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Forest & Bird



"To the Maori, the waters of the sea and river are as much roads and gardens as roads and gardens on land. The harbour was as much owned and apportioned to the care and use of different tribes as the land was. To the local tribes the Manukau was their garden of the sea". . . — from the finding of the Waitangi Tribunal on the Manukau claim (1985).



One of the key issues the Department of Conservation will have to address when it takes over responsibility for harbours and foreshores is that of Maori rights over traditional fishing and shellfish gathering grounds. Following the Tribunal's finding, a review of all laws relating to harbours, foreshores and rivers is taking place so that, in the Tribunal's concluding words: "Past wrongs can be put right, in a practical way, and it is not too late to begin again." The photograph shows mussel gatherers at Kare Kare Beach, just south of Piha on the west Auckland coast. Photo: Robin Smith

Front cover:
Between 1792 and 1830 sealers almost wiped out the large population of fur seals along the rocky coast of south-west New Zealand. Now protected and shortly to be the responsibility of the Department of Conservation, fur seals now number approximately 50,000 in New Zealand. This photo was taken at Knights Point near Haast, and also features in the Society's forthcoming calendar.

Photo: P and J Morrin

Challenging times

In contemplating my first editorial for *Forest and Bird* I look back on some very important achievements in nature conservation over the past decade or so. The period has also been notable for the expansion of the Society's involvement into most of the facets that its objective embraces: "To take all reasonable steps within the power of the Society for the preservation and protection of the indigenous flora and fauna and natural features of New Zealand, for the benefit of the public . . ."

From the traditional fields of forests and our indigenous birdlife we are now actively involved in the conservation of wetlands, coastal lands and the publicly-owned pastoral leasehold tussock grasslands and alpine lands of the South Island high country. Collaboration with several other organisations that share our concerns for some of these issues — as the Joint Campaign on Native Forests and the High Country Public Lands Coalition — clearly have strengthened our ability to deal with them.

Our highly professional and dedicated staff based not only at Head Office but also in some of the critical regions of the country are maintaining a high profile for the Society. Recently and in conjunction with the local branch, the staff have been highlighting the positive aspects of nature conservation by promoting nature tourism as an important aspect of regional development.

These are particularly demanding and challenging times for the Society, especially its staff and executive, as the new environmental administration for which we strived so hard and long, begins to unfold. There remain several contentious issues which have yet to be resolved. These issues include: the administration and management of the Crown-owned pastoral leasehold lands; unacceptable conflicts between a conservation advocacy role and a possible utilization (indigenous logging) role for the Department of Conservation; the need for a strong conservation research section in the new department combined with a stewardship role for the department to manage and protect uncommitted natural lands in the short term. I suggest that our achievements in the future are likely to depend heavily on the final form of the reorganised environmental administration. We cannot afford to neglect it at this time.

In no field of nature conservation would the importance of a well organised environmental administration be more crucial than in the reservation of adequately representative marine ecosystems, the main theme addressed in this issue of our journal. The need and urgency to add to our two existing marine reserves (Poor Knights and Okakari Point to Cape Rodney), both in the far north, is seldom questioned. Moreover, some enlightened legislation has now been drafted that allows for a greater range of reservations than exists at present.

Provided the responsibility for control of foreshores and coastal waters comes within the ambit of the new Department of Conservation, as now seems likely, the Society should be adequately rewarded for the effort it should invest in this aspect of nature conservation; too often it has been neglected in the past.

Dr Alan Mark, President



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

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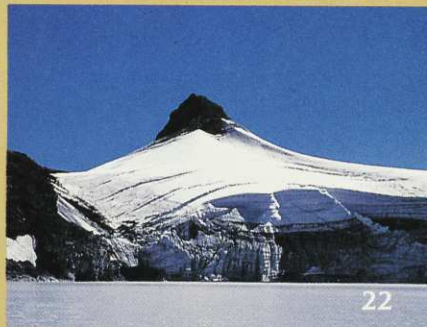
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TIDES *OF* *CHANGE*

by Mark Bellingham & Gary Taylor

Our coastline is under attack! Subdivisions, reclamations, rubbish tips, sewage discharges, over-fishing, industrial and agricultural pollution — you name it and it's happening right now all along New Zealand's precious margins between land and sea.

Our coastal waters, the most biologically productive and diverse of ecosystems, are subject to rampant abuse and neglect.

Despite the damage done and the unabated continuing destruction, coastal management remains one of this country's most complex, confused, overlapping and ineffective sectors of government administration. There are more than 42 different acts of parliament covering foreshores and coastal waters.

In the words of 'Environmental Administration in New Zealand — An Alternative

Discussion Paper' (Group of Six, January 1985) —

'No other area of environmental planning is so complex or so ineffective under the present system . . . The whole field of coastal zone planning and management is crying out for rationalisation and effective co-ordination . . .'

The government agencies charged with managing foreshores and coastal waters have been inept and grossly devoid of commitment to the conservation ethic. It has been virtually open slather for the past 150 years.

Thankfully, change is in the wind.

Endangered phenomenon

New Zealand's coastline is one of the most beautiful in the world. It is a mecca for tourists and holidaymakers, and much loved by those who live there, especially in the northern part of the country. Public access to unspoiled beaches and bays is taken for granted.

Every year more and more of our finite coastal land is subdivided and built upon. Yet virgin coastline is an endangered phenomenon. That is happening despite a planning imperative that since 1953 has urged as a matter of national importance:

'The preservation of the natural character of the coastal environment and the margins of lakes and rivers and the protection of them from unnecessary subdivision and development' (section 3(1) (c) Town & Country Planning Act).'

The burgeoning tourist industry — a potential ally in the conservation cause — threatens in some areas to destroy the very qualities that attract tourists in the first place. In the Bay of Islands, where development-conservation tensions are greatest, there is no statutory planning, no attempt to establish what constitutes wise development. It is all systems go for all-comers!

Elsewhere, short-sighted local authorities, often assisted by a development-oriented Planning Tribunal and lured by the prospect of more rating income, pander to the ambitions of coastal developers. Their proposals are more sophisticated than the 1950s and 1960s when fibrolite batches sprang up in ribbon developments along easily accessible stretches of the coast. The new coastal subdivisions are for a wealthy elite — yet the effect is the same: virgin coastline contracting by the year.

The system, it seems, is incapable of saying no. This island nation is losing its unspoiled coastline.

Under the new environmental administration, marine mammals will be in the care of the Department of Conservation. Dusky dolphin, off Kaikoura. Photo: Martin Cawthorn

Below: New Zealand's unspoiled coastline needs to be zealously guarded if it is to remain pristine. Pohutukawa at Northland's Houhora, looking out to Rangaunu Bay. Photo: Gerard Hutching



Top: Unwise developments are causing our virgin coastline to erode by the year. Natural erosion has its own method of dealing with such developments.

Bottom: Because it occurs over such a wide area, grazing has possibly the most devastating effect on estuaries and tidal flats. Here, cattle graze on mangroves at Russell in the Bay of Islands. Photo: Mark Bellingham

Unlawful reclamations

Equally non-existent is conservation of our foreshores. The Harbours Act seeks to control reclamations. It is administered by the Ministry of Transport. Yet every year several hundred hectares of our foreshores and estuaries are converted to dry land — unlawfully.

New Zealand's largest harbour, the Kaipara, has had over 400 ha of illegal reclamations over the past five years. The Hokianga, the fourth largest, has had 580 ha reclaimed — over 100 ha of that total in the past three years. In Northland, between 1978 and 1983, 2,264 ha of estuarine habitat were destroyed — some 39 percent of the total surveyed estuaries remaining in that region.

All this without the Ministry of Transport — the agency in charge of reclamations — even being aware of what's happening. And what is worse is that if applications *are* made, they're invariably approved.

Crucial habitat

The rich intertidal zone is crucially important to coastal fisheries as well as providing habitat for some common — and less common — birds.

Gulls and shags are everywhere. But treading shyly on the vegetated fringes of this zone are banded rail, fernbird and marsh crake.

The hardiest plants live there too. Mangroves, rushes and small herbs grow in soil devoid of oxygen. They are periodically immersed in salt water, and buffeted by waves and salt-laden winds.

Mangrove areas are especially important as feeding and breeding habitat. They contribute leaf litter or detritus at the rate of up to 8 tonnes/ha/year. (Upper Waitemata Harbour Catchment Study 1983). Detritus breaks down very rapidly and helps generate an estuarine primary production rate four times higher than that of good New Zealand pasture (Upper Waitemata Harbour Catchment Study, 1983).

Devastating grazing

It is precisely these intertidal zones that are viewed by some New Zealanders as wastelands, useful only for free stock grazing or rubbish tips.

Probably it is grazing that has the most devastating effect on the shoreline. Farm stock graze out native vegetation and pug tidal flats, rendering them uninhabitable for marine life. Because it is such a widespread practice, grazing may be the single



Evident from miles away, the slick from Wellington's Moa Point sewage outfall befouls an attractive and rugged coastline, ruining it for diving, swimming, fishing or shellfish gathering. Numerous other cities have still not "cleaned up their sewage act". Photos: Gerard Hutching

worst offender in destroying natural estuarine systems.

Paihia, in the Bay of Islands, dumps its rubbish at the head of an estuary — just over the hill from the tourist heartland. Rubbish tips on mudflats are still common in provincial New Zealand. Whangarei City has a massive landfill operation on the harbour shoreline. And in the country's largest metropolitan area, Devonport Borough has been progressively reclaiming Ngataranga Bay with its rubbish for many years.

All these destructive practices must stop.

Sewage and waste

Another insidious threat to the coastal environment is the tradition of discharging sewage and industrial waste into the sea.

Of particular concern to the Maori people, this practice at best offends community values and at worst constitutes a health hazard. It is true that you could — if you were keen — drink some effluent, but the standard of treatment is often a function of costs and of operator efficiency. Things can and do go wrong.

It is time the alternatives to the cheapest disposal option — sea discharge — were looked at more seriously.

Verge of collapse

Perhaps the best example of the commercial benefits of conservation lies in the fishing industry. Our coastal waters provide a potentially self-sustaining food resource if managed properly.

The inshore fishery, 'controlled' by the Ministry of Agriculture and Fisheries, has in recent times been on the verge of collapse. Overexploitation, mainly the responsibility of plundering trawlers, has devastated a once bountiful resource and put the industry on notice of the importance of sound conservation management.

It is here that we go back to where we began: the estuaries and saltmarshes must be protected if the inshore fishery is to survive.

Over six central government departments and dozens of regional and local bodies administer New Zealand's foreshores and coastal waters. Jurisdictions overlap and land/sea boundaries are poorly defined.

While developers flaunt the law and exploit the ineptitude of the system, conservation flounders. The only way of formally protecting marine areas, the Marine Reserves Act, has been a notable failure. In the past 10 years only a paltry two marine reserves have been created. To add insult, last year one of them was reduced in size.

The ecological ideal of a reserve covering a unified area of land, intertidal zone and underwater has proved far too difficult. How can Ministry of Agriculture & Fisheries actually agree with the Lands & Survey Department to create such a reserve when MAF has such a poor record of creating purely marine reserves?

New era

Fortunately, all these horrors may be behind us. The Department of Conservation (DOC), which comes into existence on 1 January 1987, will take over most ad-

ministrative and management functions for the coastline. Common sense appears to have prevailed, and for the first time a single agency will be responsible for both land and water reserves, and for issuing reclamation approvals.

Other powers currently vested incongruously in the Ministry of Transport will be transferred to DOC. The Minister of Conservation, Russell Marshall, will be in a powerful position to shape a new ethos in coastal management. And we should not forget Transport Minister Richard Prebble who has willingly given up part of his portfolio responsibilities in the interests of conservation.

These changes herald a new era. DOC, with its role as conservation advocate, will be able to take a firm line in exercising its responsibilities. Developments impinging on coastal values will have to pass fresh tests before obtaining approvals.

The Government in fact appears to have adopted most of the submissions presented by Forest & Bird to the Ad Hoc Cabinet Committee on Environmental Restructuring.

In a paper prepared by the authors, the Society argued amongst other matters —

- that the Department of Conservation be given responsibility under the appropriate legislation for the administration and management of foreshores and coastal waters including issuing grants of control.
 - that the Department of Conservation be given responsibility for protection of marine mammals.
 - that the Department of Conservation be given responsibility for marine reserves.
- These three crucial areas of concern to conservationists have been accepted.

Maritime planning

DOC will also have a new role in approving the establishment of Maritime Planning Authorities. Maritime planning is a worthy concept that has never amounted to much. Just as we plan for the land by zoning for varying uses in different areas, so too the theory goes, we should plan for the water — or at least for harbours.

The only maritime authorities approved and established to date are the Waitemata, Manukau, Wellington and Marlborough ones.

The tragedy of maritime planning is that usually it is the harbour board that is given the task. But those outfits are development oriented — their principle task being that of a port authority. They lack the more neutral stance required to act as a planning agency, balancing the sometimes competing interests of conservation and development. Rumours have it that they may be corporatised soon.

As a result of research including a nationwide survey of local authorities, we have concluded that there is *no need* for the establishment of maritime planning authorities. Most harbours can be adequately controlled by the district planning process — simply dealing with the waters as part of the district scheme. In the very few instances where there are a number of councils bordering a harbour, the regional or united council may be the best agency.

In the Bay of Islands, for example, the Bay County already has the waters of the harbour within its district, but has not done any planning because everyone is waiting for a maritime planning authority to be set up. Yet the Hokianga County is making considerable progress in planning for its harbour — because there is no maritime planning authority vying for the job. Fortunately the Northland Harbour Board has flagged away the maritime planning role altogether — after pressure from Forest & Bird and others.

Thus maritime planning is actually hindering planning for harbours, not facilitating it!

The Department of Conservation holds the key to the protection and wise use of our precious coastline. We must encourage it to develop a conscious strategy of coastal conservation. This should ideally remedy some of the mistakes of the past — such as failed reclamations. It must also mean a fundamental shift in attitudes and a much greater emphasis on conservation values for the future.

Widespread change pervades environmental administration in the 1980s. Those changes may yet save our remaining coastline.



