the leaf litter on the plateau floor, and in the forest canopy live many bird species — kaka, parakeets, kiwis, robins.

Urgent plea for protection

In response to requests from conservationists and Government agencies responsible for conservation, the Forest Service has proposed two reserves — the Ngakawau and Orikaka ecological areas, which preserve some features but not the important tall forests of the Ngakawau basin, nor the continuum to the Glasgow tops or the coastal forest fringe.

In 1976 the Scientific Co-ordinating Committee proposed to protect the whole of the Ngakawau forest and its inland basin forests, but this was later greatly reduced because of Government pressure to release rimu sawlogs for the dilapidated Waimangaroa sawmill. Today, the grand forests of the Ngakawau basin are still untouched, but much of the northern plateau is being clearfelled, burnt and planted in pines. *Survey pegs are in the ground for a proposed logging road that would thrust right into the heart of the proposed reserve. The Joint Campaign on Native Forests is fighting hard against the logging road.*

The original proposal should go ahead, and extend to the tops of the Glasgow Range, thus linking the Ngakawau ecological area to the Orikaka, and providing the large forest tract asked for by the Wildlife Service. To the north, a separate circle of forest should be set aside to protect a *Powelliphanta* population, while an outlier reserve near the summit of Mt Augustus would protect the unique plants growing there.

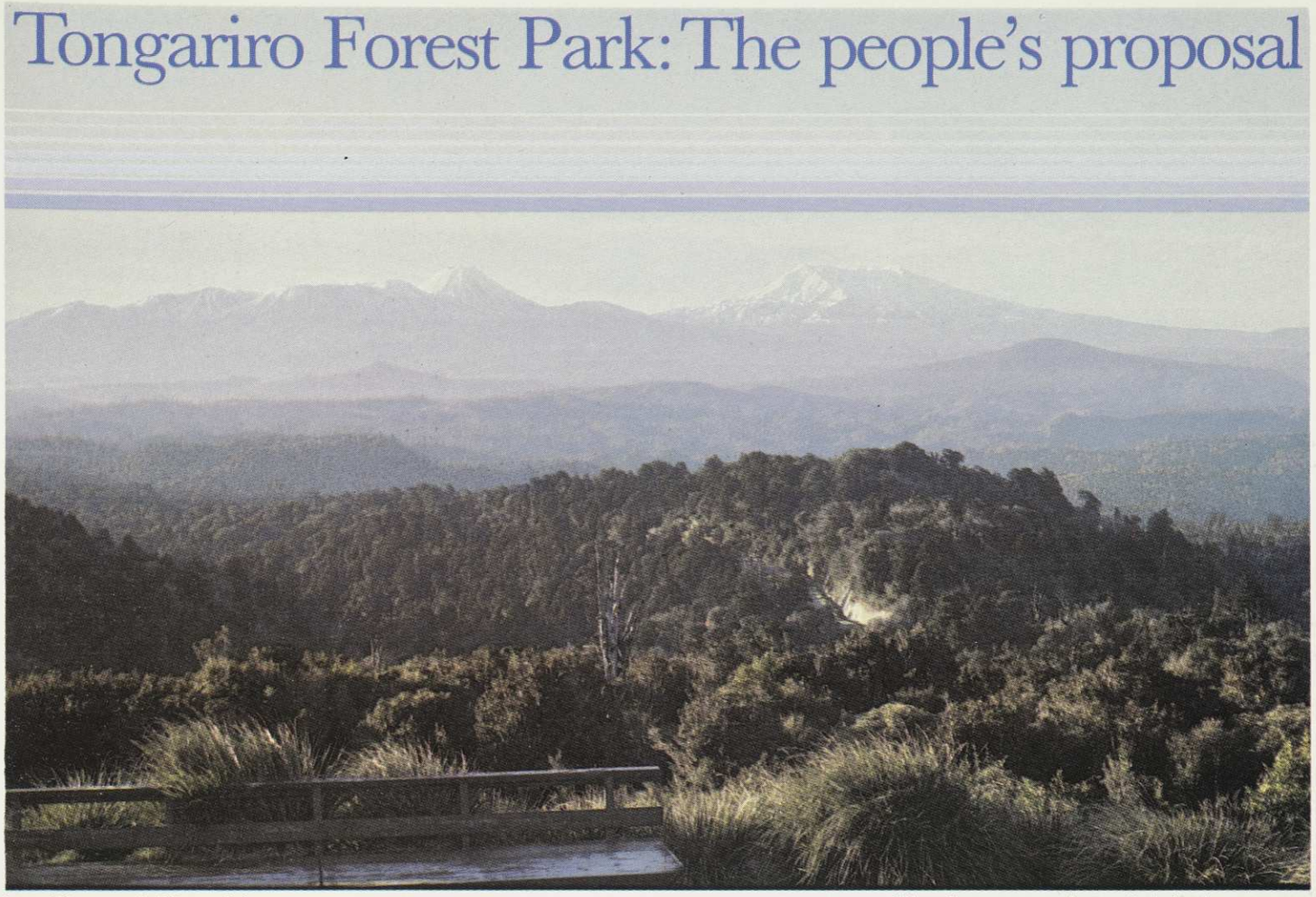
For visitors, the area divides into two. The lower Ngakawau Gorge, featuring the beautiful Mangatini waterfall and the historic remains of an old coal mine railway, is readily accessible for family groups via the Charming Creek railway. The upper catchment, on the other hand, with its deep gorge, basin forests, river flats and Glasgow Range peaks, is more remote and challenging.

At present, the lower gorge is controlled by Lands and Survey and the rest of the catchment by Forest Service. If the upper catchment can be reserved, there is merit in the Forest Service controlling the whole area.

And what about jobs in the timber industry? Guy Salmon pointed the way to rationalisation of the Buller industry in the August 1982 issue of *Forest and Bird*. He argued that more jobs should be created in wood processing as opposed to cutting down trees; tourist development and making effective use of already cleared land were also preferred options. The timber industry could also make use of hard beech trees currently wasted in rimu logging.

Further reading: copies of the two scientific reports on these reserve proposals are available for $5 each from the Joint Campaign on Native Forests, PO Box 756, Nelson.

Tongariro Forest Park: The people's proposal



by Gerard Hutching

King Country people see their bush areas as a growing tourist attraction and are fighting hard to retain them. View south from S.H. 41 across Tongariro State Forest.
Photo: G Hutching

Tongariro State Forest is no longer the hub of the southern King Country timber industry. Here rimu, matai, totara and kahikatea are no more sacrificed to the needs of man, and the sawmills at Raurimu, Owhango, Erua and Taurewa are silent. The piles of native logs stacked alongside radiata pine at the surviving sawmills at Mananui and National Park have been taken from bush remnants on private land, for the accessible areas of the State Forest have been completely logged out.

The 25,703-hectare forest is regenerating. Logging scars have been disguised by kanuka, toe toe, kamahi, five-finger, mahoe, wineberry and *Coprosma*, while saplings of their more stately bretheren assert themselves through the low canopy.

Some of the forest was logged only lightly or not at all: kaikawaka-totara-matai forests grow on the waterlogged Ngauruhoe ash of the cold uplands; mountain beech forests crowd down the Whakapapa River and tawa-rimu forests mantle river banks. Apart from a few tracks, it is difficult to detect that logging has even occurred here.

The magnificent heavy stands of totara-matai growing on Taupo pumice have been worked over, although many matai remain, in part because of their defective timber, in part because the market for matai was poor.

In 1977 logging in Tongariro Forest ceased, but in the few years since then native plants have swiftly begun the process of restoration.

A unique group of King Country locals is determined to defy Forest Service plans to clear native forests in their region

Like the forest, the sawmilling towns close by are also being restored —this time as tourist and holiday centres. Strategically located near the ski fields of the Tongariro National Park, the mill and railway houses have been transformed into holiday homes, ski lodges and school camps to which people flock from throughout the North Island.

These visitors are capitalising not just on the towns' proximity to the ski fields. They are also making increasing use of the old roadways, the hunting opportunities, the bush walks and the magnificent fishing rivers of the Tongariro Forest.

However the respite for the native plants of the Tongariro Forest may be only brief. Since 1951 the Lands and Survey Department has cleared over 3,000 hectares of the southern part of the forest to create marginally economic farmland which has been beset by problems of a severe climate, high development costs and bovine tuberculosis. Over a thousand hectares of exotic trees have been planted in patches through Tongariro by the Forest Service.

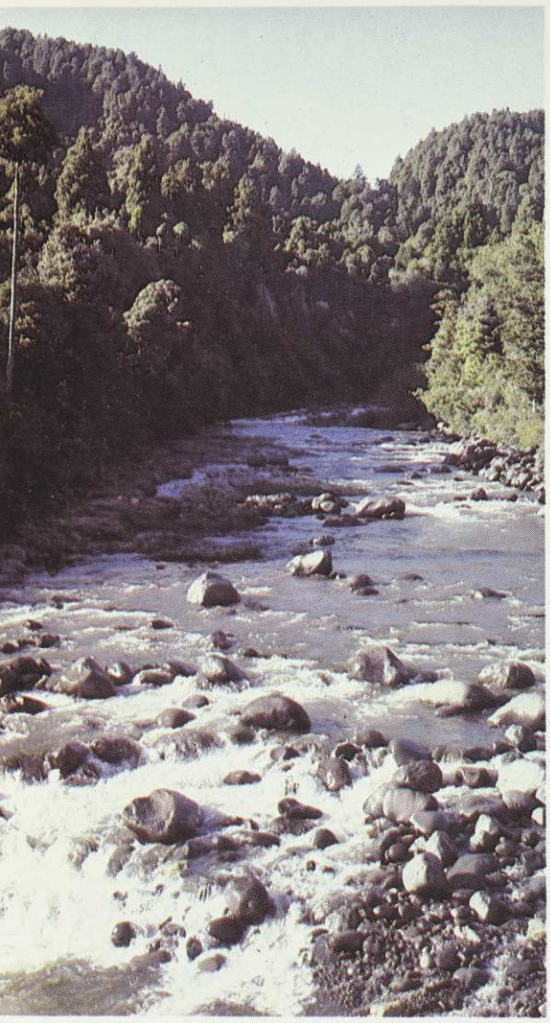
Now that the millable timber has gone, the second wave of the onslaught is underway.

A December 1983 Land Use Study produced by the Forest Service identified much of the forest as suitable for conversion to pines or pastures. Public comment was invited on this study but even before the deadline for submissions had closed, an interim zoning map was produced by Forest Service for the area. This zoned approximately 7,000 hectares of the forest for conversion to pines and a further 3,000 hectares for conversion to farmland. The remainder of the forest that was not already pines or pastures was zoned for a range of uses including indigenous management, recreation, scenery protection, ecological areas and soil and water protection.

Of particular concern to local people, was the zoning for exotic conversion of Owhango townships' new water catchment area and native forests around the popular Outdoor Pursuits Centre.

Their response to the Forest Service proposals was to form a group unique in New Zealand conservation history — the first time an organisation outside the Forest Service has taken the initiative to push for the creation of a forest park.

The Tongariro Forest Park Promotion Committee was formed after a major



Local people have formed FORKS — Friends of the River at Kakahi —and seek a conservation order for the Whakapapa River which flows through Tongariro forest.
Photo: G McSweeney

public meeting in Owhango township on 17 April 1984. It describes itself as "probably more representative of a local community than any other group of its type in New Zealand today'. A quick check of its members confirms this — a Taumarunui County and Taumarunui Borough councillor, community councillors from the townships of National Park and Owhango, a representative of the local Outdoor Pursuits Centre, tourism, deerstalking and tramping club representatives and members of the Forest and Bird King Country branch.

The chairman of the committee, Alan Bradbury, a local farmer and Federated Farmers office holder, sees this broad base as one of its major strengths.

The committee is promoting the idea that a Forest Park could have a number of uses. Forest production would not dominate, as the Forest Service appears to wish; more emphasis would be placed on tourism, education and conservation of native forest.

For a brief time in October last year the issue hit the headlines when the Minister of Forests, Koro Wetere, approved a two-year planting programme which involved the clearance of 600 hectares of Tongariro State Forest near the Outdoor Pursuits Centre. The promotion committee was outraged. They had previously received assurances from the Forest Service and

"The committee's demands might be seen as too radical by Forest Service bureaucrats."

from politicians on both sides of the House that no development was to occur until after a management plan was produced for public comment.

Their protests were given wide coverage through both radio and newspapers and resulted in the calling of a snap debate in Parliament.

Later that day after the intervention of the Prime Minister, the clearance decision was reversed. Tongariro Forest had been granted a temporary reprieve while a management plan was produced which is due out later this year.