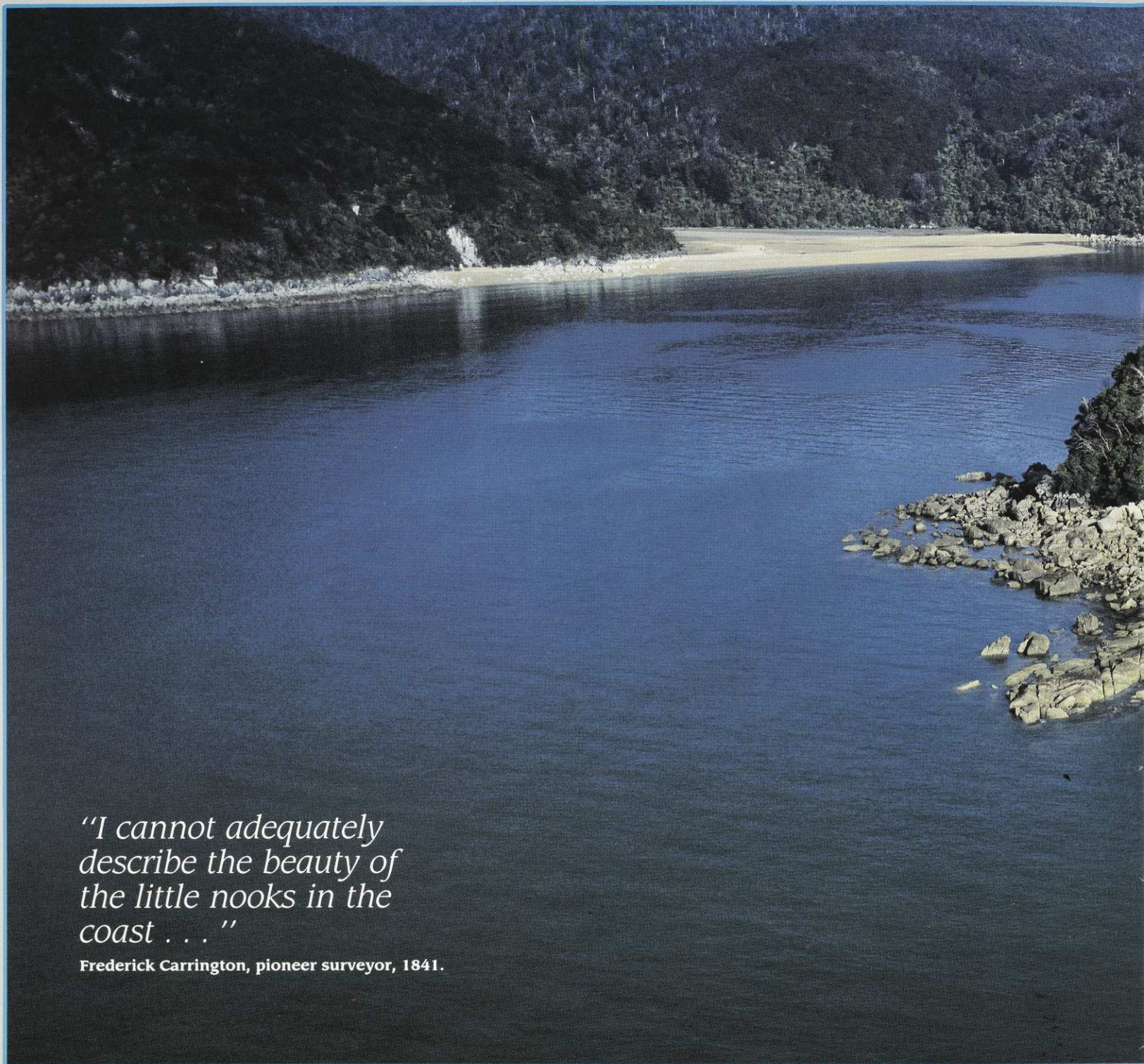
Mark Bellingham is the Society's Auckland regional field officer and Gary Taylor is an environmental advocate working for the Society on coastal issues.

WAITEMATA HARBOUR MARITIME PLAN

The Auckland Harbour Board's Draft Maritime Plan is bad news for the conservation of the Waitemata Harbour.

- Pollen Island, the most important flora and fauna site on the harbour is identified as a future container port. This saltmarsh island in the middle of the city has the harbour's last fernbird colony.
- Many conservation zones have approved reclamations within them.
- Important mangrove areas throughout the Waitemata Harbour and Tamaki River have been left out of the conservation zones.

The plan is a guide for squeezing port revenue out of the harbour. It disregards the needs of conservation and passive recreation. Forest and Bird believes Harbour Boards are totally inappropriate bodies for maritime planning; this maritime plan shows why.



*"I cannot adequately
describe the beauty of
the little nooks in the
coast . . ."*

Frederick Carrington, pioneer surveyor, 1841.

catching up with popular expectations

*For a classic example of the way in which arbitrary lines have been drawn between protected and unprotected areas, one need look no further than Abel Tasman National Park. There, where the sea is such an all-pervasive influence, the Park's protective boundaries go no further than the high-water mark, although islands, rocks and reefs are also included. In the recently-released book *A Park for all seasons: The Story of Abel Tasman National Park*,* author Andy Dennis makes a plea for inclusion of the sea within the National Park; this edited chapter is the final one in the book.*

This story of Abel Tasman National Park began with the Maori inhabitants of this coast looking towards the sea, and it ends, at least for the moment, with eyes turned that way again.

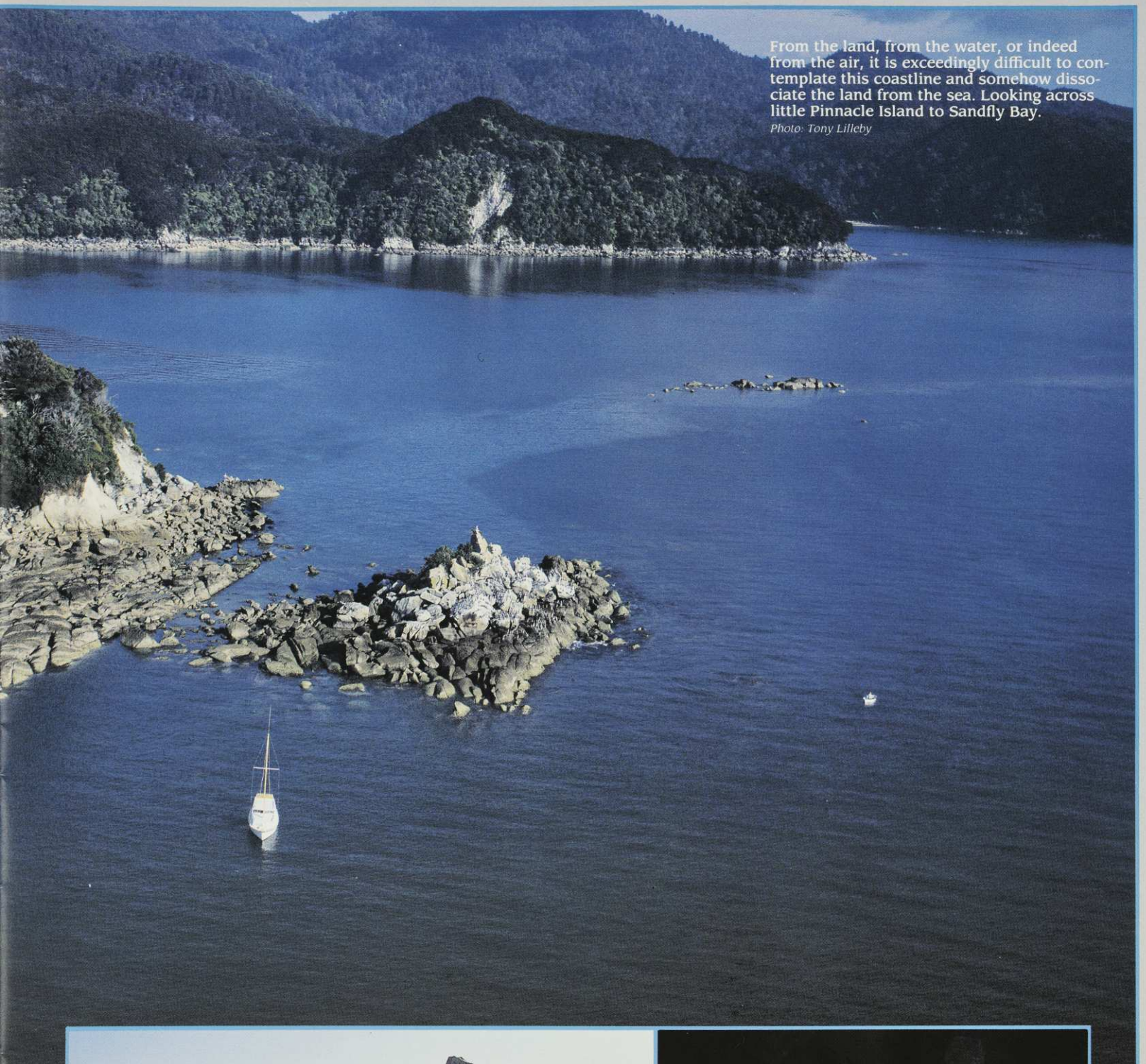
In other parts of New Zealand it is mountains, glaciers, forests, rivers and lakes which evoke the sense of awe and inspiration that leads to the creation of national parks. In Abel Tasman National Park it is predominantly the sea, or at least the meeting of land and sea. It is the sea

which builds our beaches and shapes our rocky coast. The sea brings nutrients to our estuaries, governs our climate, toys with our moods, grants or denies us passage (whether we travel by boat or on foot), and above all provides us with a constant yet ever-changing playground. The sea brought generations of Maori inhabitants to these bays and inlets, and for decades was the only means of access for the Europeans who succeeded them such as Tasman and D'Urville.

* (available from the Society's mail order service for \$14.95. This article reproduced with the kind permission of the publishers, the Lands and Survey Department.)

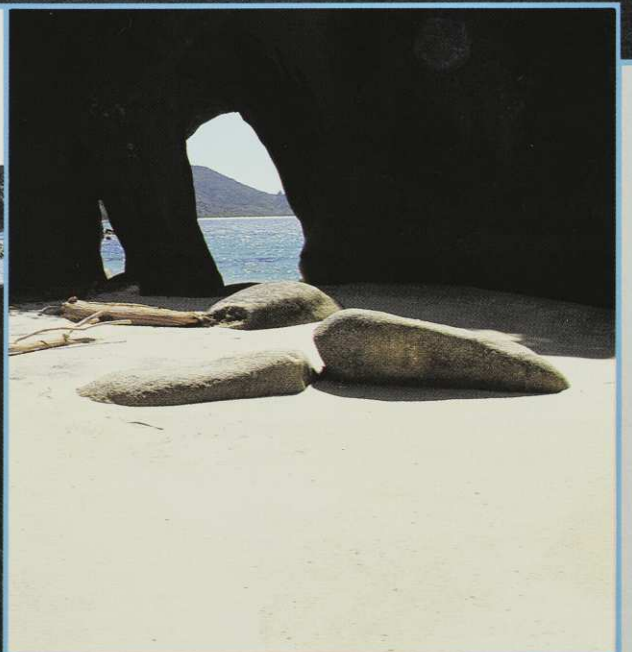
From the land, from the water, or indeed from the air, it is exceedingly difficult to contemplate this coastline and somehow dissociate the land from the sea. Looking across little Pinnacle Island to Sandfly Bay.

Photo: Tony Lilleby



Most of the tidal platform uncovered at low water lies outside the park boundaries, but at least the high rocky stacks are "fully protected".

Photo: Andy Dennis



In Abel Tasman National Park, it is the meeting of land and sea which has evoked the awe and inspiration leading to its creation. It would be a logical step to extend protection to the sea adjacent to the park.

Photo: Tony Lilleby

Perhaps the story of this park, like that of all life on the planet, should have begun rather than ended with the sea. But there is a technical hitch. Although it may come as a surprise to many people, Abel Tasman National Park does not include any sea. Nor does it include much in the way of beaches, estuaries or inter-tidal sections of the rocky shore. The reason for this is that the present park boundary is drawn to the mean high-water line, and accordingly the park excludes all sea and seabed as well as those sections of the coast which are covered and uncovered by the rising and falling tides. In the estimation of most people these places are not only an integral part of the experience of visiting this coastline, but are in fact the key features of it. In terms of the total physical (and indeed spiritual) environment they are inseparable from the land behind. But in terms of legal boundaries they do not presently belong within Abel Tasman National Park.

A casual glance at a map which shows park boundaries can be misleading, since south of Separation Point an area of sea some 2.4 km broad appears at first to be included in the park. But closer inspection reveals that except where pockets of private land remain, the true park boundary ends at the coastline, and this apparent seaward extension embraces only "islands, islets, rocks and reefs", and is again confined to those offshore bits of land which have some part clear of the water at mean high-tide.

This obviously unsatisfactory state of affairs reflects the fact that while our thinking on terrestrial reserves in New Zealand is on a sound footing, extension of this kind of ecological vision into the marine environment is very much in its infancy, although changes do now seem to be imminent. For its small land area New Zealand has a vast amount of coastline (something like 10,000 km) yet along the whole of this critical zone of ecological interaction, there exist only two small marine reserves, both of which are found north of Auckland. At present the great wild South Island coasts have no marine reserves at all, and even in the Marlborough Sounds Maritime Park no areas of sea or seabed are included, although in this case some sections of foreshore do form part of the park, usually however only on sanctuary islands where public landing is prohibited. When it is remembered that something like 13% of New Zealand's total land area is "protected in perpetuity" the claim made in the handbook of the Hauraki Gulf Maritime Park that "present thinking on marine reserves lags some 50 to 100 years behind that for land reserves" highlights the urgent need for action to close that gap.

The reasons for including areas of the marine environment in reserves are similar to the arguments for setting aside land as terrestrial reserves. Indeed the seas adjacent to the park coastline have a tale to tell which is very much a mirror image of what has happened on the land, with the recent rapid decline of the once good snapper and scallop fisheries reminding us of the earlier fate of farming and saw-mill-

ing on shore. Closer investigation of the causes of the loss of fish stocks has revealed that large beds of bryozoan "coral" (small reef-forming animals which both look and behave like true coral) and sponges off Torrent Bay have been virtually destroyed, while similar coral beds off Separation Point have also suffered serious damage. Catches taken on or near these beds have always included a high percentage of immature fish of commercial species like snapper and tarakihi, indicating that the coral zones operate as an important nursery environment. The damage caused to these coral beds by gear used for trawling and dredging has had a severe impact on an important marine environment, and at the same time seriously reduced the local coastal fishery. And in the declining catches of snapper and scallops there is surely an echo of abandoned sawmills and reverting hill pastures on the adjacent land?