In some areas it is too late. Tony Harrison, an instructor at the OPC, says that over the years he has watched trees that had become friends tumble one by one. The low point was reached when a Forest Service bulldozer was working down from the Mangetepopo Gorge, an area regarded by the Service itself as having "high potential" for outdoor education. The bulldozer carried on right up to the river, leaving debris choking its formerly clear waterway.

To Tony and others at the OPC, such behaviour does not seem "sensible". While the Forest Service admits a mistake was made, Tony believes that none of the forest close to the OPC should have been touched.

"It's a heartbreak to see trees which we knew personally. Now they are left on the ground. At least they could have used them," says Tony, who conducts classes in environmental interpretation with some of the 2500 young people who visit the OPC each year.

One of the arguments advanced by the Forest Service for clearing the 600 hectare Ketetahi block was that the area was little but gorse and blackberry —a patently untrue assertion. In fact it is ideal for OPC activities such as compass work, exploration and camping.

The park promotion committee also sees value in this type of land for what it is proposing. It believes that, given the opportunity, it could transform the southern King Country into a carefully planned tourist area. Skiing, fishing, hunting, tramping and rafting are already attracting people from throughout New Zealand and overseas to the region. The committee also sees possibilities in horse trekking, a "Raurimu railways special" showing visitors the famous railways engineering feat, and home hosting to enable visitors to meet locals.

Alan Bradbury says that the committee's demands might be seen as too radical

"Now that the millable timber has gone, the second wave of the onslaught is underway."

by Forest Service bureaucrats, but all it is asking for is that the local community should have a say over what happens in its own backyard.

"We want a forest park and we want a committee to set a management plan as to the best use of the land. It's a pretty innovative suggestion", says Alan Bradbury.

He views the way in which the locals have taken up the conservation of Tongariro forest as indicative of a change of heart to these matters by the establishment. "There has been a change. Before it was tear down, destroy, destroy, destroy. Farmers in particular had been the worst when it came to that. It is time to stop," he says.

Significantly many of the people strongly supporting the campaign to stop conversion of the forest to pines used to be involved in logging it.

Bluey Smith and his father logged out much of Tongariro Forest for the Dominion sawmill in Owhango. He and his wife now strongly support the Forest Park campaign.

His botanist son Kevin recently joined with Forest and Bird National Conservation Officer, Gerry McSweeney, to carry out a vital ecological survey of Tongariro Forest last April.

That survey identified may plant and forest association unique to the Tongariro Forest. It also found major flaws in the Forest Service 1983 Land Use Study.

Most of the areas mapped as "heavy scrub" were found to be indigenous forest by the normally accepted definition of what constitutes a forest. Unfortunately the Forest Service was using an incorrect definition. Secondly, any land that had been ring fenced to keep out stock was simply described as 'partially developed farmland'. Yet some of this contained sizeable areas of lightly exploited forest inhabited by important bird species such as robins and parakeets. One such area contained the only recorded stand of red beech (apart from a little stand on Mt Pihanga) in the area north of the Tongariro volcanoes.

Gerry McSweeney and Kevin Smith found a whole range of native birds both in the native forest and regenerating shrubland areas.

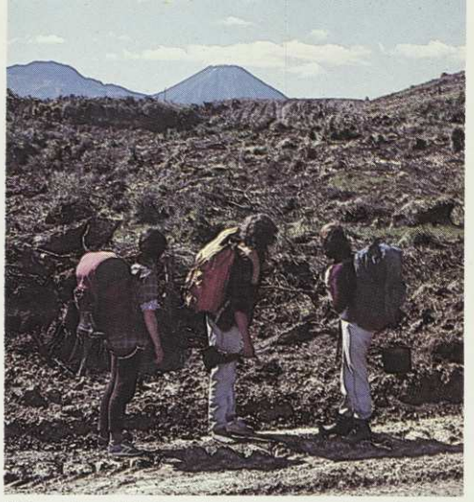
The North Island brown kiwi was widespread throughout, along with species such as whiteheads, pigeon, tui, bellbird, tomtit, and fantail. Less common species such as kaka, parakeet, robin and falcon are also present in the forest. Blue duck are abundant in the Wanganui and Whakapapa rivers which drain through Tongariro forest.

The Forest and Bird survey recommended that the ecological reserves proposed in the forest be more than doubled in extent to achieve adequate scientific representation of Tongariro's important plant communities.

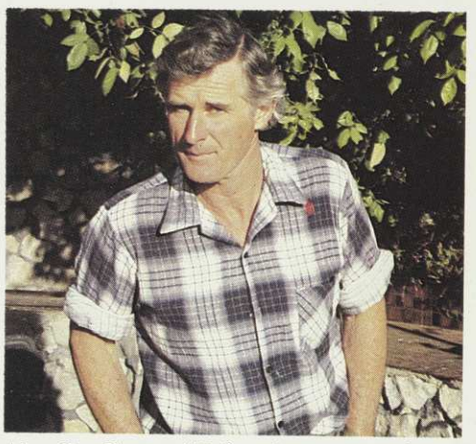
It also suggested that the remaining forest and shrubland areas be protected to conserve the area's wildlife, to protect rare plants like the curious wood rose *Dactylanthus taylori*, the river systems and to provide opportunities for outdoor recreation.

Forest and Bird's scientific reserve recommendations were subsequently largely endorsed by the Forest Service's special Scientific Reserves Advisory Committee.

King Country locals are fond of quoting the words of that doughty warrior Sir Winston Churchill, who told President Roosevelt in 1941: "Give us the tools and we will finish to job." So far the only tools possessed by the committee have been the organisational and lobbying skills of people such as Alan Bradbury, Keith Chapple — writer of their voluminous submissions —Noeline Buckland, secretary and local body councillor, and Anne Fraser, whose plant and wildlife expertise is always sought after. The next move is up to the Government and the Forest Service. Will they provide the local people with the opportunity to decide their own destiny or will it be determined for them?



Educational lodges in Tongariro State Forest provide for at least 31,700 user days per annum. This area was formerly a key natural area for the nearby Outdoor Pursuits Centre until in early 1984 381 hectares in the Mangetepopo Valley was cleared and burnt.
Photo: C Melody



Alan Bradbury: "Before it was tear down, destroy, destroy, destroy".
Photo: G Hutching

This sign on the Okupata road shows that people have never been welcome in Tongariro Forest. However a Forest Park would be open for all. Such regulations didn't stop Kevin Smith from visiting his old hunting haunts for a 1984 reserve survey, following in the footsteps of his father and grandfather who were loggers in Tongariro forest.
Photo: G McSweeney

Since 1957 Lands and Survey have been clearing southern Tongariro State Forest for pasture. Foreground matai burnt 1984, background windrows of matai-totara. In response to widespread opposition, clearance ceased in May 1984.
Photo: G McSweeney

Photo: Alan Mark

David Bellamy with fellow conservationists on top of Hump Ridge in western Southland, overlooking Waitutu Forest — the largest tract of unspoiled lowland forest now left in New Zealand. From left to right, Tony Hughes (Whirinaki Promotion Trust), Les Hutchins (National Parks and Reserves Authority), Bellamy, and Chris Ward (NFAC).

THE PRICE OF PRESERVATION

The boundless enthusiasm of Dr David Bellamy, Botanic Man and botanist extraordinaire, appears dangerously close to extinction as he nears the end of an exhausting fortnight in New Zealand promoting the preservation of Whirinaki Forest.

Aides remark, with wonderment and amusement, on how Bellamy actually fell asleep on his feet just prior to a meeting with Minister of Forests, Koro Wetere — a momentary lapse.

Even now, in Forest and Bird's head office, as he is about to head off to the airport after the hardest two week's work in his life (his words), the demands on his time don't cease; the editor of *Forest and Bird* wants to quiz him on the merits of tourism as a means of promoting conservation.

Bellamy has described New Zealand as "one of the world's best kept secrets." He believes that the two areas he took a special interest in while he was here — Whirinaki and Waitutu — need to be highlighted.

"One, the Whirinaki forest, takes us in our mind's eye and in genetic terms back to the days of the dinosaurs. I do think the podocarps should be renamed the 'dinosaur trees.' It is a very special place and could be advertised: 'Come and see the giant podocarp dinosaur forests.'

"Research is showing just how important Waitutu is. There is this wonderful series of steps coming out of the sea, marine terraces which have been gradually rising up over the last one million years. They've never been covered with ice, because the oldest ones were quite low down during the ice age and they gradually rose up. Here you have a time staircase where the evolution of soils and forests has been allowed to go on untouched," says Bellamy. Many New Zealanders fail to realise the specialness of such areas, whereas they will flock to attractions such as the redwoods in California. Americans, on the other hand, recognise the value of natural wonders; the term "environmental interpretation" originated in the US, and in New Zealand the practice is still in its infancy, although Lands and Survey and Forest Service are making determined strides to catch up.

He urges the Government to set up an 'ecological summit' — "then we could stop this damned silly business of having to fight for another forest every week."

Bellamy is keen to see New Zealand have a number of its unique areas named as World Heritage sites — a listing he has described as one of the cheapest advertisements for a region.

"You haven't started to cash in on the sort of tourist with money, who when they go somewhere want to see something special. People get a bit fed up just cruising around the world, really not seeing anything but popping into Auckland or Brisbane — cities and things.

"But there are now world cruises to see the world's heritage sites, the most important sites in the world. That is going to be a growing thing because there are people with more time on their hands," Bellamy says.

To those who point to the dangers of New Zealand being over-run by tourists, Bellamy has two answers. First, tourism will ensure preservation.

"You know how things are eroded away, day by day — a new road goes through, a new bit of logging, mainly because people in this country look upon the bush as having no value. The tourist aspect will bring immense value to it and therefore it will be preserved." Secondly, increased numbers of tourists need not ruin natural areas.

"How do you stop the bush from being loved to death? Well, you do that by proper management. Proper management means jobs, and jobs are the one thing that New Zealand youngsters want. You've got a fantastic number of youngsters coming out with university degrees who would be able to slip into these jobs.

"If you don't manage it, if you don't show that other potential, then I'm afraid it will be rubbed away by other forms of progress," Bellamy says.

He urges the Government to set up an "ecological summit" at which all the important natural areas are pinpointed — "then we could stop this damned silly business of having to fight for another forest every week."

With that the genial nature publicist is whisked off to the airport and the other side of the world, there presumably to continue some more "damned silly business" in the name of conservation.

Kiwis may dig burrows two metres or more long as daytime shelter. Some, like this one, are shallow and may be shared by the adult pair.
Photo: D P Murray

Little spotted kiwi: Paradise Regained or Paradise Lost?

Is its Kapiti Island sanctuary a Garden of Eden or not for this endangered species? Jim Jolly, Wildlife Service Scientist, reports.

Although the kiwi is the best known and most unusual of New Zealand's array of intriguing flightless birds, the decline of the smallest species, the little spotted kiwi, went almost unnoticed until the late 1970's.

This was partly due to the difficulties of finding and identifying a nocturnal, forest bird like the kiwi. The similarities, both in calls and appearance, between great and little spotted kiwis result in many doubtful field and museum records. It now seems the last specimen of little spotted kiwi was collected in Southland in 1938. Since then a pair of leg bones from a recently dead little spotted kiwi were recovered in Fiordland in the early 1970's. Apart from a single feather, also from Fiordland, there are no other recent confirmed reports of little spotted kiwis from the mainland of New Zealand.

The only substantial population is that on Kapiti Island. Although there is still the possibility of finding odd individuals in the South Island, the only other little spotted kiwis known were, until recently, on D'Urville Island. That population dwindled and three birds, all that could be found, were removed from the island and away from the predators found there – stoats, pigs, pig-dogs and cats.

It has always been assumed that Kapiti's little spotted kiwi population originated from a release of kiwis in 1912. If this was the origin of the population then the bird is a remarkably adaptable animal. Early this century about two-thirds of the island was cleared for grazing. Feral stock, including hundreds of goats, roamed over the island depleting the forest understory. Possums, Norway rats, kiore (the Polynesian rat) wekas and even some cats had all been introduced and threatened the kiwis' survival either by predation, particularly on eggs or chicks, or by competition for food and shelter.

An alternative possibility is that the bird persisted on the island from the last ice age, marooned from the influences that brought about this kiwi's demise on both sides of Cook Strait late last century. Whatever the origin of the kiwis on Kapiti, the species clearly has the resilience to adapt to new conditions. On the other hand, given this adaptability, its disappearance on the mainland was presumably caused by factors not present on Kapiti, such as predation by stoats.