Increasingly the long-term commercial sense of conservation is being recognised, but it is still ecological and moral principles which usually start the ball rolling. We owe it to other living things and to future generations to leave some parts of our common heritage wild and unspoilt, and there appears to be no logical reason for separating the sea from the land in fulfilment of these aims. Wetlands (including estuaries and coastal swamps) are at last receiving the attention they deserve as a hugely important but greatly diminished natural habitat. But progress is still creakingly slow in respect of the greatest wetland of all — the sea. This is a great pity, especially since there are some areas where seaward extension of existing reserve or park boundaries would not seem to be bound up with too much bitter controversy.

When national parks were created a tendency was to seek boundaries which were "convenient for efficient administration" and "where possible, follow physical features". But somehow a high-tide boundary which may have seemed logical in 1942, is no longer satisfactory. At present it excludes from this particular park some of the most intriguing and beautiful landforms (estuaries, foreshore and seabed) and life systems (marine, intertidal and estuarine plants and animals). But altruistic reasons aside, most people regard the estuaries, beaches, rocky shore and sea as being an integral part of Abel Tasman National Park, and in this case anyway, it is surely time that public administration caught up with popular expectation. ✎

Andy Dennis has just completed a new handbook for Arthurs Pass National Park and should have a Mount Cook National Park handbook published by the end of the year. He remains itinerant although he is rumoured to have acquired a section at Punakaiki.

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MARINE RESERVES

a tale of lost opportunities

by Marine consultant Lewis Ritchie



Poor Knights Island, north-east of Whangarei, one of our two marine reserves. Even this, a prime candidate for reserve status, took a decade to achieve.

The Ministry of Agriculture and Fisheries, as administering body for marine reserves, does not have a happy record of achievement in the field. Quite simply, there has been neither political nor bureaucratic will invested in them — somehow marine reserves always find themselves at the bottom of the heap in job priority, resource allocation, directorate importance and on the legislative order paper.

Marine reserve legislation received its initial impetus from Auckland University academics Professor Val Chapman and Dr Bill Ballantine, during the mid to late-1960s. The resulting Marine Reserves Act 1971 was designated to allow establishment of small, non-extractive marine reserves for scientific purposes. It especially suited reserve creation adjacent to marine research facilities and specifically the Cape Rodney – Okakari Point Marine Reserve adjoining the Auckland University marine laboratory. This reserve, with its huge

array of habitats including sand, gravel and boulder beaches and seafloors, cliffs, rock plateforms, ravines, surge channels, sand and sponge gardens and luxuriant algal forest is all part of the first truly oceanic coastal ecosystem north of the Hauraki Gulf, and it is also one of the best mapped, studied and understood areas of coastal sea in New Zealand. The reserve, our first, became a reality on 7 November 1975 although political wrangling over representation delayed management committee formation for over a year.

Concurrently attempts were being made to establish a marine reserve around the Poor Knights Islands, some 50 miles to the north. These islands, national and international Mecca to divers, fishermen and sightseers, are one of the biologically richest, least man-modified, accessible, warm-temperate island ecosystems in the world. This biological richness and diversity is increased by regular enrichment from currents and lifeforms of subtropical origins.

A decade of inaction and frustration over establishment of this reserve resulted from a vociferous, mainly local clamour demanding that fishing be allowed. The narrowness of the 1971 Act further slowed progress. Even after compromises were

reached with user groups (limited fishing for a few species around most, but not all, of the islands), progress was extremely slow because neither the legislation was available nor the political and bureaucratic will sufficiently strong.

Some claim that these two, created under the Marine Reserves Act, are our only marine reserves. Others allow that the

Tawharanui Marine Park and the Mimiwhangata Coastal Park, both established using Harbours and Fisheries legislation, also qualify. The one feature they share is prohibition or strict control of fishing. If this limitation is accepted as essential for reserve status, New Zealand has scores of 'marine reserves' created by fisheries regulations, for example around Separation Point, Tasman/Golden Bays, where trawling, power seining and dredging are prohibited, and the 'Wairoa Hard', northern Hawke Bay, where all commercial finfishing and recreational set netting are banned. Also, of course, harbours have general prohibitions on power fishing and limits on other methods such as drag netting.

Though the end result (that is, limits to fishing) — using either fisheries or marine reserve legislation — may be the same, there are critical fundamental differences. Fisheries legislation is exploitation-orientated and regulations are fisheries management tools solely controlled by MAF, are temporary, and can be changed at the whim of a regional fisheries controller. Marine reserves legislation is conservation-orientated, ensures through the requirement of an Order in Council for each reserve as much permanence as is possible, and requires administration by a committee representing several different interest groups. Also the reasons for creating reserves are as wide as the reasons for creating land reserves; for example, to protect and enhance special, unique, endangered and representative organisms, communities, habitats and ecosystems for conservation, cultural, historical, recreational, educational, tourism, fisheries and scientific purposes. The new Act, long in preparation, and the several marine reserve plans prepared by MAF, attempt to

accommodate all these ideals.

Problems such as inadequate legislation, suspicion and mistrust by fishermen, scant baseline data, enormous problems in fisheries, and threatened takeovers by other departments have compounded and confounded the issue. Over and above all this, however, there are just no votes nor money in marine reserves. Commercial fishery problems — overfishing, ITQs, buy-back schemes, the EEZ, resource allocation to foreign interests, are all considered much more important.

It appears as if MAF has lost marine reserves under the present government department reshuffle — a sort of 'death by neglect', and few will mourn. The tragedy of the loss to MAF and New Zealand is one of lost opportunities. With MAF's marine biological expertise, regional knowledge and the established marine user-group liaison network, this country could already have established a national web of marine reserves catering to every need and as much the envy of the world as our National Park network.

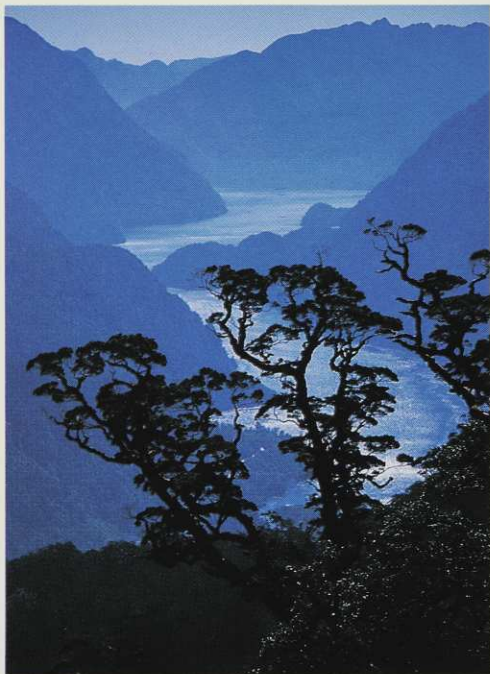
A second tragedy is that when the new organisation (presumably the Department of Conservation), takes over it will be faced with a great vacuum of resources and skills. These can, of course, be purchased but it will undoubtedly take enormous dedication and will to convince the purse string holders of this need — undoubtedly seen as esoteric by accountants and the ill- or uniformed — amidst a clamouring array competing for available public funds. In a nutshell a change from MAF to DOC may mean a gain in energy and enthusiasm but a loss of structure. 🐦

Forest and Bird does not share the pessimism of Lewis Ritchie's final paragraph. The transfer of control of harbours and foreshores to DOC should give a new direction and impetus to the creation of marine reserves. It should also make more possible the reservation of contiguous areas of land and water. Of course, DOC has to compete for funding; conservation groups and the department itself must work hard to see it gets priority treatment.

THE UNDERWATER WORLD OF FIORDLAND

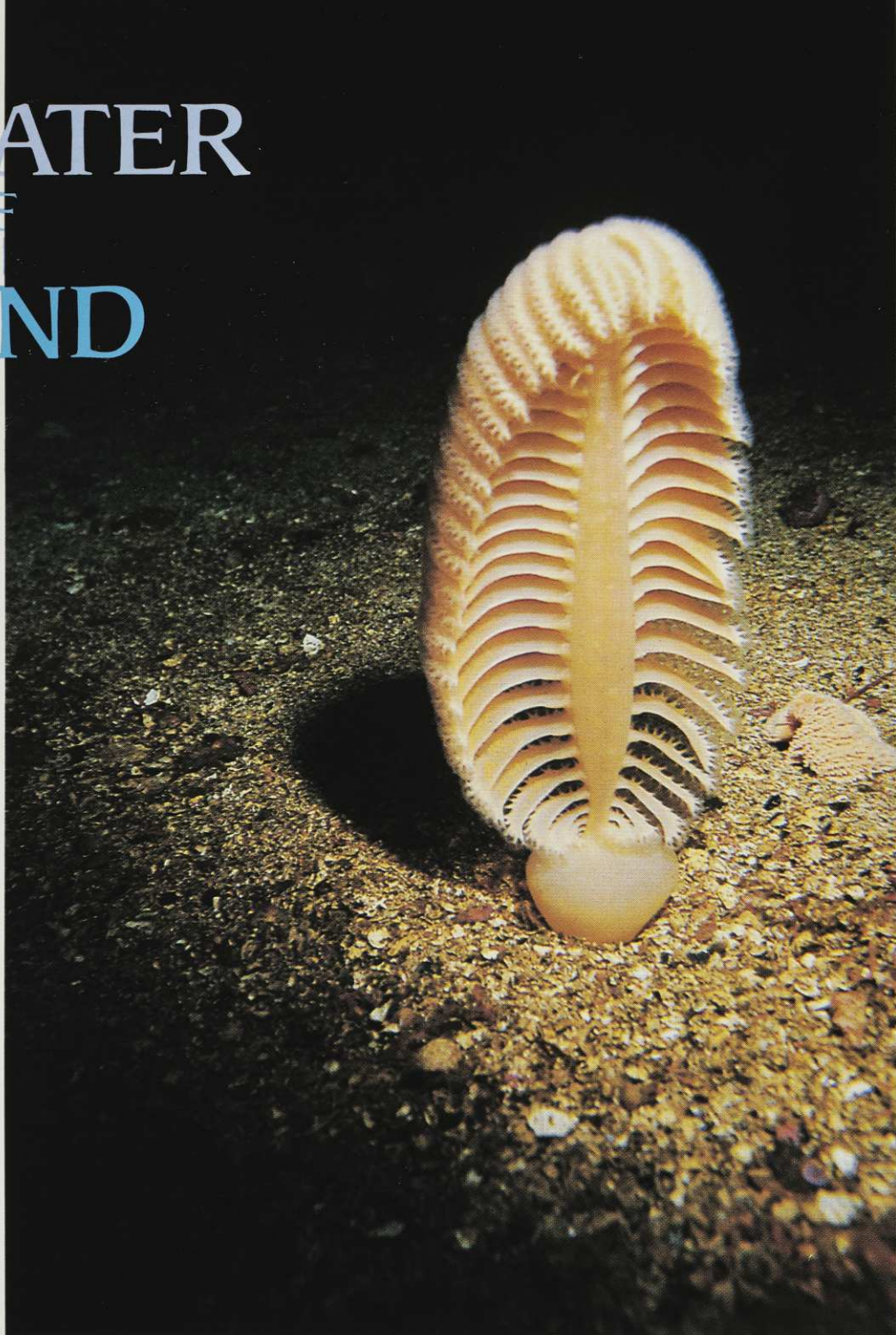
by Ken Grange, Oceanographic Institute

Fiordland, stretching almost 200 km from Milford Sound south to Preservation Inlet, is internationally acclaimed for its spectacular scenery, isolation, unmodified environment and as home for a large number of rare plants and animals. However, few people probably stop to think that the name "Fiordland" is composed of two words, "fiord" and "land". The fiords



Thousands of years ago great glaciers gouged out Sounds such as Doubtful Sound, which stretches 30 km inland. The land surrounding the fiords is protected within Fiordland National Park, but the water is not. Deep Cove, Doubtful Sound is the site of proposed freshwater exports, using super-tankers. All photos Ken Grange

Rock lobsters are common in the fiords since the sheer rock walls prevent fishermen from laying pots.



The fiords are the only places in New Zealand where a diver will come across a sea pen (*Sarcophyllum bollonsi*), although even here they are restricted to sand slopes in depths below 20 m. Height 30 cm.





Tube anemone (*Certianthus* sp). Very common throughout the fiords in sandy pockets below 6 m, but very rare elsewhere in New Zealand.



A 1 metre tall black coral colony supporting several perching snake stars. The largest population of the protected black coral in the world occurs in shallow water in the fiords. When living, black coral appears white as the small white polyps obscure the dense black skeleton beneath. Depth 15 m.

The spiral feeding organ (lophophore) of the brachiopod after the top shell has been removed. Commonly known as lamp shells, these living fossils used to be the world's dominant marine animal and have been in existence for at least 600 million years.

are often thought of merely as the long ribbons of water which separate the more familiar mountains. Many visitors to the area return with memories of constant heavy rain, waterfalls, swarms of sandflies and dense forest from the snowline to the water's edge. A few may wonder at the incredible forces generated by the glaciers as they cut through the mountains on their way to the sea; but until recently very few thought about the marine life in the fiords themselves, apart from when they may have been seals, dolphins and penguins during a launch trip.

The land and climate are important in understanding the marine life beneath the dark waters of the fiords; in few other places do these mesh together so intricately to produce such unique environmental conditions that here support one of the richest and most unusual marine ecosystems in the world.