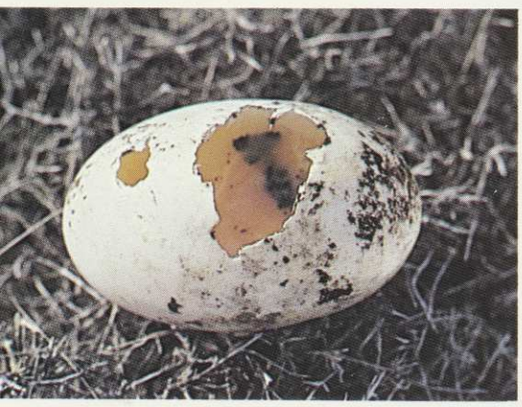
My Wildlife Service colleagues began research on little spotted kiwis in the mid-1970's. Initially, South Island reports were checked, the Kapiti and D'Urville Island population were assessed, and birds were sent to the Otorohanga Kiwi Centre where there had been success with breeding brown kiwis.

The two males of the three D'Urville Island little spotted kiwis were sent to Otorohanga but failed to settle into captivity, as birds from Kapiti had done, and one died. The second male was then sent to Maud Island to join the female but, although apparently established, it eventually disappeared. In July 1982, following the devastating news of the arrival of stoats on Maud Island, the female was moved to another island in the Marlborough Sounds, along with two males from Kapiti, in an attempt to preserve as much of the genetic diversity of the species as possible. Again the kiwis appear to have established but we have been unable to detect any signs of breeding success in the dense forest of the island.

The selection of suitable islands for transfers of the kiwis is a part of an intensified research programme on the little spotted kiwi begun in 1980. Apart from assessments of suitable islands and investigation of this kiwi's foods and other habitat requirements, the aims of this research are to determine the size and health of the Kapiti population.

Using the knowledge that kiwis call loudly and often, we developed a technique for estimating the number of kiwis on the island from the position and number of calls. By counting calls from the same listening points for two years we found how kiwi calling varied with time of night, time of year and weather. Then the Service's eight-man Fauna Survey Unit spent a month working from one end of the island to the other recording calls. There was clearly a dense population widely distributed throughout the mosaic of forest types on the island. By relating the number of calls heard from a known number of birds in the study area, we were able to calculate the number of birds on the rest of the island from the number of calls

Looking through Cook Strait from Kapiti Island. Little spotted kiwis were present on the mainland either side of Cook Strait until late last century.
Photo: J Jolly



Seventeen chicks have been caught during the study on Kapiti Island. This young kiwi, about two months old, had left the nest and, during the day, sheltered separately from his parents in often shallow cavities.
Photo: J Jolly

One of many eggs found to be preyed on by wekas during the study of the breeding of little spotted kiwis on Kapiti.
Photo: J Jolly

heard. The results suggest over 1000 birds were present and, since it is primarily the territory holders that call, this is an estimate of the size of the breeding population. The little spotted kiwi's endangered species status, then, comes more from its vulnerability in being confined to one island, rather than from just its population size.

This kiwi certainly has its stronghold on Kapiti Island, but over the last five years a disquietening trend has emerged: very few chicks hatch. In one of our study areas that embraces regenerating forest, typical of two-thirds of the island, there appears to have been no breeding success at all. We think this has much to do with the island's wekas.

In the first two years of study, nest burrows were found by laborious searching through the study areas. We found five nests with broken eggs and only two incubating kiwis. These two soon lost their eggs. We came across a weka carrying off a kiwi egg, having stabbed through the shell and downed most of the contents. On another occasion I arrived at a kiwi nest to find a weka eating the egg from beneath the incubating kiwi!

Over the last three seasons we have been able to assess how many eggs are lost by monitoring the breeding of up to ten pairs of kiwis with the aid of radio-telemetry, a video nest monitor, and the efforts of an extremely hard-working field team led by Rogan Colbourne. We found that probably all of the ten pairs had nests with eggs each year, some pairs had replacement second nests, but only two chicks have hatched.

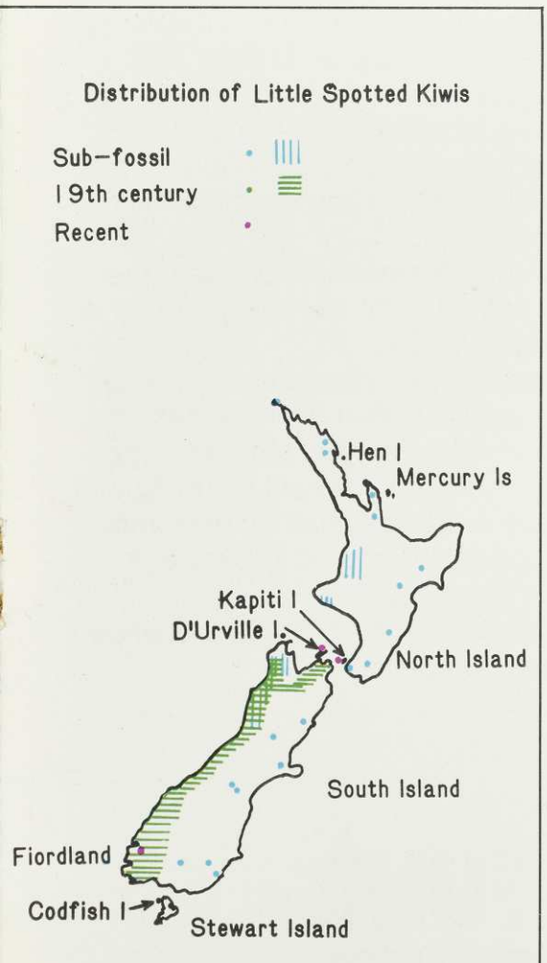
Wekas have preyed on at least one third of the nests but, judging by the type of damage to eggs, another third of the nests have probably suffered the same fate. The male kiwi, who alone incubates, leaves the nest unattended each night and occasionally for whole days, with only sticks or leaves pulled over the entrance. The bird seems peculiarly vulnerable to the weka, our native ground predator, who is well capable of making the most of these opportunities, even to the extent of seizing the eggs at night when the kiwis are active.

Little spotted kiwis had to contend with wekas in their natural range but the density of wekas on Kapiti is very high, perhaps much higher than it ever has been on the mainland. In addition, the younger regenerating forest on Kapiti does not have the ground cover of old logs and stumps that would conceal a nest burrow in older forest on the mainland.

Predators most probably also attack chicks, since chicks do not follow their parents in the evening at foot and even leave the nest independently of the adult. We have found seventeen chicks in four seasons of all-night "chick patrols" but have little idea of how many survive to breed themselves. The indications are that, with this rate of egg loss, the population can only avoid going into decline if not only adults live for an average of 20 years but also as many as 50 percent of the chicks survive to become breeders. Neither is likely, even though the kiwi is a long-lived bird. Future research is designed to test these ideas and a decision will then have to be made as to whether or not wekas should be eradicated from the island.

Whatever the outcome, the importance of the island transfer programme is clear. Red Mercury (206ha) and Hen Islands (476ha) have been checked and look to be excellent for little spotted kiwis. The first step in this programme was taken in July 1983 when six males and six female kiwis were flown from Kapiti to Red Mercury. Subsequent visits to Red Mercury indicate the prospects for the birds are good as at least three pairs have established. This transfer, along with a proposed release on Hen Island, will be important stepping stones in the programme, but the Wildlife Service can only feel the future of the little spotted kiwi is safe once they are on larger islands where a population similar to that on Kapiti could establish. Only Little Barrier and Codfish Islands of the larger islands are free from mammalian predators.

The present size of the Kapiti population allows for ample birds for these transfers. It is also the right time to be finding out about the poorly understood biology of this bird, rather than as so often happens with endangered species, at a time when numbers are critically low and most of the effort must be concentrated on management that is, of necessity, all but desperate in its approach.



Nest burrows like this one in the younger forest on Kapiti Island are readily found by wekas. Few eggs survive.
Photo: J Jolly

THIS BIRD NEEDS PROTECTION

Photo by courtesy of Ray Pierce

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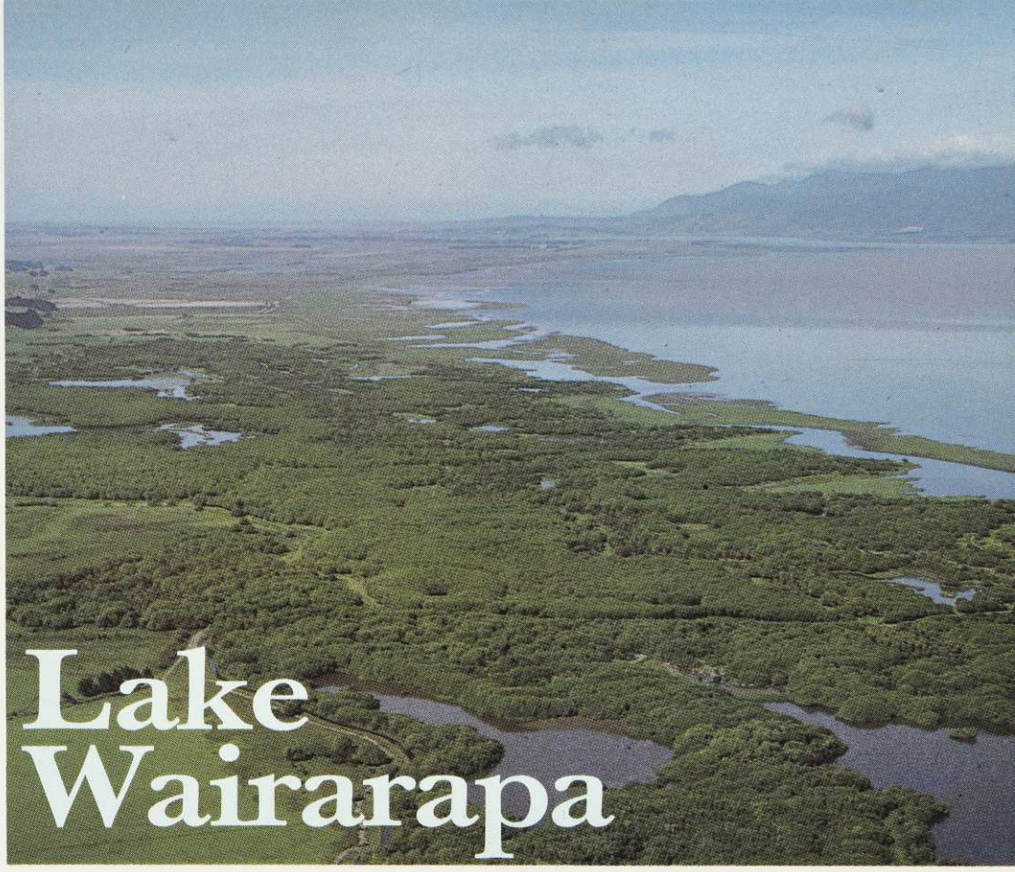


A view to the south-west over Haywards Lagoons (foreground) and J K Donald Reserve to the flats and backwaters of the eastern shore of Lake Wairarapa.
Photo: C J R Robertson

Lake Wairarapa — a wetland of international importance

by Peter Moore Scientist technician, Wildlife Service

Despite the recent fervent debate between developers and conservationists over the fate of Lake Wairarapa and its adjacent wetlands, this area is little known by the public. Few people, therefore, appreciate the importance of this system to wildlife, particularly birds. In this article Peter Moore remedies this deficiency by describing the bird life of the Lake Wairarapa wetlands and explaining why the area has such high value for wildlife. This account complements the description of the area's vegetation by Colin Ogle and Tom Moss in the February 1984 issue of *Forest and Bird*.

At least 90 percent of the former ponds and swampland of the lower Wairarapa region have been drained, a casualty of a century of European settlement and agricultural development. Today Lake Wairarapa itself has come under threat.

In 1964 the Wairarapa Catchment Board began the Lower Wairarapa Valley Development Scheme, in which it was proposed to drain more than 5,200ha of lake and wetlands and to protect a further 16,200ha of farmland from flooding. Several parts of the scheme have been completed; the final stage of development, the 'polder scheme', proposed to 'reclaim' some lake bed, creating 1,700ha of low-lying farmland and protecting 900ha of land adjacent to the lake, by building a system of banks along the eastern side of the lake. This development would eliminate most of the lake's shallow water and marshland, the single most valuable wildlife habitat in the wetlands.

The Wildlife Service has sought to reserve the remaining wetland areas since the early 1970's. Although large areas were lost, including the 386ha Te Hopai Lagoon, the other large pond complexes adjacent to Lake Wairarapa, the old Ruamahanga channel and part of Allsops Bay have now been set aside from development, giving a total reserve area of 817ha. While the Crown owns the largest part of the remaining wetlands, most of the lake shore itself is unprotected.

Over the past decade, members of the Ornithological Society, Wellington Acclimatisation Society and Wildlife Service have compiled a list of birds and made a few counts of individual species inhabiting the lake, but up to 1982 there was no detailed information on seasonal variations in bird numbers, activity or habitat use, nor on what parts of the wetlands were important to birds. Therefore, the Wildlife Service began a detailed study of the habitat requirements of wetland birds in late 1982 and over the next year I spent 136 days observing birds in the Lake Wairarapa wetlands. The results of this study have now been published.

Wide open spaces

Lake Wairarapa is one of the largest lakes in the North Island, being 18 long, up to 6 km wide and covering 7,800 ha, but is nowhere more than 2.5m deep at normal water levels.

The two sides of the lake are noticeably different. The western shore is narrow and shelves quickly into relatively deep water whereas sediment brought by the main rivers to the eastern shore has created large areas of shallow water and frequently-exposed flats, with an intricate system of backwaters, channels and pools. The lake's water levels vary by up to 30cm (occasionally by 1m in floods) daily and seasonally because of rain in the catchment, control of the outlet and local effects of wind. Because of these water changes the vegetation cover ranges from bare sandflats to turfs of native plants, mostly less than 5cm tall, and finally to rushland dominated by the introduced jointed-leaved rush (*Juncus articulatus*), which is mostly less than 15cm tall. This marshland (turfs and rushes) covers nearly 400ha, and up to 600ha (or 1km across) of sandflats can be exposed at low water levels. Even at normal water levels, the eastern shore leaves a lasting impression of wide open spaces with anyone who visits it.

The main pond complexes lie adjacent to the eastern shore of the lake in J K Donald Reserve, Boggy Pond Reserve and Matthews Lagoon Reserve. They have a wide variety of pond types, ranging from permanent water to seasonally dry ponds, and from natural to managed ponds. Raupo commonly borders the ponds, as do large areas of willow forest. Unfortunately, there are few native trees remaining. Some swampland borders the lake in the south-west at Allsops Bay.

Pasture surrounds most of the lake and separates it from all the pond complexes except J K Donald Reserve.

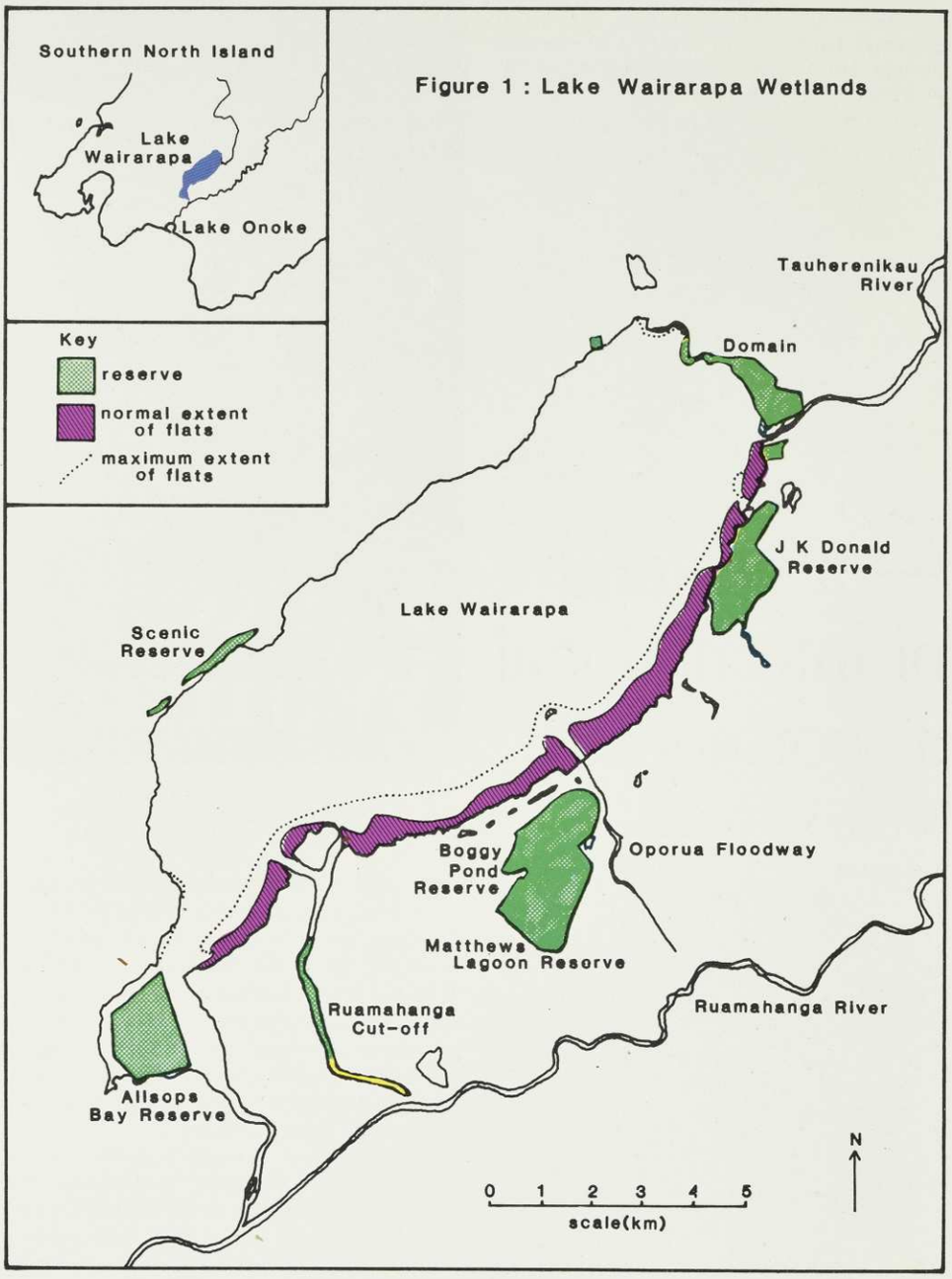
Abundant birdlife

Eighty species of birds have been recorded from the Lake Wairarapa wetlands in the last decade. This is much more than other purely freshwater system such as the Whangamarino wetlands (56 species) or the Ahuriri River (55 species). Of the 57 wetland species at Lake Wairarapa (i.e. ignoring the terrestrial birds), 24 species are permanent residents and at least 15 species are regular visitors. The remainder visit the area only occasionally.

Waterfowl, the main group of birds, include both native and introduced species. In some years they are very abundant; for example, in the autumn of 1978 waterfowl

Marsh crake in a raupo border, Boggy Pond. This is believed to be the first colour photograph published in New Zealand of our smallest and most secretive rail. Photo: P Moore

Spotless crake wading in shallow water at the edge of a raupo stand in Boggy Pond. Photo: P Moore



numbered at least 47,500 along the eastern shore. In 1983 the maximum on the eastern shore was about 20,000, with a further 5,000 in other parts of the wetlands. While the sight of thousands of birds in a flock and the roar of beating wings as they take to the air are most impressive, the presence of such large numbers makes counting them a daunting task. Waders are the second largest group, comprising residents, internal migrants and Arctic migrants. They number more than 1,600 throughout autumn and winter.

The greatest numbers and diversity of species in the wetlands are found along the eastern shore of the lake, particularly to the north of the Oporua Floodway.

Waterfowl

The wetlands are important to native waterfowl such as the New Zealand shoveler, which in autumn 1983 rose to a peak of around 3,600 birds. Spectacular rafts of shoveler and other ducks were a feature of the eastern shore at this time. They were largely restricted to shallow water zones and used a narrower range of habitats than the introduced waterfowl. Paradise shelduck are also abundant, having increased dramatically since hunting stopped in 1968. In January 1983 there were about 1,900 shelduck present, mostly in moulting flocks in Allsops Bay; the majority later moved to the eastern shore before leaving the wetlands in winter. More than 500 grey teal were present at times, often flocking on the eastern shore or favouring secluded ponds near Matthews Lagoon. The other native, the grey duck, was once numerous but now may number as few as 220.

The two introduced species, mallard and black swan, are the most numerous birds, and much of my time in 1983 was spent counting them. Mallards fluctuated widely in numbers — from 15,500 in autumn to fewer than 600 in spring. They fed and loafed in shallows of the lake and ponds except in the hunting season, when they spent most of the day far out on the lake, in safety. Even though black swan numbers have more than halved at the lake since 1977, the 3,000 to 5,000 birds present constitute an important part of the declining national total. Nesting colonies have also disappeared in this period because of wetland drainage and human disturbance, leaving only solitary nests scattered throughout raupo swamps. Cygnets are reared in the ponds before their parents take them to the lake. Cygnet numbers have dropped from nearly 2,000 in 1977 to 400 in 1983. Swans grazed vegetation in a wide range of habitats from pasture to deep water. Another introduced species, the Canada goose, had a small resident population which increased to 50 birds in winter.

The waterfowl breed at pond margins near the lake, the ducks usually constructing nests in *Carex*, grass clumps or on sheltered mounds at the base of willows, surrounded by water. One small pond in Donald reserve had black swan, grey teal, shoveler and mallard nesting close together.

Waders

Native waders predominate at the Lake Wairarapa wetlands. In 1983 there was a resident population of at least 300 pied stilts rising to more than 1,200 in autumn and winter. Wherever there was shallow water suitable for wading, pied stilts were sure to be found, including pond margins when water levels were low in summer and

autumn. Most stilts were on the eastern shore, feeding on small invertebrates at the lake edge and in the numerous pools, backwaters and channels of the shore. They moved seasonally in response to changing water levels and food supply, with more than 600 flocking at times. I found small breeding colonies of stilts on short rushland at pond margins and near the lake. Banded dotterels did not breed at Lake Wairarapa but spent much of the year there, peaking at 350 in autumn. They were largely confined to the eastern shore and used fewer habitats than pied stilts, foraging in flocks on saturated or partially-flooded native turf flats.

The other native waders are less numerous. Black-fronted dotterels can be quite hard to find but are scattered round the lake shore, with up to 60 flocking in winter of 1983. Variable and South Island pied oystercatchers are also present. Spur-winged plovers are not very dependent on the wetlands, often feeding and breeding on semi-developed pasture, although flocks of up to 70 frequently visited the lake.

One of the most fascinating groups of birds at Lake Wairarapa is the migratory waders from the Northern Hemisphere. There is always that chance of finding something quite out of the ordinary, such as the lesser yellowlegs that I saw in January 1983. Total numbers of migrants are lower at Lake Wairarapa than in some estuaries, since fewer than 100 godwits or knots visit the lake. However, there are some species, such as least golden plover (more than 70 birds) and sharp-tailed sandpiper (up to 80), which regularly visit in nationally high numbers. Few pectoral sandpipers and greenshanks reach New Zealand each year but one or two of each turn up regularly at Lake Wairarapa. Some of the migrant species show very specific preferences for different areas and habitat types at Lake Wairarapa, and these preferences can change seasonally.

Young shag cacophony

Some of the most conspicuous breeding birds in the wetlands are shags. They nest in colonies in willows bordering some of the ponds, the largest colonies being at Matthews Lagoon. The black shag predominates, with 230 breeding birds nesting after late July 1983. Sixty little shags arrived about a month later and occupied many of the same trees as black shags. At least some of the 23 little black shags nested in one colony, so that all three species shared the same tree. A constant feature of spring at the ponds was the cacophony of young shags begging for food. The amount of fish needed to sustain this level of breeding must be immense. The three species differed in their habits: black shags mostly flew individually to the lake to dive for fish, little black shags fished in small flocks, and little shags kept mostly to the ponds.

Several species inhabit the ponds and swamps and are rarely found elsewhere. Although the numbers of dabchick (about 25) and the elusive bittern (about 15) seem low, they are nevertheless important components of their national population. The status of the more secretive swamp inhabitants, our small native rails, is more uncertain. Spotless crake appear to be well established, especially around Boggy Pond. Because they are so elusive, one of the most exciting experiences of my study was the chance to watch and photograph a marsh crake. The resulting picture in this article is believed to be the first coloured photograph of this species to be published in New Zealand. Both spotless and marsh crakes moved seasonally in response to changes in water levels. I found crakes wading at the water's edge in young raupo, but at high water they were in mature raupo, where they walked on fallen leaves covering the water's surface. Their large relative, the pukeko, was in all swamps, venturing on to farmland in the wetter months.