Towering mountains

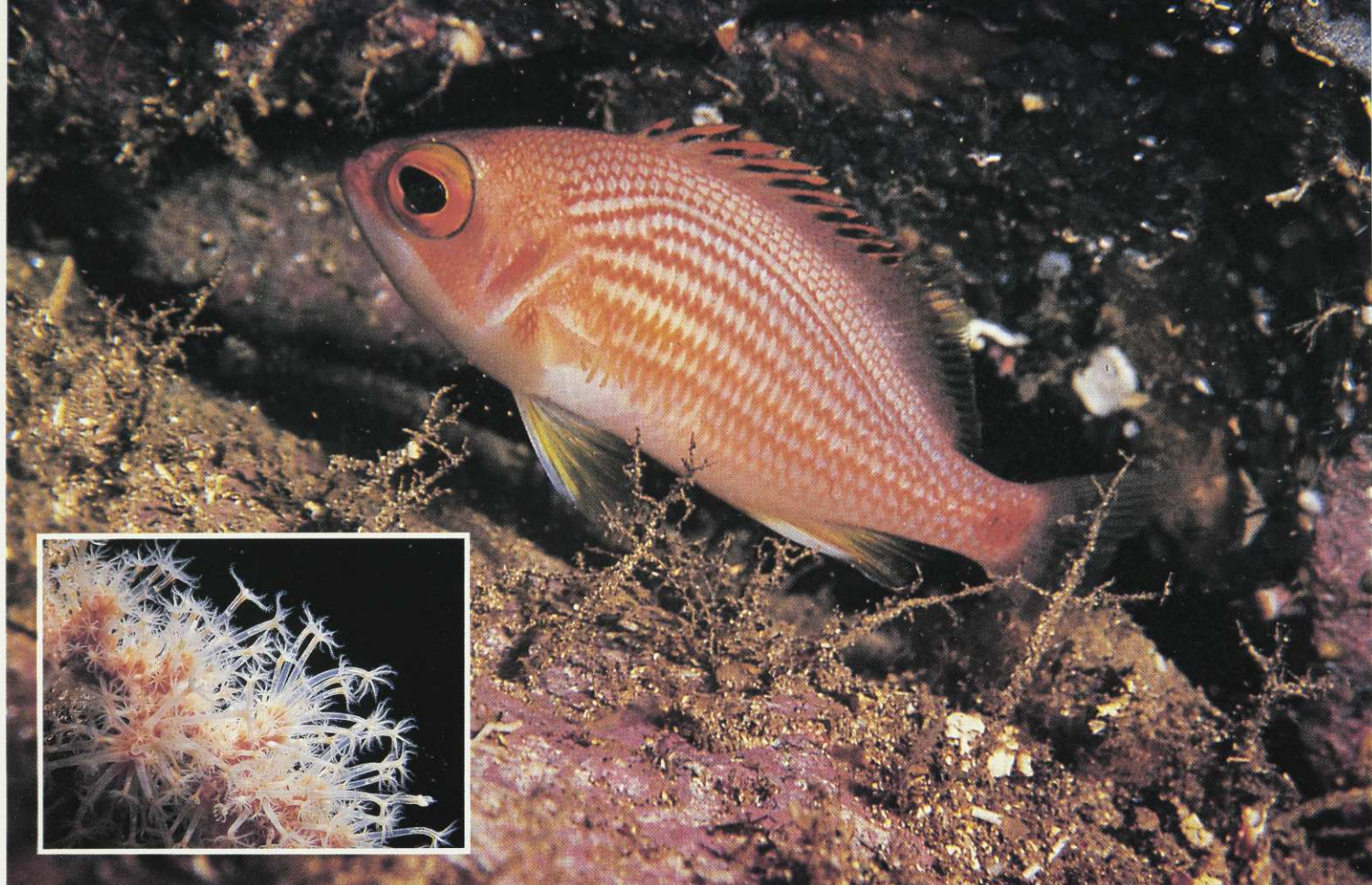
The New Zealand fiords are the drowned

lower reaches of valleys which were last occupied by glaciers approximately 20,000 years ago. Between the sheer sides of towering mountains rising to heights of 2,000 metres or more, the sea now penetrates on average 16 km inland. Beneath the water these steep mountains continue down as rock walls until they reach the mud-covered flat floors of the fiords. The water depths range from around 100 m to more than 450 m in the deeper basins. A shallow ridge near the fiord entrance marks the seaward extend of the former glacier; this is called a sill, and it partially cuts off the water in the fiord from the sea.

Freshwater flows into the fiords continuously in prodigious amounts as a result of rainfall (almost 7,000 mm a year) and the spring-summer melt, but as it rushes down through the surrounding dense bush it rarely washes away the soil since the bush has a thick carpet of mosses and ferns. With little erosion, sediment is not carried into the fiords to smother the plants and animals there. Rather, the

freshwater picks up large quantities of leaves and other plant detritus as well as dissolved organic material from the undergrowth, carrying this down into the fiords to provide nutrients to plants and animals.

The dissolved organic material stains the freshwater and by the time it enters the fiord, it is the colour of weak tea, or pale ale, coloured but not cloudy. Because this freshwater is less dense than the seawater in the fiords, it sits as a less salty surface layer which is normally around 3 m thick. Even during periods of strong winds this layer does not fully mix with the higher-salinity seawater below since large waves or swells cannot form in the enclosed fiords. The low salinity layer continually flows seaward over the top of the seawater, but as it moves it entraps and carries some higher salinity water from below, developing a two-layered circulation with high-salinity seawater flowing into the fiord below an outflowing low-salinity layer. This circulation is, however, confined to the upper 20-40 m.



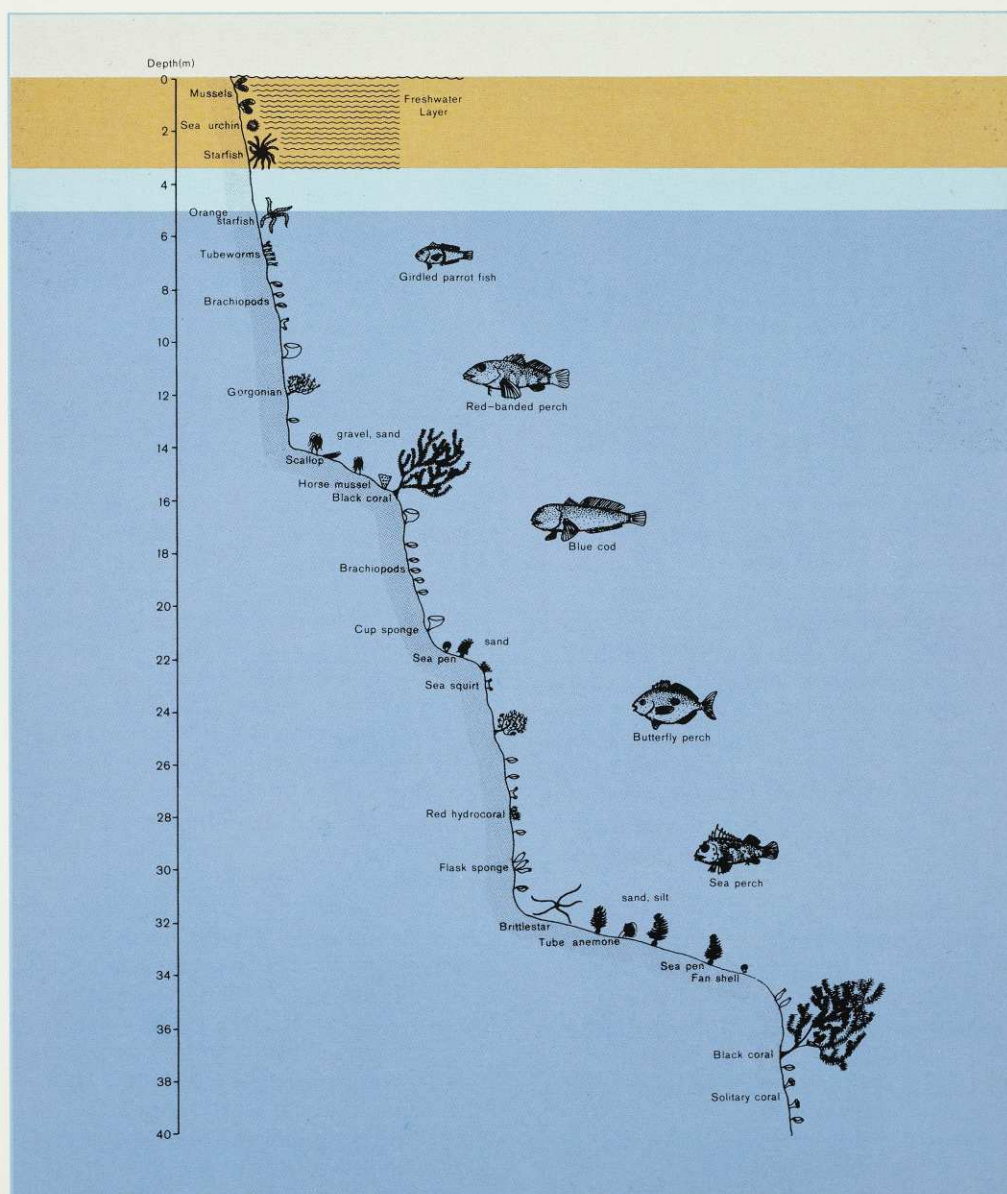
Orange lined perch (*Lepidoperca*) is a Tasmanian species which has also been collected as deep as 500 m on the Chatham Rise. It appears to live in family groups in shallow water only in Preservation and Chalky Inlets. (Inset) Pink soft coral covering a dead branch of black coral. The tiny 1 cm long arms each have eight tentacles with stinging cells used to capture tiny plankton.

Below this, the water in the deep basins may remain undisturbed for years, particularly in fiords with very shallow sills. Water in these basins can be renewed only when nearby coastal water at the sill depth is denser than the basin water so it can spill over the sill. If the basin water is not renewed, it becomes isolated. Eventually dissolved oxygen is consumed through animal respiration and oxidation of organic material, sulphur is reduced, and hydrogen sulphide is liberated. This has profound effects on the sediment and organisms living at that depth resulting in generally low species diversity. The dominant animals are heart urchins, tube worms, bivalves, and tusk shells, but the actual species are the same as those found in bathyal depths (around 1,000 m) in the open ocean outside.

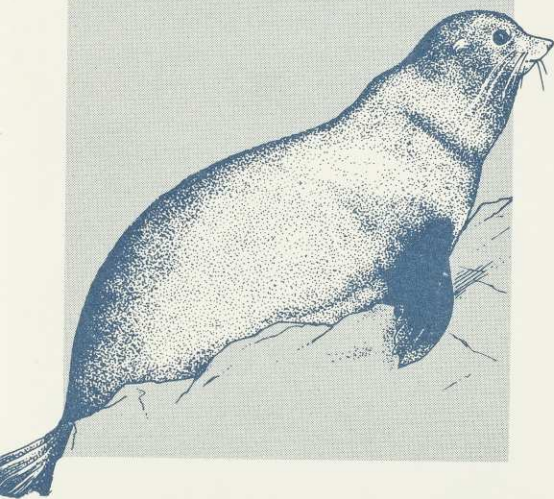
Different coast

A further effect of the freshwater layer is to lower salinities (salt levels) to near zero in the intertidal region, so that at low tide one does not see the usual abundant masses of mussels, barnacles and seaweed characteristic of open coasts, although some brackish-water species can tolerate the conditions and colonise the fiord walls between tide levels. These include small snails, barnacles and blue mussels.

On most rocky shores throughout New Zealand large seaweeds are found at low tide and for some distance sub-tidally, depending on light penetration and water density, but in the fiords the low salinity of the surface layer prevents most seaweeds growing at low tide level, and its dark brown colour does not allow sufficient light to penetrate down to the seawater for luxuriant seaweed growth to occur. Fur-



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thermore, the steep walls of the fiords cast long shadows, again reducing light levels. The low salinities in the top 5 metres restrict this zone to organisms which can live in brackish water for long periods, such as green sea lettuce, blue mussels and barnacles.

In contrast to the sparse life of the deep muddy and inter-tidal habitats, the steep rock walls between 5 and 40 metres support extremely diverse communities, and there is a marked change in species composition with depth, as shown in the accompanying diagram.

Below the light-absorbing low salinity layer, the seawater is still, very clear and relatively warm with annual temperatures of 11–15 °C, the smallest range anywhere on the New Zealand coast. Between 5 and 15 metres deep the rock walls are completely encrusted with tubeworms, sponges, soft corals, colonial sea squirts and file shells, so abundant are the nutrients here. A variety of starfish, urchins, sea snails and colourful sea slugs prey upon these immobile, attached species.

Below 15 m there is perpetual gloom and here the tubeworms are replaced by large sponges, sea squirts, red and pink hydrocorals, soft corals, black coral, horny coral, solitary corals and brachiopods. Even the few patches that appear superficially as bare rock have a thin covering of encrusting pink algal "paint". Fish are abundant; over 50 species have so far been recorded in the top 40 m.

The communities deeper than 40 m on these rock walls have not been examined intensively because they are beyond the range of scuba. However, remote television cameras lowered to around 100 m show colonies of black coral, sponges, and brachiopods, although there appears to be less diversity at these depths.

Unique marine life

The marine communities in the fiords are unique. This is mainly due to a large number of species that are very common there, but generally considered as rare elsewhere in New Zealand, or which live in much deeper water elsewhere. The perpetual gloom beneath the low-salinity layer and the shading caused by the surrounding mountains simulates the conditions usually found at far greater depths in the open ocean and allows species that normally live in deep water to colonise these shallow areas without competition from the faster growing seaweeds, while the lack of wave action permits delicate, branching species to become established without being damaged.

Several animals that had been collected previously only from the continental shelf in depths between 100 and 200 m have been found quite commonly in water less than 30 m deep throughout the fiords. These include the saucer sponge, shrimps, red and pink hydrocorals, starfish, feather stars, sea pens, brachiopods and fish such as the orange-lined perch and spiny sea dragon. Other species, such as the large tube anemone, black coral, and horny coral which have been reported within diving depths only occasionally elsewhere (usually deeper than 30 m) are abundant

from 6 m in the fiords.

Since the fiord waters below the low salinity layer have narrow seasonal fluctuations, species which generally occur in either warm or cool water have become established. Warm water species, those considered more at home in water around the northern half of the North Island, include molluscs (for example the large trumpet shell and several sea slugs), and fish (for example the blue-dot triplefin). Cold water species include copper moki, trumpeter, banded wrasse and pigfish. There are also species of fish, sea slugs, snails, anemones, and sponges which have been collected in the fiords for the first time and are new to science.

Living fossils

The southern fiords are now recognised as supporting the largest populations in the world of several brachiopod species. These animals, commonly called lamp shells, superficially resemble bivalved molluscs since they have two shells hinged together. The soft parts of the animal are, however, entirely different. They attach to hard substrates by a pedicle, a horny, stalked structure that protrudes through a hole in the top shell, and they feed with a spiral, ciliated structure called a lophophore.

Brachiopods are known as fossils from rocks dated around 600 million years old and were once the dominant animals in the world's seas, but they are not common today. The presence of large populations of at least five species in shallow water throughout the fiords provides a unique opportunity for scientific study of these living fossils. Brachiopods are the underwater equivalent of Fiordland's best known land-dwelling representative of a former age, the takahe, and they deserve the same study.