Of gulls, the Southern black-backed gull is the most numerous, with up to 500 birds in 1983 based at two breeding colonies on shingle deltas of the western shore. Black-billed gulls breed elsewhere but more than 200 were present in autumn and winter, usually flying over the lake in search of fish. A few Caspian terns also used the lake for much of the year.

Up to 100 white-faced herons occupy the wetlands, using a variety of habitats from pasture to the lake edge. Some pairs nest in tall trees on farmland near the lake.

Most important in southern North Island

The Lake Wairarapa wetlands have already lost some of their original values. Banded rails and fernbirds were once present but have disappeared as a result of wetland drainage. Even though no major development yet occurred on the shore itself, drains have been dug across it, stopbanks and fences built, and stock have been given access to the flats, causing pugging of the fragile marshland.

Despite this deterioration, the wetland complex is a unique and valuable area for wildlife. It is the most important wetland in the southern North Island and is clearly a wetland of international importance, satisfying several criteria for identification of such wetlands, as outlined by the International Union for the Conservation of Nature and Natural Resources. For example, it regularly supports more than 10,000 waterfowl, and at least seven species have more than one percent of their national populations at Lake Wairarapa.

It is a complex freshwater system. The many varieties of birds present are a result of the varied habitats available to them, since each species has different niche requirements. Many of the values of the area are a result of the close proximity of different wetland types, giving nearly a continuum of habitats from lake to ponds. Furthermore, the large size of the wetland has led to large numbers of birds.

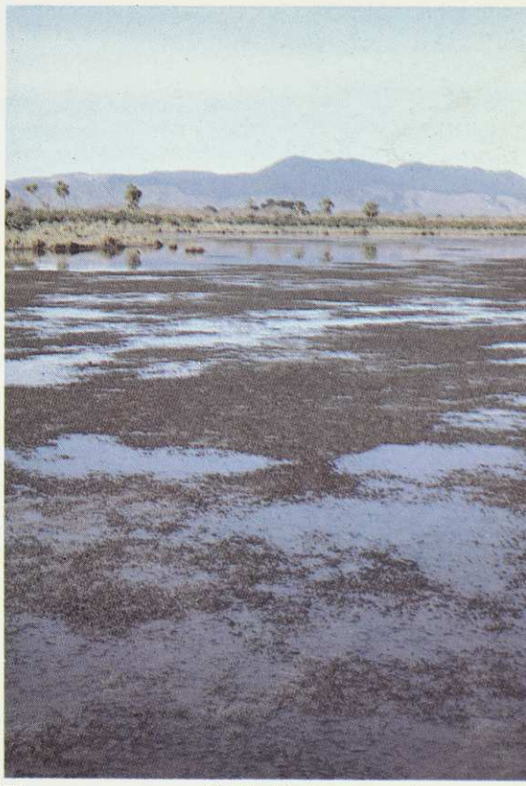
The large, nearly unmodified lake with its wide expanse of eastern shoreline has considerable aesthetic value. Space and wind, birds, and sparse, short plants combine to give a landscape character of unusual quality for this region.

What lies in store

There is still much of value to wildlife and to man at Lake Wairarapa. Any development of the eastern shore of Lake Wairarapa would harm wildlife, including both native and international migratory species, and therefore the Wildlife Service strongly recommends the retention of the wetlands. Furthermore the deterioration that has already occurred can be reversed by suitable wetland management.

When talking of conservation it is often difficult to argue in economic terms. Reservation, however, need not mean an economic 'loss' to the region. The lake can still be used as a storage vessel to protect farmland from flooding and there is some room for use of stock as a management tool to maintain habitat diversity. There is also a valuable game-bird resource. Controlled public use should be encouraged, with information centres, nature walks and observation hides. Combined with development of the National Wildlife Centre at Mount Bruce, this would extend the region's tourist potential as well as provide jobs.

Multiple-use of the Lake Wairarapa wetlands is possible, while at the same time the wetland and wildlife values are conserved for the benefit of our future generations.



The eastern shore of Lake Wairarapa, showing a mosaic of shallow pool and sparse native turfs. The Aorangi Range is in the background.
Photo: P Moore

Footnote

In October 1984 the Wairarapa Catchment Board ruled out the 'polder scheme' as a viable option for the development of lake Wairarapa because of a lack of finance. Instead, it proposed that lakeside banks be constructed to protect farmland from flooding. This would still eliminate some wildlife habitat, including about 100ha of semi-developed ponds, marshland and willows between Boggy Pond and the lake.

Achieving the right balance

The fast pace of 20th century life places pressures on each individual.

So too has it demanded more from the environment in which we live.

At UDC we recognise the importance of looking to the future.

For over 40 years, we have helped New Zealanders with vision and determination to achieve their goals.

The environment and quality of life is the right of each New Zealander.

The responsibility to maintain this balance is one that needs to be shared.

If you have a vision and the determination to succeed, you'd see UDC.

UDC

The Nene — a Species Restored?

The wild population of the Hawaiian goose or nene had dropped to 35 by 1950, but numbers of this trusting bird have now increased to 1000 in the wild. This group was photographed near Haleakala Park headquarters, Maui.
Photo: Rod Hay

Rod Hay*

Hawaii has a record of bird extinction little matched anywhere else in the world, except New Zealand. Fortunately, unlike many areas of the Pacific, Hawaii has an abundance of keen and able workers for conservation.

Much vaunted amongst efforts to protect species has been that carried out on behalf of the endemic Hawaiian goose or nene, *Branta sandvicensis*. This bird is a relative of the Canada goose which is familiar as a game bird here in the South Island, but is characteristic of island forms in being tame, reluctant to fly and poorly adapted to the ravages of introduced predators. Once common in many areas and at all altitudes on the large islands of Maui and Hawaii, the nene is now found in small numbers, chiefly in Haleakala and Volcano National Parks. Its haunts have traditionally centred around the open and dry lava flows which result from recent eruptions. In some places a desert landscape is found a few kilometres from forest which experiences rainfall as high as anywhere in the world!

Once an important food source of Polynesians, nene rapidly became rare from the beginning of the 19th century. By 1900 they had disappeared from the island of Maui and in 1950 only 35 birds were living in the wild. Interest and foresight had led to the establishment of a captive population in Hawaii in 1918 and their sedentary habits and confiding nature meant that they were easy to keep and breed. The few birds that were kept formed the nucleus of captive colonies later established at Pohakuloa in Hawaii and Slimbridge in Britain. These birds were encouraged to produce more young than they would be able to normally, when their first clutches were removed from them and hatched in incubators. By 1955 most nene were in captivity and the future of wild birds looked bleak. Fortunately, however, it was still possible to take some from the wild to supplement those in captivity in order to alleviate inbreeding problems.

While the species had been brought back from the brink, the nene rescue was really just beginning. A few birds in pens are a poor substitute for a flourishing wild population and reintroductions into the wild were planned. At first, wing-clipped birds were liberated into predator-proof enclosures and the time that it took for their wing feathers to re-develop gave them some chance to adapt to their new surroundings. However, though some of these birds probably bred in the wild there was good evidence that the liberations were doing more for the mongoose population than for that of the birds. A new approach was necessary.

Currently, pinioned birds are allowed to breed in large enclosed areas and their offspring may range freely once they are independent from their parents and can fly. Results are encouraging but still stop short of allowing us to assume that captive breeding has saved the species in the wild.

Though over 1000 nene now exist, most of those 'in the wild', they still depend heavily on human intervention. What can be done to allow the species to take the final step back to freedom? Firstly, and perhaps most importantly, Hawaii boasts a fine system of National, State and private parks and reserves, particularly on Maui and Hawaii, and this assures that adequate habitat is available. Secondly, the Fish and Wildlife Service is undertaking a research programme to understand the ecology of the mongoose so that reasonable and efficient control measures can be carried out. Like the predatory mammals with which we are familiar in New Zealand, there is little hope of effecting their widespread control. As in New Zealand with kokako, the most efficient way to ensure the protection of vulnerable birds may be to control predators locally and seasonally in key areas.

The case of the nene is evidence of the need for an integrated approach to rare species management. Although these birds would be unlikely to be with us today without captive breeding, protection and restoration of their habitat is vital.

*Ornithologist, Sth Pacific Conservation

Kidney ferns (*Trichomanes reniforme*).
Photo: D Gregorie

Fragrant fern (*Phymatosorus diversifolium*).
Photo: D Gregorie

***Blechnum discolor*, or the crown fern.**
Photo: D Gregorie

The delicate world of ferns

by David Gregorie*

*Society member and press officer for Conservation New Zealand

New Zealand is a great place for ferns. Our mild, damp climate suits them perfectly.

You will find them almost everywhere — in forest clearings, along the banks of streams, perched high in the forks of trees, or hiding in the undergrowth. Most ferns prefer damp places away from direct sunlight but some species can live in the open.

Altogether we have 152 different species of fern and 19 species of closely-related plants known as "fern allies", mostly lycopods.

Ferns are a very ancient family, far older than any of our forest trees and garden plants. Lycopods are older still.

Millions of years ago when the coal we burn today was being formed in the swamps of the carboniferous era, lycopods were woody trees. But the dozen or so species of lycopodium found in New Zealand today are low creeping plants that are hardly ever more than 50cm high. Some grow in swamps, others hang from the trunks and branches of trees.

Probably our best known fern is the ponga (*Cyanthea dealbata*), because this is the famous "silver fern" used as our national emblem on All Black jerseys. But there are many other types of fern that are both interesting and attractive.

Our tallest tree fern is the black mamaku (*Cyanthea medullaris*), which can grow up to 15m high. Both it and the ponga are common.

Blechnum ferns, which are common in most forest areas, have two different types of fronds each with a different job. The fertile fronds are narrow and brown and specialise in reproduction, while the more normal-looking fronds make the plant's food from air and water by photosynthesis.

Another interesting type of fern is the "hen and chicken fern", one of the spleenwort family. It has baby fern plants growing on the upper surface of its fronds. These will drop off and grow into clones, or "look-alikes", of their parent plant.

Maidenhair ferns are small and delicate-looking with fronds divided into what appear to be small separate leaves. Filmy ferns grow in soft green carpets in damp patches on the forest floor. Both types are popular as pot plants.

The kidney fern, one of the filmy-fern family, has rounded kidney-shaped fronds that look like the leaves of a flowering plant. Many of the fragrant-fern family, which you can find growing in bright green clumps on the forest floor or climbing up the trunks of trees, also have fronds shaped like leaves.

Bracken, or pig-fern, can be seen in most parts of New Zealand growing widespread on open hillsides. It is a hard, tough fern that can grow in the most exposed conditions.

There are many more interesting species that you can identify for yourself with the help of a book like "Ferns and Fern Allies" in the Mobil NZ Nature series.

In one important way ferns are very different from all other kinds of plants.

Forest trees, shrubs, herbs, vegetables, garden plants, weeds and grasses all have flowers and seeds, even if they are sometimes rather difficult to recognise. Like the flowers on pine trees or grass, for example. And all flowering plants are either male or female, or both.

Ferns are neither male nor female. And they do not have flowers, or fruit or seeds.