Black coral

There are several animals with economic potential living in the fiords, including rock lobsters, scallops, blue cod, and paua. The potential economic rewards from harvesting, polishing and fashioning the skeleton of black coral into jewellery however probably exceed all others. The living population of black coral in water less than 35 m deep in the fiords has been estimated at over 7.5 million colonies, although most are too small to harvest — the largest resource of black coral known in the world. Money can be made from this without harvesting, however. Research is showing that the colonies are extremely slow growing so rather than risk over-fishing, the living colonies may be worth even more as a potential diving/recreational/tourist resource.

Protection needed

At present there is no legislation preserving the underwater habitat of the southern fiords; Fiordland National Park stops at high-water mark. Only the black coral is protected by Fisheries legislation.

The underwater ecology of the fiords is finely balanced by the unique set of environmental conditions above water in the surrounding mountains. Interference to this balance could potentially have disas-

trous effects; for example, should freshwater be prevented from running through dense forest on its way to the fiords, the major source of nutrient input would be lost. Similarly, if the bush and undergrowth is removed, sediment would be brought into the fiords by the freshwater runoff and smother the slow-growing, immobile marine organisms attached to the rock walls. If the dark-stained low-salinity layer with its important light-absorbing properties is interfered with, then light may reach the marine communities encouraging seaweed growth, eventually displacing the deep-water animals.

The fiords may seem isolated and under little threat but recently there have been proposals to export freshwater, using super-tankers which possibly could mix the low and high salinity layers, and there have been requests to harvest black coral colonies. Even too many deer in the surrounding mountains could increase erosion and have some effect. Fortunately, the establishment and management of the Fiordland National Park above water has probably also been beneficial to the survival of the marine communities by ensuring that modifications to the vegetation are minimal.

Fiord inclusion essential

In a recent issue of *Forest and Bird* (Vol. 16, No. 4, Nov. 1985) an excellent article on the case for south-west New Zealand to be included as a World Heritage area mentions many of the geological and biological wonders of the area, but nothing is said about the fiords themselves and their unique attributes. It is essential that the fiords are included in any submission, but we must also have due regard for the rock lobster fishermen who rely on the area for their living without significantly modifying its existing natural beauty.

As the marine wonders of the southern fiords become better known, more people will join in the quest to protect the huge 300-year-old black coral colonies, the tube-anemones, sea pens, brachiopods and unusual fishes. Should it proceed, a recent proposal to build an underwater viewing platform in Milford Sound will enable non-divers to gain an impression of the underwater world of the fiords. The marine communities with their living fossils and deep-water representatives are just as unique in the world as the land communities of Fiordland which harbour species such as the takahe and kakapo. Surely the marine environment is worthy of the same status and protection.

Ken Grange is a biologist with the DSIR's Division of Marine and Freshwater Science, based at the N.Z. Oceanographic Institute in Wellington, and specialising in shallow-water marine ecology. For the past five years he has been examining the unique underwater environment of the southern fiords and, more recently, has directed his research specifically towards the abundance, distribution, growth rates, and reproduction of black coral. He is also a scientific adviser to the Fiordland National Park, overseeing marine research in the area, and is a keen diver and underwater photographer.

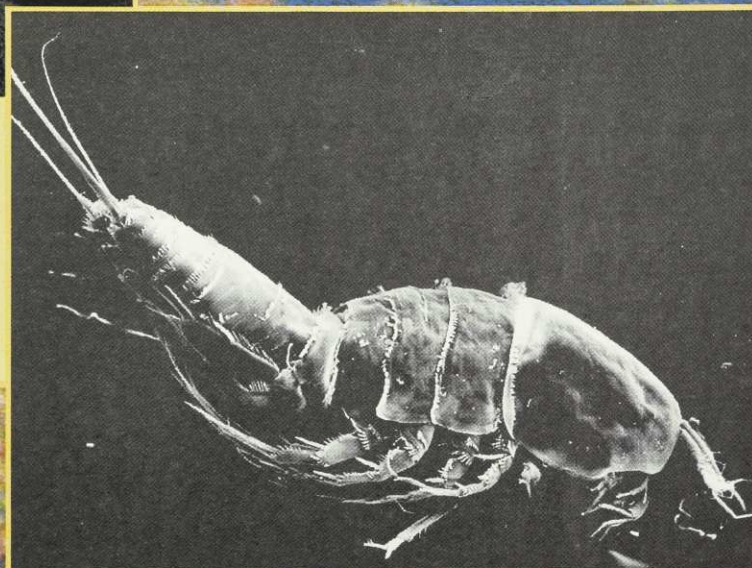
Estuaries

EXTRAORDINARY ECOSYSTEMS

Wading and migratory birds, the most visible and spectacular dwellers of estuaries, command most of our attention when we visit these biologically-rich habitats. Next time you visit your local estuary, however, spare a thought for what it is that attracts the birds there, for they are simply a link in a complex food chain. Dr Geoffrey Hicks, Curator of Crustacea at the National Museum, has for the last five years studied part of Pauatahanui Inlet, just north of Wellington and the site of a Society reserve (see August 1985 *Forest and Bird*). In that time he has come up with figures which show that this inlet contains huge numbers of a creature found near the beginning of the food chain, the meiofaunal copepod crustacean *Parastenhelia megarostrum*, which impacts directly on birds at the top end of the food chain.



Estuaries are as productive as tropical rainforests, and four times more so than a good ryegrass pasture. The factor which earns estuaries their reputation as being among the most productive ecosystems on earth is the immense annual quantities of highly microbially enriched organic material referred to as detritus, which is derived from the fringing vegetation of the estuary. Photo: Terry Fitzgibbon



Too minute to be seen except with a microscope, meiofauna are found midway in the food chain between microbes such as bacteria, protozoans and microalgae, and the large macrofauna such as crabs and shellfish. Studies of one of these meiofaunal animals, the bottom-dwelling copepod *Parastenhelia megarostrum*, have revealed it to be in enormous numbers at Pauatahanui, ranking the inlet of high scientific value internationally. The copepod is not able to eat detritus whole, but feeds on the rich coating of bacterial or microalgal cells. The productivity of this copepod is amongst the highest recorded anywhere in the world. (See Table)

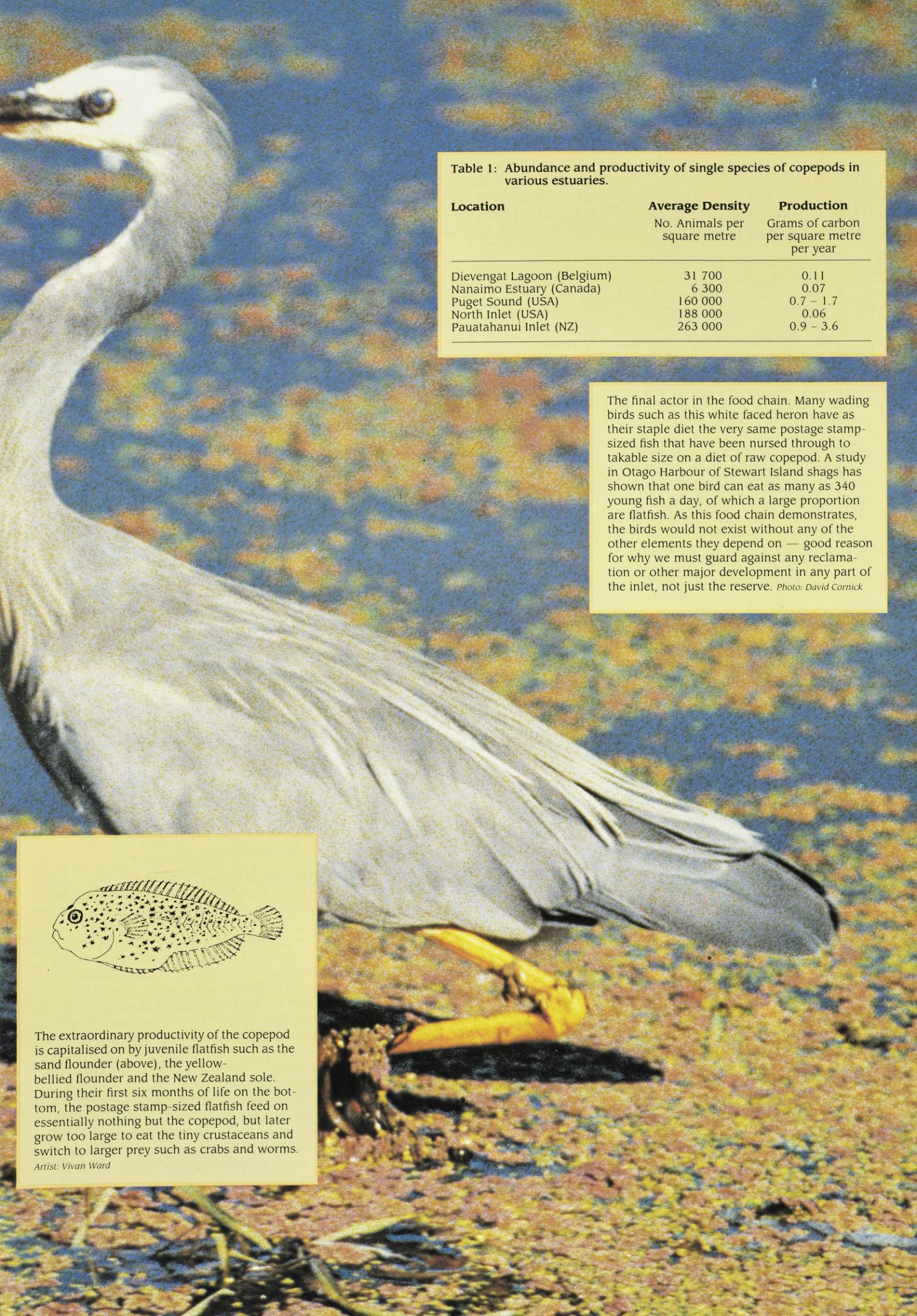
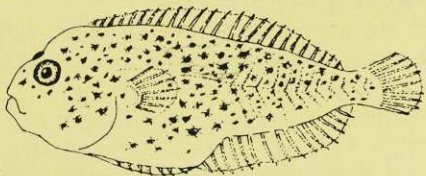


Table 1: Abundance and productivity of single species of copepods in various estuaries.

Location	Average Density	Production
	No. Animals per square metre	Grams of carbon per square metre per year
Dievengat Lagoon (Belgium)	31 700	0.11
Nanaimo Estuary (Canada)	6 300	0.07
Puget Sound (USA)	160 000	0.7 – 1.7
North Inlet (USA)	188 000	0.06
Pauatahanui Inlet (NZ)	263 000	0.9 – 3.6

The final actor in the food chain. Many wading birds such as this white faced heron have as their staple diet the very same postage stamp-sized fish that have been nursed through to takable size on a diet of raw copepod. A study in Otago Harbour of Stewart Island shags has shown that one bird can eat as many as 340 young fish a day, of which a large proportion are flatfish. As this food chain demonstrates, the birds would not exist without any of the other elements they depend on — good reason for why we must guard against any reclamation or other major development in any part of the inlet, not just the reserve. *Photo: David Cornick*



The extraordinary productivity of the copepod is capitalised on by juvenile flatfish such as the sand flounder (above), the yellow-bellied flounder and the New Zealand sole. During their first six months of life on the bottom, the postage stamp-sized flatfish feed on essentially nothing but the copepod, but later grow too large to eat the tiny crustaceans and switch to larger prey such as crabs and worms.

Artist: Vivan Ward

A KERMADec ISLANDS MARINE RESERVE?

Fishing has changed and in places decimated mainland New Zealand's inshore marine ecosystems, and therefore one of the major objectives of marine reserves is to restore such ecosystems to their natural states. But, New Zealand is fortunate in having a few remote islands which have so far remained largely unfished, and which could still be preserved in their natural states. Malcolm Francis of MAF's Fisheries Research Division here describes the fascinating world of some of these islands.

Insignificant in size though they may be, New Zealand's Kermadec Islands are of national and international importance, and certainly deserve to be marine reserves on scientific grounds.

Lying 400–530 nautical miles north-east of New Zealand and about half way to Tonga, the Kermadecs have only been lightly fished. The summits of volcanic pinnacles which arise from the narrow Kermadec Ridge, the four main island groups are separated from each other by depths greater than 900 metres. These groups, from north to south, are: Raoul Island and the Herald Islets (28 km² in land area, about the size of Little Barrier Island), Macauley Island (3 km²), Curtis and Cheeseman Islands (less than 1 km²), and L'Esperance Rock (a small rock less than 50 metres long). The Kermadec Ridge is flanked by the deep waters of the Kermadec Trench to the east and the Havre Trough to the west.

Massive geological forces continue to shape the Kermadecs, which lie near the boundary of the Pacific and Australian plates. As the Pacific plate slides under the Australian plate, the volcanic impact is felt from Tonga in the north to Mt Ruapehu in the south. (In 1964 Raoul Island was witness to the most recent Kermadec eruption; today there is still considerable thermal activity on Raoul and Curtis Islands, and underwater vents have recently been discovered around Curtis Island and off Havre Rock (near L'Esperance Rock).

The Lands and Survey Department administers the Kermadecs as a nature reserve; humans make a home only on Raoul Island where a Lands and Survey ranger and several Meteorological Service weather staff are stationed.

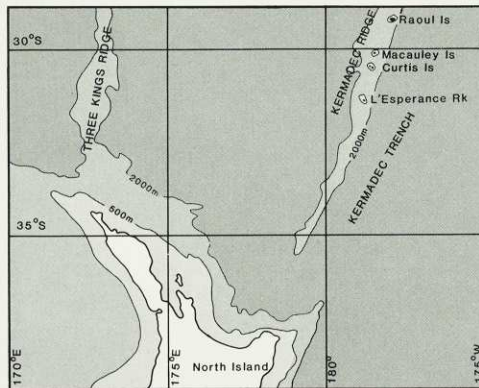
Subtropical waters

Subtropical waters bathe the Kermadecs with average temperatures ranging from 18.6 °C to 23.7 °C. As a result the marine flora and fauna comprise an interesting mixture of warm temperature New Zealand species and tropical species which are not found around mainland New Zealand.

The lush forests of brown kelp that are so characteristic of mainland coastal waters are absent from the Kermadecs. Instead, algae are generally small and inconspicuous, but they nevertheless form the essential base of the food chain for many animals. New Zealand's only reef-forming corals occur at the Kermadecs. Coral colonies may grow to two metres in diameter but do not form the massive coral reefs found in tropical waters. The size, abundance and diversity of corals declines going southwards through the islands, in-

dicating that coral growth is limited by winter water temperatures. Distribution of the coral-browsing crown-of-thorns starfish (*Acanthaster planci*) parallels that of its prey — it is found occasionally at Raoul Island, rarely at Macauley Island, and is so far unrecorded from the southern two island groups.

A considerable number of animal species are endemic to the Kermadecs. However, the proportion of endemic species varies from zero for algae and 4 percent for coastal fishes, to 34 percent for molluscs and 44 percent for starfish. Many Kermadec plant and animal species do not occur in mainland New Zealand (and



vice versa). Only 12 percent of the Kermadec molluscs, 30 percent of the algae, 44 percent of the starfish and 60 percent of the coastal fishes are found in New Zealand. The abundance of animals also varies between the Kermadecs and New Zealand. For example, of 27 coastal fishes recorded as abundant at the Kermadecs, 18 occur in New Zealand, but only six are common or abundant here. Thus the fauna of the Kermadecs is unique in that (a) it has a considerable number of endemic species, (b) it has a large number of species not found elsewhere in New Zealand, and (c) the species which are abundant at the Kermadecs are not the same as those that are abundant around the mainland.

The only other islands in the Southwest Pacific at a similar latitude to the Kermadecs are Lord Howe Island and Norfolk Island, both of which belong to Australia. These islands have well-developed coral reefs and predominantly tropical floras and faunas.

International importance

Because the marine ecosystems of the Kermadec Islands differ substantially from those in New Zealand and elsewhere, they are of national and international biogeographic importance, and certainly qualify for marine reserve status on scientific grounds.

Despite their scientific importance, we know very little about the Kermadec marine ecosystems. On a recent expedition to the Kermadecs, 36 species of fishes were recorded from the Kermadec Islands for the first time; 20 of these had not previously been recorded from mainland New Zealand. Similar discoveries undoubtedly await investigators in other fields.

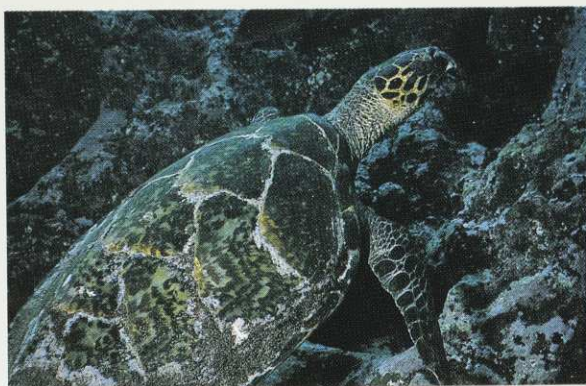
Although the case for a marine reserve around the Kermadec Islands appears to be good, it is likely to take several years to create one. Recent developments indicate that the marine ecosystems will not remain unmodified until then, and interim controls on fishing are urgently required. Most fishermen have been deterred from going to the Kermadecs by their remoteness, and high costs involved, and the lack of suitable trawling grounds. Fishing has so far been restricted to a few vessels longlining for hapuku and bass, mainly on the banks south of the Kermadec islands.

However, interest in the area is currently escalating for two main reasons. First, the major hapuku fishing grounds around Northland and the Three Kings Islands are overfished and the Ministry of Agriculture and Fisheries (MAF) intends to introduce restrictive quotas in October to reduce catches. This has already encouraged fishermen to look further afield. Second, in February this year the Ministry of Transport reduced the size of vessels which could be granted a marine survey to fish at the Kermadecs from 21 m to 12.2 m, thus making the Kermadecs acceptable to many more small longliners.

Intriguing carnivore

One of the largest and most intriguing fish of the shallow reef ecosystem, the spotted black grouper (*Epinephelus daemeli*) is very vulnerable to fishing. Growing to a sizeable 1.2 metres long, the groupers are the main carnivores of the reef. Their population density is low, since a large reef area is required to support each fish. They partition the reef into territories and probably spend much of their lives in one area, and because the Kermadec Islands pinnacles are so steep, the grouper's habitat is very limited in area.

Furthermore the biology of the species makes it particularly sensitive to fishing pressure. They grow slowly: average-sized adults have been aged at between 29 and 50 years. Spotted grouper also change sex (from female to male) halfway through adult life, and therefore large fish are predominantly males. Since fishing tends to reduce the average age and size of fish in a population, this could lead to an imbalance in the sex ratio, a breakdown in the



The presence of the hawksbill turtle gives a clue to the fact that the Kermadecs are in subtropical waters, although this species also visits northern New Zealand.

Photo: Malcolm Francis



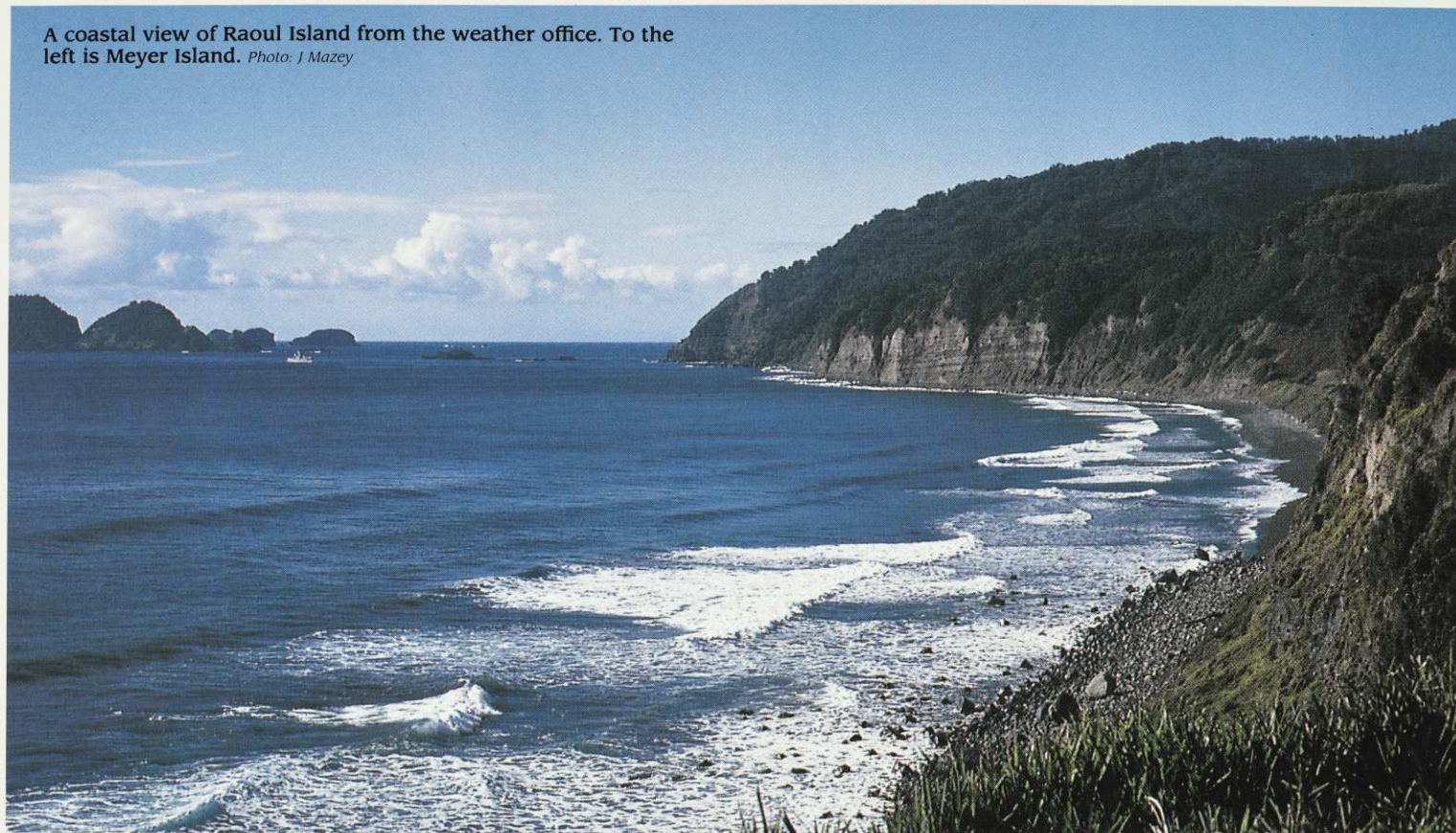
The Kermadec Islands spotted grouper (pronounced groper) is one of the most intriguing inhabitants of the islands underwater world. Growing as large as 1.2 metres, it is curious enough to allow divers to touch it, making it a star attraction for divers who will visit the Kermadecs especially to see the grouper. A marine reserve is vital to protect such vulnerable fish. *Photo: Jaan Voot*



Instead of the massive coral reefs typical of tropical waters, Kermadec coral colonies grow to about two metres in diameter. They are New Zealand's only reef-forming corals.

Photo: Jaan Voot

A coastal view of Raoul Island from the weather office. To the left is Meyer Island. Photo: J Mazey



territorial behaviour of the species and a reduction in the reproductive capacity of the population. For these reasons it is unlikely that the Kermadec Islands spotted grouper can support a sustainable fishery. Other populations of spotted grouper in New South Wales, Lord Howe Island and Norfolk Island have been decimated by fishing. The Kermadec Islands population is probably the only virgin spotted grouper stock in existence.

High tourism value

Spotted grouper also have a high potential recreational and tourism value. They are inquisitive, actively investigate divers and even allow themselves to be handled. Elsewhere in New Zealand it is now a very rare event for divers to see a hapuku or bass, let alone touch one. These species have been severely overfished. The Kermadecs spotted grouper are now becoming widely known and 50–60 divers visit the Kermadecs annually — and diving with groupers is a prime objective for most divers. Diving tourists from around the world dive at the “cod hole” on the Great Barrier Reef in Australia where they can hand-feed protected potatoe cod, a close relative of spotted grouper. The Kermadecs have the potential to attract the same international attention. In recognition of their recreational importance the New Zealand Underwater Association banned the spearing of spotted grouper at the Kermadecs in 1982.

In May 1986, MAF released a discussion paper outlining proposals to introduce fishing restrictions at the Kermadecs to protect spotted grouper. These proposals are intended as interim measures until full marine reserve status can be obtained. The three proposals are:

1. To ban the taking of spotted black grouper from the Kermadecs.

2. To ban commercial fishing (except for tuna) within 12 nautical miles of all the Kermadec Islands, and to restrict recreational fishing to pelagic species.



The gold ribbon grouper, common at the Kermadecs, but very rare in northern New Zealand. Photo: Malcolm Francis

3. To prohibit fishing for hapuku and bass within the 200-mile zone around the Kermadecs except by special permit. This proposal would allow carefully-controlled development of hapuku and bass fisheries on the banks south of the Kermadecs. A condition of any permit issued would be that fishermen keep detailed log books of species caught, area and depth fished and amount of fishing effort. The state of health of the fishery could then be closely monitored. Permit holders would also be required to clearly display registration numbers or radio call signs to allow easy identification by Orion aircraft.

Commercial extinction?

The marine life of the Kermadecs is clearly worthy of protection on scientific, representative, wilderness and recreational grounds. If the MAF proposals are implemented protection will be provided for the most sensitive component of the reef ecosystem until reserve status can be obtained. Without interim controls, the spotted grouper are likely to be fished to commercial extinction. One group of fishermen has recently developed plans to operate three longliners in association with one refrigerated mother ship at the Kermadecs, thus vastly increasing their catching capacity.

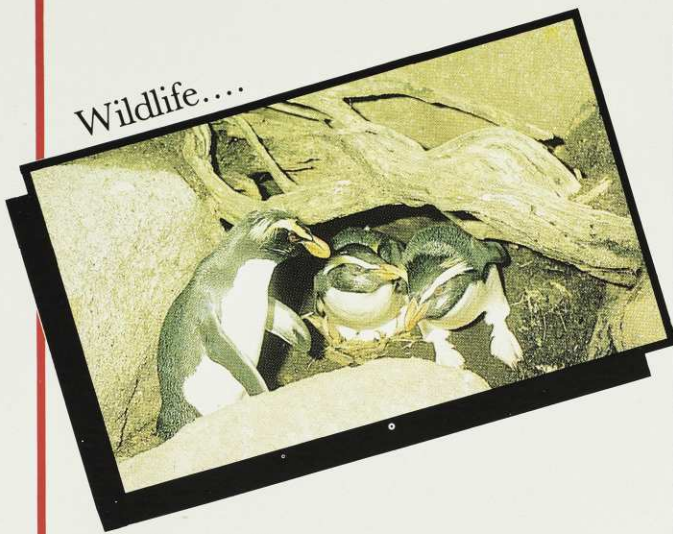
The slow growth rate and sex-changing reproductive biology of spotted grouper mean that an overfished population would recover only slowly. Removal of the top level carnivores from the ecosystem would also cause changes in the abundance of other species in the food chain, therefore altering the balance of the whole ecosystem. Thus future marine reserve values could be compromised by the activities of a few individuals fishing for short-term personal gains. 🐟

Malcolm Francis has been working as a Fisheries scientist for MAF for five years. He has been scuba diving for 15 years and is actively involved in researching and promoting marine reserves. Malcolm is a Forest and Bird member with a strong interest in land conservation as well.

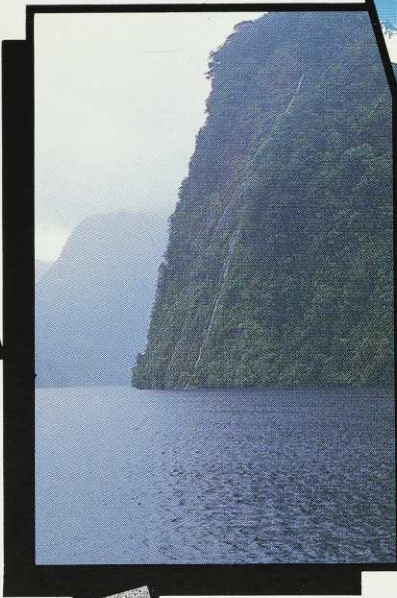
Submissions have now been received on the MAF discussion paper and are being considered. Meanwhile the Department of Lands and Survey has made a formal application to MAF to create a formal marine reserve within the 12-mile zone around each Kermadec island.

1987 FOREST AND BIRD CALENDAR THE SOUTH-WEST OF NEW ZEALAND IS:

Wildlife....