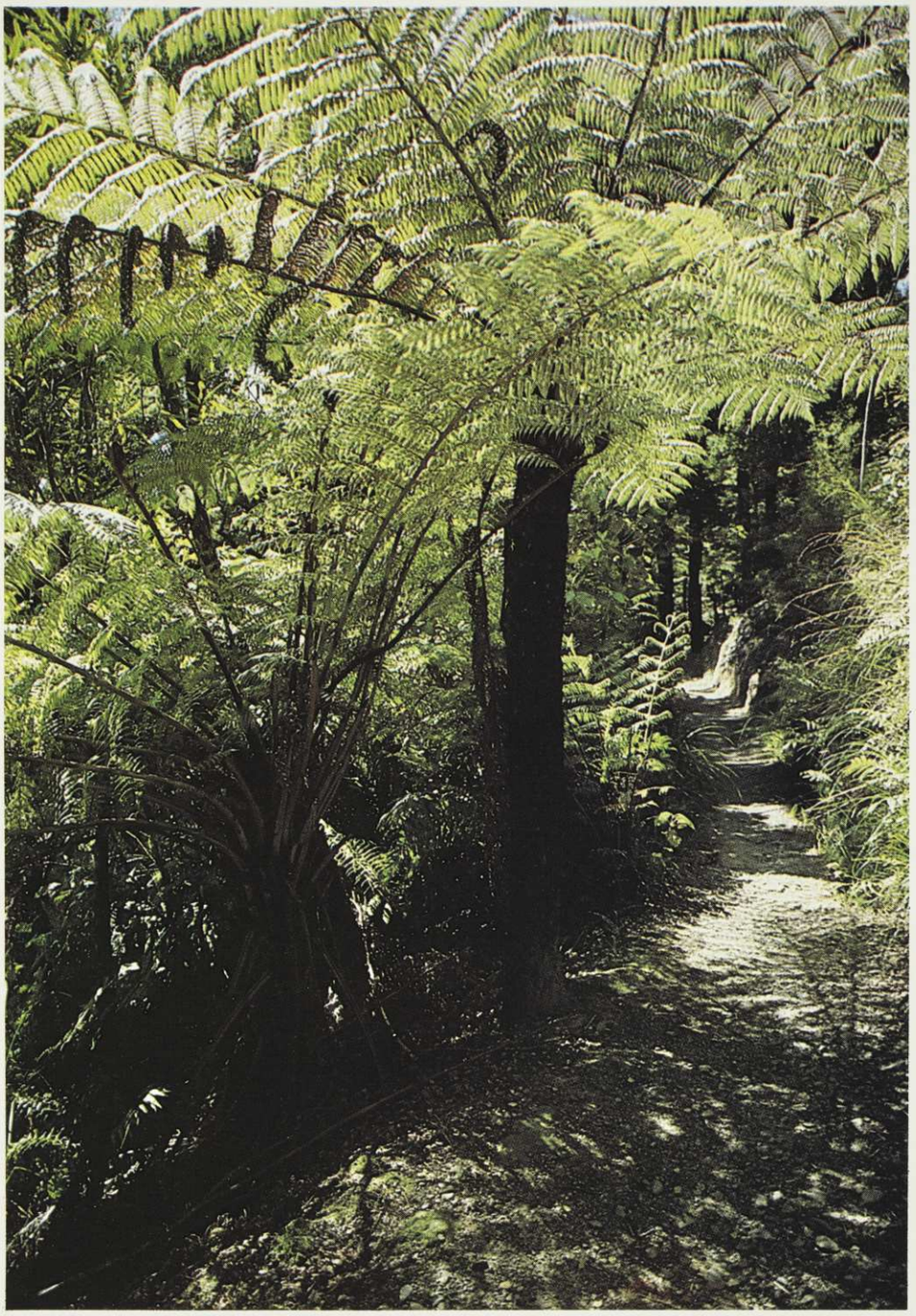
If you look on the underside of most fern fronds you will see a number of spots or lines arranged in a regular pattern. Look at these carefully through a hand lens (about 8x or 10x will do) and you will see a very large number of tiny round bumps called sporangia.

These contain microscopic grains of life called spores.

Thousands of spores are released by the sporangia when they are ripe and blow about in the wind until they settle in a damp shady place where they can grow.

The spores do not grow into ferns.

Each spore will grow into a small heart-shaped green plant called a prothallus. Even the biggest prothallus is not likely to be more than 8mm across, so they are hard to find.



A fern shaded path, Rimutaka Forest Park.
Photo: D Gregorie

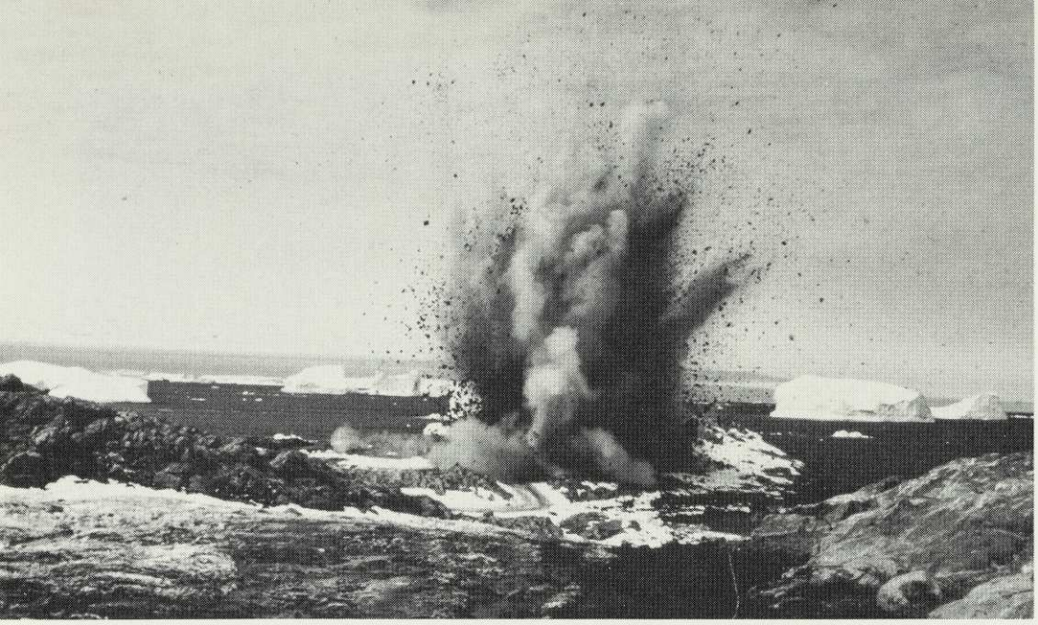
The prothallus has male and female parts like a flowering plant but it does not have flowers or seeds. Instead it has archegonia (female), which produce one egg cell each, and antheridia (male), which produce large numbers of sperm cells.

The sperms have long thin tails and can swim around by themselves, which is why the prothallus must grow in a damp place.

When they are mature the antheridia break open and release the sperms which swim towards the archegonia on another prothallus growing nearby. The archegonia and antheridia mature at different times so that a prothallus cannot fertilize itself.

One of the sperms will join with an egg cell to form a zygote and this will grow into an embryo. The embryo, in its turn, will grow up into a new adult fern plant.

This is the life story of all ferns, from the giant mamaku to the feathery maidenhair fern. It is one of the reasons why these ancient plants are so interesting to study.



Antarctic Treaty nations: cosy club or environment protector?

by a Special Correspondent

One of the explosions that has killed Adelie penguins. Building the French airstrip will mean the destruction of a colony of 3000 Adelie penguins, while also threatening the only accessible colony of Emperor penguins on the Antarctic mainland.
Photo: Greenpeace

Antarctica — New Zealand's great white, ice back-door neighbour — has held sway over the imaginations of explorers since the continent's existence was mooted by ancient Greek philosophers.

But while its existence is referred to in Polynesian legends of long canoe trips south it was not until the voyages of discovery from 19th century Europe that the region assumed a place on the map of the world.

New Zealand became a staging post, a supply stop for numerous Antarctic explorers. The names of the heroes and those defeated by the frigid environment — Shackelton and Scott, Amundsen and Mawson — passed quickly into the folklore of courageous adventurers.

The early explorers had raised their homelands' flags, as mountaineers do to mark the success of a venture. But as the twentieth century matured with its sophisticated methods of air and sea travel the great unknown became an area of increasingly strategic and commercial interest.

Britain was the first country to call Antarctic territory its own. New Zealand was next; in 1923 the Ross Dependency was created. The countries which had been exploring the area followed suit; France in 1924, Australia in 1933, Norway in 1939, Chile in 1940, Argentina in 1943 asserted their own claims. Those sovereign claims to a slice of the ice remain.

With sea and air access to the mapped continent, scientific explorers took over from the adventurers.

The United States and the Soviet Union were interested, but rather than claim their very own areas they chose to ignore the claims of other countries. With competing interests exploiting Antarctic seas, and the search on for the secrets of a continent, the way was clearly open for human beings to disagree.

The super powers, the seven claimants, South Africa, Belgium and Japan met on an American initiative in 1959, at the end of the International Geophysical year. They put together the Antarctic Treaty which was ratified in 1961.

For most of its 25-year life the treaty has presided over an era when scientists co-operated for survival and to share their new discoveries. It maintained Antarctica as a sterile laboratory, keeping the ice as the preserve of scientists. Nuclear and conventional weapons were banned and radioactive dumping was prohibited.

But emerging from the 1970's — a decade of international oil jittering — it dawned on the Antarctic Treaty nations that there was ne'er a mention of minerals or oil in the treaty.

They were alert to the exploitation of whale, seal and fish resources and agreed in 1977 to govern the interests of commercial fishers.

By 1980 they had put together the Convention on the Conservation of Antarctic Marine Living Resources to cover all species of life on the ice. Heralded for its ecosystem approach, the convention has, to date, spawned only bureaucrats based in Hobart, rules on procedure and numerous meetings.

Its last annual meeting incurred the wrath of New Zealand's scientific delegates by its failure to place more than cosmetic restraints on Russian fishers' over-exploitation of Antarctic waters, well away from New Zealand's stomping ground.

With that convention as their only model for additional treaty consensuses, the treaty nations have met five times — in secret — to try and put together a regime covering mineral and oil exploitation.

New Zealand diplomat, foreign affairs assistant secretary Chris Beeby, is chairing those talks. He is playing a key role in an international game which involves this country more directly than any other international negotiations ever have.

Two drafts of the proposed minerals regime have emerged so far. They accommodate the high-tech exploitation interests of oil and mineral companies more than the fragile, pristine environment which has excited the imaginations of so many.

The drafts make even New Zealand's environment protection and enhancement procedures look like a saviour's gift to a penguin. No agency is planned for protecting, inspecting or policing the environmental impact exploiters may have. Prospecting is unregulated and the drafts contain an automatic right to develop anything found.

Companies rather than countries will do most of the exploiting.

A further session of the minerals regime talks is to be held in Rio de Janiero next month. Implicit is the assumption that exploitation will go ahead.

The Antarctic and Southern Ocean Coalition, an alliance of 150 environmental groups in 35 countries has kept a watching brief on all minerals negotiations to date. In New Zealand, members are Forest and Bird, ECO, FOE, Greenpeace and Focus on Antarctica. ASOC has echoed the cry of the 1973–75 New Zealand Labour Government which was unsuccessful in persuading other treaty nations to keep Antarctica as a world park. The world park option is still favoured by ASOC but seems an unlikely one to ever satisfy modern commercial explorers. ASOC therefore lobbies the countries involved to keep environmental and not political or resource interests paramount as they carve up the percolator of southern hemisphere weather.

Rather than allow exploiters to wreck havoc in Antarctica where chain reactions from an oil spill are totally unknown, ASOC seeks to keep the treaty nations, especially New Zealand, true to their often-voiced commitment to environmental protection.

Over the last two years ASOC and Greenpeace International have led the campaign against France blasting an airstrip near its D'Umont d'Urville research station. They provided information to other treaty nations which at first denied France was doing anything. Photographic and other evidence made them concede it was true.

ASOC has monitored all the minerals regime talks; it has sent observers to the living resources commission. It exposed France's plans for the destructive blasting of an airstrip.

ASOC considers the treaty nations are now facing a crisis of credibility in their commitment to environmental protection. To keep them true to their oft-voiced environmental aims, ASOC must keep up its international lobbying effort.

It is imperative that New Zealand conservationists have someone at the Rio de Janiero meeting. A total of $4350 is needed; if you think you can help, send a donation to: The National Secretary, Forest and Bird, PO Box 631, Wellington.

International Recognition for Dr Lance McCaskill

Society distinguished life member Dr Lance McCaskill has been awarded the Peter Scott Award for Conservation Merit by the International Union for the Conservation of Nature and Natural Resources (IUCN).

The award was made at IUCN's 16th General Assembly in Madrid, Spain last November. It recognises McCaskill's lifelong commitment to nature conservation in New Zealand, including his successful campaign to rescue the Castle Hill buttercup from near extinction.

Less publicised, but equally significant, have been McCaskill's battles with bureaucracy to seek protection for natural areas. He was a key figure in initiating retirement schemes for the high altitude, eroded mountain lands of the South Island high country.

In 1967, McCaskill successfully campaigned against the realignment of the scenic highway over the summit of Arthur's Pass. This would have resulted in the destruction of extensive alpine tarns. His 12-page account of this campaign "The Battle for the Tarns" is a good case study for all active conservationists.

Copies of the booklet are available from the Secretary, RF&BPS, Box 631, Wellington for $1.50.

In his 80's, Dr McCaskill is still going strong and attended the recent Christchurch Joint Forestry Campaign seminar on beech.

Masons Bay, Stewart Island returns to full Crown control

The leasehold rights to the sand dunes, wetlands, tussock grasslands and forest of the Island Hills pastoral lease at Masons Bay have just been purchased by the Government. Minister of Lands, Koro Wetere, announced the purchase in November 1984. It clears the way for this spectacular natural area being given the full reserve status it deserves.

Island Hills pastoral lease lies on the wild west coast of Stewart Island and includes some of the largest natural sand dunes remaining in New Zealand. The rare plant *Gunnera hamiltonii* occurs in only one patch on the pingao-covered dunes. New Zealand dotterel, fairy prion, red crowned parakeet and large numbers of Stewart Island kiwis are some of the special birds found here. Behind the dunes, there is an extensive area of red tussock and native shrublands with important wetlands and native forest.