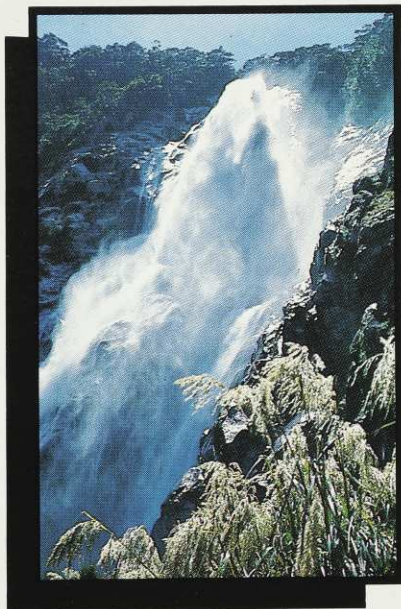
Fjords....



Glaciers....



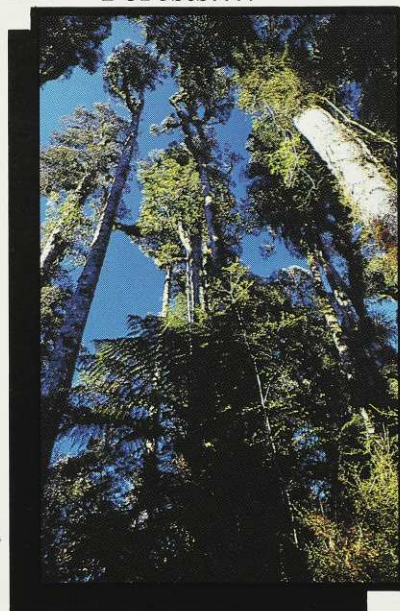
Waterfalls....



People....



Forests....



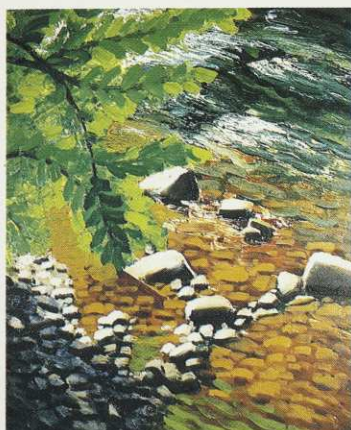
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Huatoki — Michael Smither Greeting Card

Artist and conservationist Michael Smither has generously offered the Society reproduction rights to one of his latest paintings **Huatoki**, depicting a stream near New Plymouth. This delightful painting is now available in the form of a greeting card to members at \$1.00 each, or five cards for \$4.00. Remember: all the funds from sale of the card go towards the Society's conservation work. Available through the Society's mail order service, PO Box 631, Wellington.

TRIP

of a

LIFETIME

by Kathleen Clements, Form II
pupil at Owenga School, Chatham
Islands

January 25, 1986, and Dad, Joe and I were on our way to South-East (Rangitira) Island. It was Open Day and they were taking me there to see the black robins. We were only allowed to stay there for the day; it was too good to miss!

We set off in the boat called the *Moonwalker*. We were to go to Pitt Island first and I was going to stay with Jo Wyld and Mr Moffat. The trip over was good but I did not like it much because I was sick all the way over. On the way we stopped to look at Sail Rock which is a big rock that just sticks out of the sea. At about 4 o'clock we finally reached Pitt Island and Dad rowed me ashore to Glory Bay.

After saying our goodbyes to Dad and Joe we spent the rest of the day riding the horses. We had to ride around the property to see if all the calves had been marked. I really enjoyed riding the horses.

When we had finished that job we decided to try to catch some goslings. We only caught one but it was good fun trying. After that I went riding by myself and took some photos of Glory Bay and of the reserve. It was such a beautiful sight but I had to return for tea. We had duck for tea and then we had to get the cow in and kill a mutton.

In the morning I got up early, excited about my trip to South-East Island. I had breakfast and waited for Dad and Joe to come and get me. I saw the *Moonwalker* come into Glory Bay and saw Dad put the dinghy in the water and row ashore to get me. We set off for South-East Island and the black robins.

When we arrived we were met by Mr Chappell, the Ranger in charge over there. He told me I was the first person to come that day and he took me up to introduce me to the other people on the island. (More than 60 Islanders visited in 5 days.)

Afterwards Mr Chappell and I started off. First he took me to where the black robins were and introduced me to Mr Merton, who was watching 'Atlas' the female and 'Crunch' the male. Atlas was a very lazy bird who never fed her chicks much, so poor old Crunch was flying rather busily backwards and forwards with food for them. It looked quite funny watching poor old Crunch doing all the work.



Male tomtit feeds black robin fledglings. Because some fostered black robins were found to be slightly mal-imprinted with tomtit characteristics which inhibited breeding, black robin nestlings are now returned to robin nests prior to fledging. Thus, production is still enhanced through fostering, but the imprinting problem has been overcome. Photo: Don Merton



Chatham Island spiders are known for their large size; the survival of such spiders is evidence that remote islands are as much havens for insects as they are for other wildlife.

Photo: Don Merton



Summit of South-East Island, 24/1/86. Pyramid Rock in distance. All but two in the photo are from Pitt Island. Left — Right: Mr Bill Gregory-Hunt, Lisa Preece, Marie Gregory-Hunt, Geordie Murman (NZWS), Mrs Karen Preece, Mrs Dianne Gregory-Hunt, James Gregory-Hunt, Alison Davis (Auckland University), Jo Wyld, Mark Preece, Julie Preece, Dominic Preece.

Photo: Don Merton



At night grey backed storm petrels return to their burrows carefully constructed under dense vegetation to evade the predatory skua.
Photo: Don Merton

We moved on up the trail and I saw a beautiful kakariki. I tried to take a photo of it but it was too fast. Just by the track was a baby mutton bird which I had a hold of, then we saw a sick diving petrel so I took a photo of it. We went on climbing, hoping to reach the top.

Finally I reached the top of South-East Island from where we could see for miles around. We could see Pitt Island and all the other smaller islands surrounding Pitt. We walked down to the other part of the island and saw lots of birds. In the bush we saw a snipe which looks like a miniature kiwi. When we came out into the open the skuas dive-bombed us to make us go away.

We went over to the cliffs where we saw lots of seals and their pups. There were hundreds of them all over the place. On our way back to the woolshed we saw some skinks on the bush floor. You have to look carefully as they are very fast. Mr Chappell took me to the woolshed where we saw some very big spiders. The others had caught a big one and put it in a jam jar. It was as big as the bottom of the jar.

After lunch I set off with Alison who was going to show me the shore plovers she was studying. We sat on the beach for hours watching the birds. I also helped her by looking at the oystercatchers' colour bands on their legs. We realised that Dad would be looking for us so we set off towards the hut, then to the shore where Dad came to pick us up. We were steaming along and Mr Chappell came in the Zodiac to pick Alison up. I will always remember my trip, a chance of a lifetime!



The rare shore plover, only about 120 of which remain, although it was once widespread in mainland New Zealand. Today it lives only on Rangatira Island. Photo: Alison Davis

"In the bush we saw a snipe which looks like a miniature kiwi." This bird once inhabited all the Chatham Islands but predators reduced it to South-East Island. Today the Wildlife Service has re-introduced it to Mangere Island. Photo: Geoff Moon

Loving our National Parks to death

The sacred ancestral peaks of the Tuwharetoa people were gifted to the nation for its first national park in 1887. Wreathed around in Maori folklore, Tongariro National Park is an area of great contrast: fire and ice, forest and tussock, volcano and glacier. Photographer and writer Craig Potton here reports on contrasts of a different sort: between those who believe that development in a national park is a good thing and those who warn against it.

Next year New Zealanders celebrate 100 years of Tongariro National Park. Much of the pre-publicity of these celebrations must make all conservationists fear for Tongariro and other national parks during the next century. Some government ministers, concessionaires and others in the tourist industry are making a great hullabaloo about increasing tourism as a soft way of boosting an always flagging economy and furthering peoples' enjoyment of the parks. It is not just the numbers of tourists (which will soon reach one million a year at Tongariro) but the impact

of some services that gives real cause for concern.

Today concessionaires are plugging relentlessly at the park's administrators to "open up" the park to larger ski areas, heliskiing, gondolas, better on-site accommodation and generally more development in the name of customer comfort and thrills. It is notable that existing ski-fields have a high impact on park philosophy and activity. Some rangers do not range much in winter. Their main job becomes one of servicing the skifields. At Whakapapa skifield it costs the park,





National Parks are places for the quiet contemplation of elemental forces; helicopters whirling noisily overhead have no place here.



All photos Craig Potton

The inviolate character of Mt Ruapehu's Crater Lake must be protected from industrial noise and mechanical conveyances. Supporters of park "improvements" have suggested a gondola to the lake would be desirable.





The strange and yet subtle detail of nature is seen in algae at Ketetahi hot springs and the minute native orchid.

therefore the taxpayer, a considerable subsidy annually to service the skiing operation, which is not recovered from parking, concession fees and other charges.

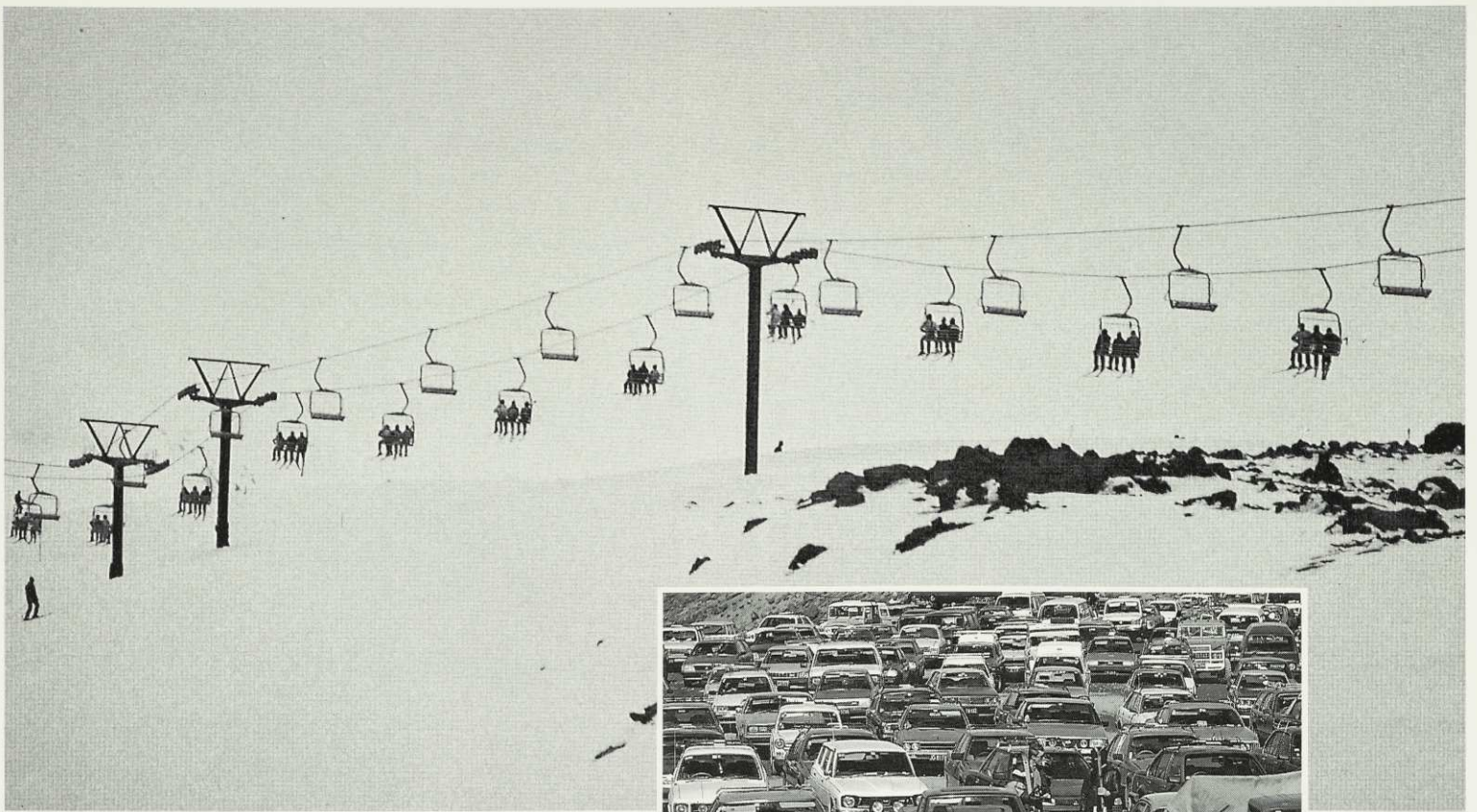
There is nothing new in calls for "improvement". Neither is a healthy fear of them a new phenomena. In 1886 a US Congress report on Yellowstone stipulated that "the park should so far as possible be spared the vandalism of improvement". What makes today's situation so frightful is that although Congress perceived the threat of over development (which it seems many park administrators in New Zealand fail to comprehend) it still failed to stop it. Yellowstone is now besieged by roads crammed with motorcars, on-site accommodation, other facilities and a volume of people that everyone would agree is simply loving the United States largest park to death. Another American park, Grand Canyon National Park, reverberates

to the sound of 274 helicopter and small plane flights a day which destroy hikers' peace and serenity.

During the 1972 Yellowstone centennial celebrations the US Park Services called together a citizen commission to formulate a broad set of management priorities for the next one hundred years. This centennial task force gave highest priority to removing concessions and private vehicles from within the park boundaries. The United States director of national parks is at present supporting moves in Federal Government to exclude airplane and helicopter flights from Grand Canyon. It has taken Americans one hundred years to learn what its Congress already instinctively knew: namely that "improvements" degrade the national park ideal.