In early 1984, Forest and Bird appealed a Land Settlement Board decision to approve freeholding of nearly half the property. The lessee, Mr Te Aika, is a keen naturalist but we were concerned that freeholding would mean there could be no controls on inappropriate development by any subsequent owners. The Society appeal triggered a review of the future of Island Hills, resulting in the Crown purchase.

Farming is uneconomic at Masons Bay. A management study is to be carried out over the next 12 months to determine the future of the area. We believe the whole of Island Hills should be given reserve status and managed for its natural, scenic and recreational values.

Third South Pacific National Parks and Reserves Conference Apia, June–July 1985

This will be hosted by the Government of Western Samoa over the period 15 June–6 July 1985. One central theme of the conference will be traditional conservation knowledge and practice and its implication for conservation policy, park management and sustainable resource development. The National Parks concept of developed countries is not always appropriate in the South Pacific where the issues of custom and tribal ownership vitally affect management of land and water. Knowledge of customary practices is disappearing and needs to be revitalised. Protected area management must consider not just modern scientific knowledge about nature conservation but also traditional ways of ensuring that adequate numbers of plants and animals survive.

Delegations will be attending the conference from the 22 countries served by the South Pacific Regional Environment Programme.

Reprieve for Spirits Bay shrublands but why not cut the clearance subsidies?

The 2,250 hectares of shrublands, regenerating forest and wetlands zoned for clearance in the Te Paki management plan are temporarily safe. This decision has just been announced by Lands and Survey, Auckland who are responsible for the Te Paki Farm Park in the far north. Over 350 people and organisations submitted comment on the plan and there was overwhelming criticism of the clearance proposal.

In response to public submissions, Lands and Survey have commissioned Auckland University botanists to carry out further studies in the Spirits Bay catchment. Results from these studies are not expected until mid-1985. In their earlier submissions both Botany Division DSIR and Wildlife Service identified a range of rare plants, animals and special plant associations in the catchment and sought preservation of the entire area.

Farm development of Te Paki's unique shrublands is only economic because of the very low interest rates (3.5–4.3% pa) Lands and Survey pays on its land development loans. In Forest and Bird's submission on the Te Paki plan we calculated that had Lands and Survey paid market interest rates (6–14%) on their Te Paki development loans over the last 10 years, Te Paki station would have made a loss of nearly $1 million over that period rather than its declared "profit" of $194,000.

The November 1984 Budget will substantially lift interest rates for the private farming sector but not for Government agencies involved in natural land clearance. This anomaly should be removed. Thus Lands and Survey clearance activity proposed or underway at Te Paki, Hawkes Bay's Waitere Kiwi block, the forested 3,000 hectare Mangaone block next to Urewera National Park and the 2,000 ha of beech forest at Perserverance, North Westland, could be assessed in terms of its real economic and ecological costs and benefits.

Conservation staff changes

In January **Terry Fitzgibbon** of Whangarei moved to our head office to commence duties as a Conservation Officer. Terry has a Masters degree in planning and work experience in resource planning and biological surveys. For the last two years he has lived in Whangarei and worked for the Northland United Council and has organised the Northland Information Centre for the Environment. From April, Terry will take over head office conservation work from Gerry McSweeney who is to visit Australia for three months on an Anzac Fellowship, to study conservation organisation, national parks and reserves.

Bruce Mason of Dunedin is working jointly for our Society, FMC and NZ Acclimatisation Societies this year on our South Island Pastoral Lease Campaign. His primary task is to identify ways to protect natural areas and recreational opportunities on the 2.7 million hectares of Crown-owned pastoral lease land. He will also coordinate the six pastoral lease working groups we have established from Blenheim through to Southland.

From March, **Kevin Smith** (Box 57, Hari Hari, South Westland phone 33-090) will start working as the Society's West Coast Regional Field Officer.

His appointment recognises the major importance of Westland with its extensive remaining lowland native forests and wetlands. Kevin is a botanist with broad experience in ecological survey work. During his 10 years' residence in Westland he has been a leader in nature conservation in the region. His position will be largely funded from the resources of our Canterbury and West Coast branches who have recognised the need for a full time worker in the region. These branches would welcome any offers of financial assistance to support Kevin's employment.

For whom the axe falls

For students of environmental history, some priceless gems emerged during the course of the Parliamentary snap debate on Tongariro State Forest (see article page 11). Conservation strategists, in particular, will find the pages of *Hansard* well worth a read. We present below a sample of the livelier bons mots.

Winston Peters (National-Tauranga): "Dr McSweeney, who is not any old human being, but is the conservation officer for the Royal Forest and Bird Protection Society, said the decision violates the 1977 Government Indigenous Forest Policy. Are members to believe Dr McSweeney or the Government, terribly embarrassed as it is in this matter?"

Rob Storey (National-Waikato): "All I can say is that it is not 'virgin indigenous;' it is verging on the ridiculous."

Dr Michael Cullen (Government Chief Whip): "Some important lessons emerge from the debate. The first...is that there is a need for the Forest Service to be clearer about its lines of consultation and communication before decisions are finalised or announced."

Derek Angus (National-Wallace): "The Government stands condemned, and future generations of New Zealanders will remember. Where will the axe fall next? It is a bad day for New Zealand."

Subsidised drainage poses major threat to West Coast wetlands

Our Government's election policy made clear its commitment to protect our dwindling wetlands. Its natural waters policy states: *"Labour recognises that wetlands are a scarce resource of nationwide importance. Accordingly wetlands already identified as of national importance will be protected with permanent reserve status. Wetland drainage will only be allowed where a catchment-wide evaluation shows it can occur without unacceptably adverse effects on scenic, habitat or hydrological values."*

Government-subsidised drainage schemes pose the greatest threat to our few remaining wetlands. Catchment boards, which initiate and administer these schemes, are largely staffed by engineers who have made their careers in draining wetlands and manipulating rivers. The boards themselves are often dominated by conservative farmers who narrowly view wetlands as potentially productive farmland. However a range of studies now show that the most economic way to increase agricultural production is usually through intensification and diversification of existing farmland. Thereby wetlands can be left for flood control, to store water, as wildlife habitat and as scenic and recreational areas.

The Westland Catchment Board in particular seems hell-bent on destroying the natural wetlands which are a special feature of its region. Approved wetland drainage schemes in Westland qualify for a special 50 percent direct Government subsidy. Much of the balance of the drainage cost in the past has been met through low-interest Government loans.

Major swamp drainage schemes underway in Westland include the huge Kongahu swamp near Karamea and drainage of the extensive Rotokino flax swamp near Whataroa. The Board has announced drainage schemes for the Birchfield swamp near Westport; Lake Haupiri, a wildlife refuge in Central Westland; the Ohinetamatea swamp next to Westland National Park and part of the magnificent Kini flax swamp at Bruce Bay in South Westland.

Their rush to get these schemes approved seems designed to beat proposed changes to the Water and Soil Act to protect wetlands and threats to drainage subsidies posed by the Government's market orientated realism in rural land use.

The wetlands threatened with drainage have been ranked of national importance by the Wildlife Service. Labour has therefore pledged to protect them.

The flax swamps of Westland are the breeding ground for much of New Zealand's finest whitebait — but for how much longer?

Summer programmes in our parks and reserves — an appreciation

Throughout National and Forest Parks and Reserves this summer, hundreds of Government department staff have run summer nature programmes for the public. Many Society members have participated in these nature walks and talks. The dedication and enthusiasm of the staff who put so much into helping us discover our nature heritage is greatly appreciated by all members of our Society and the public.

Dr Gerry McSweeney
National Conservation Officer

Old Blue : mother of the black robins

Old Blue is probably dead, but the Chatham Island black robin has been pulled back from certain extinction by the breeding efforts of this remarkable bird. No sign of her could be found last spring in the forests of South East Island in the Chathams. She was last seen in December 1983 at Whalers Bay near the Coast, where she liked to bask in the sun within sound of the rare shore plover.

First banded as an adult on Little Mangere Island in March 1972, she was probably born in December 1970. Old Blue was shifted to Mangere Island in 1976 along with four of the other surviving six black robins, five of which were males. Chatham Island black robins had become the world's most endangered bird.

Mangere Island had been bought by the Crown in the 1960's with financial help from our Society; that help continued as the forest on the island was replanted to provide habitat for robins.

With numbers so low and breeding success threatened, the Wildlife Service began in 1980 the programme of cross-fostering black robin eggs in the nests of Chatham Island warblers.

Black robin fed by tit foster parent.
Photo: NZ Wildlife Service

Don Merton, Wildlife Office, is truly the godfather to these birds; his skill, care, patience, daring and love throughout the transfers and cross-fosterings brought success where extinction seemed a certainty. Watching his careful transfers of eggs and chicks between the nests of black robins and Chatham Island tits last December brought home to me how much we owe to the dedicated people working for the Wildlife Service.

Although Old Blue may be dead, she lives on in her offspring. She was the mother of six surviving offspring and grandmother to eleven; in fact all surviving black robins are her progeny except for her husband, Old Yellow, and Old Green. Old Blue produced the core of birds which took part in the cross-fostering programme, resulting in the present rash of youngsters. In December 1984 there were 19 chicks and 19 adults.

The whole programme breaks new ground by world standards, is a direct result of the skill and resourcefulness of Wildlife Officers, and might not have happened without Old Blue and her stickability.

You don't have to be a Wildlife Officer to help our endangered species. See page 5 of this issue for what you can do.

Alan Edmonds, President

QUEEN ELIZABETH II SCHOLARSHIPS

This year eight post-graduate students have been awarded Queen Elizabeth II scholarships by the Society in December. The scholarships will be used for research into the preservation and protection of indigenous flora and fauna.

Jenny Edwards, is preparing her thesis for a M. Applied Science degree at Lincoln College. She is researching Land use conflict in Protected Natural Areas of Western Northland.

Alison Davis, is studying for a M. Sc (Hons) at Auckland University, and will look at the behaviour and general ecology of the shore plover on South East Island of the Chathams, where the total wild population of this species lives.

Alan Liddle, a science graduate of Waikato University, will research the general biology of two cave harvestmen, insects which prey upon the glow-worms in the Waitomo Caves towards his M.Sc. degree.

Christopher Lusk, researching for his PhD in botany at Auckland University will reconstruct the age structure of an area of podocarp-hardwood forest in the Tongariro National Park.

Peter Carey, will research site selection by New Zealand fur seals and how this effects their breeding, towards his PhD Studies in Zoology at Canterbury University.

Elisabeth Slooten and **Stephen Dawson**, two Master Science graduates in Zoology will study the endemic Hector's dolphin in New Zealand waters under the guidance of Professor Pilleri of Bern University of Switzerland.

Grant Dumbell, in preparing his thesis for his PhD degree at Auckland University will continue his work with the brown teal on Great Barrier Island.

Alan Hemmings, is investigating the significance of co-operative breeding in the brown skua gull on the Chatham Islands, towards his PhD degree at the Auckland University.

BENNETT'S HOLIDAY HOUSE

This house at Weber, 32 miles from Dannevirke, is again available for Forest & Birders to stay at for a very small charge. The only things needed to bring are food, linen and blankets, and the house sleeps 11.

Telephone Greg Bennett, Weber 658, or write to Birch Road North, Private Bag, Dannevirke.

THE LATE GREAT MOA

Barney Brewster of Nelson is researching possible European sightings of moas. He would welcome any family stories (neither tall nor short) regarding nineteenth century, or more recent, sightings of moas big and small.

Please address all correspondence to:

Barney Brewster
P.O. Box 602
Nelson

CONSERVATION NEWSLETTER

This two-page newsletter is already distributed monthly to all Society branch committee members. It is designed to up-date all national conservation issues and indicate actions required from branches and members to further the Society's objects (ie submission deadlines, meetings, information available, etc). It also discusses conservation activities in our 46 branches.

If you are not a branch committee member but want to keep right up to date on the key issues, now is your chance to receive Conservation News.

Please post your annual sub of $5 to: Conservation News, PO Box 631, Wellington.

NEW LENZ RESERVE CABIN

Our Dunedin Branch reports that construction of a 4-person cabin has just finished at the Lenz reserve in south-east Otago, to add to the 10-person main lodge and the A-frame cabin which sleeps two. The Lenz Reserve is in the middle of the Catlins Forest, has interesting bush walks and is near to many other fascinating scenic areas. Contact the caretaker and booking officer, Miss M Roy, Papatowai, RD 2 Owaka, South Otago.

FOOTPRINTS IN THE SANDS OF TIME

"Study the past, if you would divine the future."

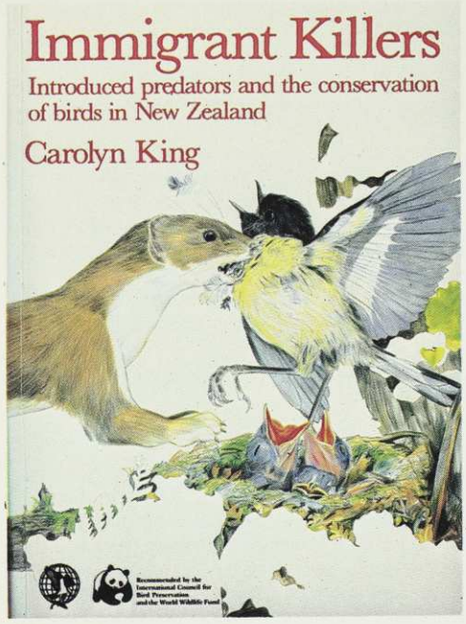
(Confucius)

THE HUIA: IS IT EXTINCT?

Persistent reports come to hand of this bird having been seen in widely different localities, and the authorities, also amongst whom are experienced bushmen and bird callers, have made persistent efforts to verify these reports, but without success. If the existence of the species can be definitely proved, then efforts will be made to have the locality declared a sanctuary, and the birds efficiently protected. Searchers are out in all likely situations on every opportunity, and there is every reasonable hope of success. Bird lovers are, however, warned as to giving correct localities where they may see the bird in order to avoid the possibility of the last of the species being shot by some selfish collector to adorn his individual or museum glass case.

— From the November 1923 Bulletin of the NZ Native Bird Protection Society, later to change its name to the Forest and Bird Protection Society of New Zealand.

Book Reviews



Immigrant Killers — introduced predators and the conservation of birds in New Zealand. By Carolyn King (Oxford University Press, 1984). 224 pp; $45 hardback, $27.50 paperback.

New Zealanders have had a strange and turbulent relationship with the mammals that they accidentally or deliberately introduced. At first many species were of course nurtured and encouraged to spread. Then, as problems arose, there followed many decades of indiscriminate killing and almost universal loathing that approached a sort of religious fervour. The underlying dogmas (eg, killing on sight is beneficial) were seldom questioned. Now we are entering a new and more balanced phase.

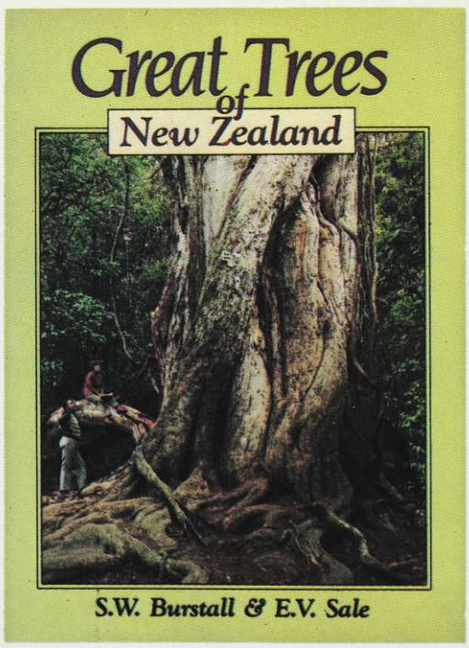
A recent book by Graeme Caughley (*The Deer Wars*) exposes our changed relationship with deer. Research suggests that at least in the steepest hill country, erosion may have more to do with amount of rainfall than with the presence or absence of herbivorous mammals. Each deer is now worth its weight in devalued dollars and a strange new law makes poachers out of those who would kill a deer without the landowner's consent.

Now Carolyn King challenges our prejudices against predatory mammals (especially mustelids) in her beautifully produced, thoroughly researched and readable account of the impact of these creatures in New Zealand. The book is written partly for overseas people seeking to understand ''one of the world's best-known conservation horror stories''. It is in text-book style with copious illustrations and with notes, references and tables of data collected together at the end. The first four chapters summarise the biogeographical history of the New Zealand fauna and give a detailed and skillful account of the impact of Polynesian and European man on it. Chapter 5 is an excellent review of recent research into the predators and their current effect on native birds. Chapter 6 compares the impact of predators on Lord Howe Island, the Hawaiian group, Britain and Australia. Chapter 7 reaches conclusions, some of them admittedly provocative.

Many of us on a quiet Sunday stroll might suddenly reach for a stone and turn decidely savage at the sight of a stoat with a luckless fantail imprisoned in its jaws. But Dr King's reasoned account seeks to make us more detached. It is not widely understood that most of New Zealand's vulnerable birds were already in serious decline when stoats were introduced, and that no native birds are certain to have been reduced or exterminated by mustelids alone. Birds on the mainland today are mainly those that can cope with predators, and to see the death of an individual fantail is to learn nothing about the effect of predation on the population as a whole. The surprising breeding habits of stoats make them difficult to reduce by trapping and poisoning. Control of predators on the mainland is ''outrageously expensive'' and (excepting kokako, black stilt, takahe and kakapo) is not guaranteed to increase the density or distribution of any bird. Also, reducing mustelids may lead to harmful increases in rodents. These are some of the points we are invited to consider.

Dr King is to be congratulated for a book that combines easy reading with a scholarly approach. *Immigrant Killers*, a work of lasting importance, should be read by all with an interest in conservation in New Zealand.

Brian Gill, Curator of Birds, Auckland Museum



Great Trees of New Zealand
S. W. Burstall and E. V. Sale
(A H and A W Reed, 1984,) 288pp, 163 b/w photographs, 42 colour plates. $29.95

This book looks at some native and exotic trees. Throughout New Zealand, 100 great trees have been selected that the authors feel are special, because of large size or for historical events. Maori mythology is an important factor in the selection of some native trees.

The historical perspective given in the descriptions of early plantings, sources of origin and associated exotic introductions, gives the reader a better understanding of the development of our present landscapes.

New Zealand does grow great trees. Apart from our magnificent native trees, many exotics have flourished here, often exceeding the rate of growth and size in their place of origin. In world terms, we have exotic trees of great size, and yet they are at best only about 150 years old, as found in Northland.

This book had its origin when Bob Burstall was measuring the radiata pine trees at Albury Park in South Canterbury, thought to be the first small commercial planting (1865) of this species anywhere in the world. He reflected on the other fine trees in the area, measured them, and so began the documentation of New Zealand trees and plantings.

The first planned exotic forest in New Zealand is also in South Canterbury. Raincliff Forest was planted in 1880 and it did not include radiata pine or Douglas fir. Raincliff today is a favourite visiting place for tree growers.

For the tallest trees you have to go to Waitati, near Dunedin, where Mountain ash, *Eucalyptus regnans*, planted in 1870 grows to about 70 metres tall. If you visit these trees when they are flowering, you will be rewarded by the chorus of bellbirds feeding in the canopy.

Trees mark past events. In parts of the North Island, only trees mark the sites of the armed camps of the Land Wars. In the 1860's the pakeha Armed Constabulary planted the necklace poplar, *Populus deltoides* 'Frimley', while the Maori planted the Lombardy poplar, *Populus nigra* 'Italica', near their pa in the central North Island during the early days of the Hau Hau movement. The tree's upright form was later associated with the Ringatu faith's ''upraised hand''

The book is divided up into ten broad geographical regions. Each is introduced by a description of the vegetation before man's influence, followed by a description of the great trees and associated vegetation. In a second section, there is a brief description of notable trees in the same regional groupings. If you are interested in less common trees, these lists could be most useful. At the end there is a very full cross referenced general index.

The book is easy to delve into and will stimulate people interested in trees to seek them out in their own area and in other places when they are on holiday. It should be a useful and interesting addition to references on New Zealand trees.

Bruce Treeby, Horticultural tutor, Lower Hutt Technical Correspondence Institute.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

MEMBERSHIP APPLICATION

I APPLY FOR MEMBERSHIP IN THE FOLLOWING CLASS
(and enclose my cheque or postal note)

PLEASE TICK APPROPRIATE BOX

- ☐ JUNIOR (under 17 or at school) Age .... Single $10 p.a. Group $10 p.a.
- ☐ ORDINARY $20.00 p.a.
- ☐ SENIOR CITIZEN (over 60) Partners $15.00 p.a. Single also $15.00 p.a.
- ☐ FAMILY $20.00 p.a. Partners $15.00 p.a. with or without children) No. of Children under 17 years .....
- ☐ LIFE $250.00 per person

NAME .....
(BLOCK LETTERS PLEASE)

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TELEPHONE No. .....

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- ☐ FAMILY $20.00 p.a. (Partners with or without children) No. of Children under 17 years .....
- ☐ LIFE $250.00 per person

NAME .....
(BLOCK LETTERS PLEASE)

ADDRESS .....

.....

TELEPHONE No. .....

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.

Society's Lodges and Houses

Bushy Park Lodge
Kai Iwi, 24km north of Wanganui on sealed road.

Historic homestead, fine grounds and view. 89 ha of virgin bush with tracks and trees identified.

Accommodation: for 12 in five bedrooms, single and double beds. Sleeps 18 with mattresses. Bedding, linen and towels supplied. Showers, drying cupboard, kitchen with electric stoves, refrigerator, deep freeze, cutlery and crockery. Bring own rations. Milk may be ordered.

Fees: (House Guests) Members $14 single, $18 double. Non-members $20 single, $25 double. Children 5–12 $6. Continental breakfast available $4. (Day Visitors) All adults $2, children 5–15 $1, Family $3 or $5. Closed to day visitors but not House Guests Mon & Tues.

Books and Information Leaflet: Custodian, Bushy Park Lodge, Kai Iwi, RD8 Wanganui. Telephone Kai Iwi 879.

Okarito Beach NFAC Cottage
Sleeps 4–6 in basic but comfortable facilities, water, wood stove, 2 rooms. Sited in historic township, coastal and bush walks, Okarito lagoon, Westland National Park and glaciers. $3 per person per night. Bookings: Kevin Smith, Box 57, Harihari, Ph 33090 Harihari.

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 sent a stamped addressed envelopes 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.

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 returns 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 sent an addressed envelope to the Booking Officer, Mrs R. Roley, 23 Stoddard Street, Mt Roskill, Auckland. Telephone Auckland 696-769 (evenings).

Book reviews continued

The New Zealand Beeches: Ecology, Utilization and Management. by John Wardle (New Zealand Forest Service. 1984) $45.00

Although John Wardle has provided us with a comprehensive, readable, and long overdue update of Leonard Cockayne's 1926 monograph on our beech forests, much of the information is too technical to attract most of our members.

Introduced with a chapter on the systematics and history of the genus *Nothofagus* in its world perspective, the book then divides into four parts: the first deals with the distribution and composition of the New Zealand beech forest types, including sequences related to altitude, latitude, rainfall and soils; the second treats the physical and biotic factors affecting beech forest ecosystems; the third deals with the ecological life history of the beeches; and the fourth covers utilization and management of the forest and their components.

Those who make it to the last chapter will find our society mentioned in its conservation role, as well as some rather incriminating admissions on Forest Service supervision and management of the public's beech forest estate, e.g. "because prices paid for indigenous timbers have generally been low, most sawmillers have not been prepared to take the care in sawing and seasoning necessary for successful hardwood conversion while plentiful supplies of the easier sawn, high yield rimu were still available"; "the relative lack of interest displayed by the sawmillers has carried through to forest management" (p.405). Wardle, however, sees fit to quote Cockayne in this context — "in her beeches New Zealand possesses a perpetual source of great wealth, but only so long as the forests are properly conserved and managed".

This book indicates that the potential value of our beech forest estate is greater than even Cockayne envisaged. It is our challenge and responsibility as conservationists to ensure that these values are widely appreciated and realised.

A. F. Mark. Professor of Botany, University of Otago

The first glimpse of Bushy Park Homestead, the Society's most prestigious building, gained by those who come to stay as guests or to see the house and grounds. Set against a background of virgin bush and with a view across the Rangitikei Plains, the Lodge has six private bedrooms and is open seven days a week to members and the general public. Built in 1905, it offers warm rooms, hot showers and a well-equipped kitchen. Support it with your visit.

A view over the forests of the Ngakawau basin, Buller, being proposed for reserve. The Ngakawau River crosses the basin before plunging into its dramatic gorge. Above the gorge lies the scrub covered Ngakawau plateau and beyond it coastal forests and sea. An article on the unique features of this region can be found on page 8 of this issue. Photo: Lloyd Homer.