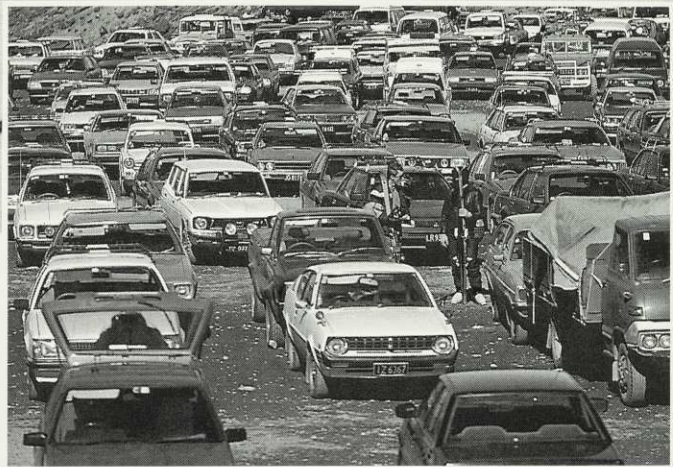
Yet dominant voices in New Zealand park management seem to be blithely following down the same circuitous path as

their American counterparts. At a meeting of locals at Taumaranui in the summer of 1985, the chairman of Tongariro park board, Mr Roger Holyoake, listed possible developments which were blocked because of the present development plan. These included heliskiing, a gondola on Whakapapa and even night skiing. He was reported in a local paper as saying "such schemes would involve an enormous spin-off for our area but we haven't got a management plan". While Mr Holyoake was encouraging helicopter concessionaires the Hauraki Gulf Maritime Park was threatening to take legal action against helicopters landing on park islands: "Mr Mossman (chief ranger) said that there had been many complaints about the disturbance helicopters caused. Most people came to the park to enjoy the serenity of its islands and reserves. A helicopter carrying four passengers can affect a lot of peo-



How appropriate are industrial structures in national parks? A review of the Tongariro National Park management plan is at present taking place and will provide the groundwork for management long into the future.

The carpark at Turoa looks like any downtown shopping mall conglomeration.



ple. I see it as a benefit for a few against a cost for many" (*New Zealand Herald*). Certainly the serenity of the many was shattered long ago at Mt Cook National Park where ski planes buzz the Tasman Glacier, their sound reverberating against the mountain walls. It is worse in Westland National Park where a superb wander up the Fox Glacier past the huge ice pinnacles and ice caves and across the magnificent herbfields around Chancellor Hut is shattered on most fine days by a virtually continuous noise that would drive a modern worker to ear muff protection.

What emerges from these contemporary examples is that New Zealand lacks a clear philosophy of values for its national park management. If Tongariro holds out against any further major development within its boundaries it may appear, along with Hauraki, to be shutting the barn door after the horse has bolted. But the situation is redeemable. Concessions can be removed to outside park boundaries. Further roading in national parks can be seen as inappropriate. The flying-over and landing of planes and helicopters can be restricted to very specific areas, or denied altogether.

However, to convince the tourists, the public and themselves that such wonderful fun conveniences are very destructive to park values, the park administrators will need to develop a philosophy that recognises the full range of human and other values which they are protecting in national parks. They will need to dig seriously into the writings of Thoreau and others who loved spaces where people could find a natural world free of con-

sumer comfort and impact. A world where time and space is measured out by natural rhythms and where people see, hear, taste and smell only what they can never create. National parks and reserves are among few places left where this experience can be protected in law and management. If in our bid for the international tourist dollar we turn national parks into fun parlours we destroy the important human experiences and values that national parks can offer.

Conservationists have long extolled the value of national parks. Now they must insist the new Department of Conservation develops a philosophy that preserves and manages them for their pristine state. 🦜

Tongariro National Park has advertised for submissions on its intention to review the Tongariro National Park Management Plan. All interested people may send their thoughts and feelings to the Commissioner of Crown Lands, Lands and Survey, Private Bag, Wellington.

Limited Edition Botanical Prints

A pair of superb reproductions from Martha King's botanical illustrations of New Zealand plants, originally commissioned by the Wellington Horticultural and Botanical Society in September 1842, have just been published by the Friends of the Turnbull Library.

Both are of the tree fuchsia (*Kotukutuku*) showing both flowers and fruit. 37.9 × 27.7 cm, and 34 × 24.9 cm, both facsimile. 500 hand-numbered sets at \$40 the set, \$5 extra for postage and packing. Both illustrated in the Library's catalogue, post free on request.

Alexander Turnbull Library Box 12349 Wellington

MOHUA

a declining species

by Graeme Elliott, Scientist

Last century yellowheads were one of the most abundant and conspicuous forest birds in the South Island. Smith,¹ an early ornithologist, described an encounter with a flock of yellowheads near Lake Brunner in 1887 as follows:

"On reaching nearly the top of the gully, I heard the shrill, ringing notes of a flock of yellowheads . . . They numbered about two hundred, and were in rich plumage . . . Before the yellowheads had quite disappeared I heard the rich flute-notes of a flock of

saddlebacks advancing . . . Probably no scene in bird life is more attractive or beautiful . . ."

Not only have the saddlebacks disappeared, but sadly flocks of yellowheads are now rare. Whereas yellowheads were once found in all the forests of the South Island and Stewart Island, they now have a much more restricted range. They no longer occur on Stewart Island or in the forest remnants of the Kaikoura Coast, Canterbury and north Otago; they are very rare in Nelson, Marlborough, Buller and north and

central Westland; there is a small low density population in some of the eastern valleys in and around Arthur's Pass National Park; and there are only a few birds in south Westland. Today the stronghold of the yellowhead is west Otago and Fiordland, and in some eastern valleys they occur in high densities. They also survive in some of the isolated forest remnants of south Otago and Southland, notably the Catlins and Blue Mountains.

Cats again

The history of the decline of the yellow-



Male yellowhead outside nest waits his turn to feed chicks inside. The female has just finished feeding and is about to leave.

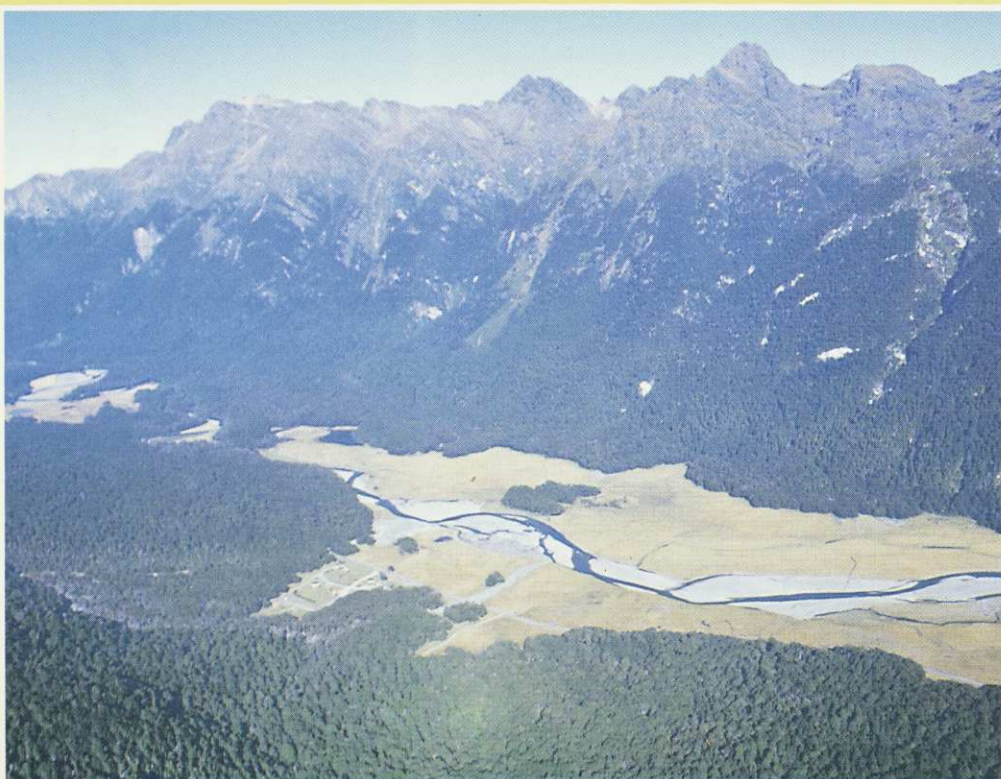
Photo: Don Hadden



Like most birds, yellowheads are fastidious about keeping their nests clean. Here, a parent removes a fecal sac. Photo: Don Hadden



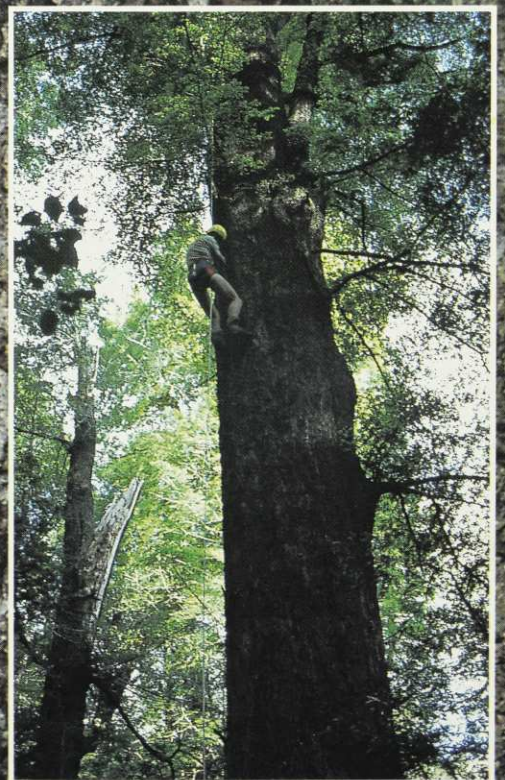
Female incubating chicks. Long-tailed cuckoos lay their eggs in about 12 percent of nests — only those large enough for them to enter — and the yellowhead then hatches the cuckoo chick which pushes the yellowhead chicks out of the nest. Photo: Don Hadden



Ideal yellowhead habitat: unmodified red and silver beech forest growing on fertile alluvium of the Eglinton Valley floor, Fiordland. Today the Eglinton and a few similar neighbouring valleys support the best remaining yellowhead populations. The future of the Eglinton Valley forests are assured as they are part of Fiordland National Park, but other yellowhead habitats in some state forests are threatened by logging. Photo: Sue Penniket

A male yellowhead carrying food to its nest in a knothole in a large old silver beech tree. It's large old trees such as this one that provide most nest holes and it's also these trees that have the most epiphytic mosses, ferns and lichens amongst which the yellowheads feed. Photo: Don Hadden

Inset: Author Graeme Elliott climbs a lofty red beech tree to check on progress in a yellowhead nest. The nests tend to be located high in trees above 13 m. Photo: Don Hadden



head differs from that of most other rare New Zealand birds. Early in the history of European colonisation it disappeared from the podocarp-hardwood forests of Stewart Island and central Westland. Douglas² writing of yellowheads in Westland about 1899 noted:

"At one time they were common all over the country, but now they must be very rare — cats again — I haven't seen one for years even in the uninhabited South."

Certainly by the 1930s they were only rarely reported from the podocarp-hardwood forests of Westland and had disappeared entirely from Stewart Island. Despite this, yellowheads remained common in many beech forests throughout the South Island well into this century. Since then there has been a gradual contraction of their range with yellowheads disappearing from most of Nelson and Marlborough, and more recently, from parts of north Westland.

Explanations for the yellowhead's decline are not easy to find. Introduced rats, stoats and cats have probably played some part. Stoats certainly prey on nesting yellowheads and the early disappearance of yellowheads from Stewart Island and central Westland podocarp-hardwood forests parallels the spread of these predators. However, yellowheads persist in relatively high numbers in Fiordland, where stoats and rats are present and apparently reasonably common. Forest clearance has also played some part in their decline. Their disappearance from much of the eastern South Island can be explained by forest clearance alone, but their disappearance from the large relatively intact forests of north Westland and north-west Nelson would suggest it is not so simple.

No obvious explanation

There is no obvious single explanation for the decline of the species.

Forest clearance is still one of the greatest threats to the continued survival of the yellowhead and proposals to log large areas of beech forest for chips and pulp and paper production do nothing to reduce this threat.

In Dean, Rowallan and Longwood State Forests in western Southland, yellowhead habitat continues to be logged for beech timber, as do forests in north Westland which are likely to contain remnants of the region's once large yellowhead population.

Yellowheads are particularly vulnerable to forest logging. Their nests are usually built in holes in large beech trees and they spend much of their time feeding amongst the epiphytic mosses, ferns and lichens which only grow on older trees. Logging that removes all the larger trees make the forests unsuitable for yellowheads and young regenerating stands of beech, such as those in forests managed for sustained yield, are also unsuitable.

Beech forest birds

Today yellowheads are characteristically found in beech forests. They occur in highest numbers in tall, red beech-dominated



Chipmilling operations such as this in the Rowallan Forests do nothing for the survival of yellowheads. A stop to logging and research programme into their needs is vital.

forests on fertile valley floors, in rain-shadow areas. During the winter in some parts of the South Island one can still see noisy mobile flocks of up to 30 yellowheads in company with yellow-crowned parakeets. They move through the forest, feeding mainly in the canopy and on trunks and branches, but occasionally descending to the lower understorey and even to the ground. These flocks are rather fluid in their composition, with yellowhead family groups constantly leaving and re-joining.

In the spring these flocks break up as the yellowhead pairs establish territories and begin breeding. Eggs are laid from October to January, with peaks of egg laying in early November and at New Year. In the best habitats yellowheads lay two to four eggs in cup nests they construct in holes in trees. Most use knot holes in large live beech trees, but some use holes in decaying timber. Most nests are high off the ground; the highest nest recorded so far was 30 m off the ground.

Yellowheads form tightly knit family groups. Pairs stay together for many years and chicks are fed for up to nine months after they fledge. Excess adults and non-breeding juveniles often help feed the chicks of breeding adults.

Insect eaters

Yellowheads are largely insectivorous. Unlike many of New Zealand's small insectivorous birds they take all their food while perched and none on the wing. Their most conspicuous feeding technique involves perching on a vertical trunk or branch, using the tail as an extra prop, and scratching vigorously at the bark and epiphytic growths, often sending showers of debris onto unwary birdwatchers. This feeding method results in the yellowheads characteristically abraded tail. Another energetic technique involves hanging upside down

on the end of a small dead twig and probing into the broken end in search of beetle larvae.

The noisy and often messy feeding behaviour of groups of yellowheads frequently attracts camp followers. Fantails often follow yellowheads to take insects they disturb and yellow-crowned parakeets hang around apparently just for the company.

Unwitting host

Yellowheads play host, albeit unwittingly, to long-tailed cuckoo eggs and chicks. The long-tailed cuckoo replaces a yellowhead egg with one of its own, then leaves the yellowheads to incubate the mixed clutch. Soon after hatching, the young cuckoo pushes the yellowhead eggs or chicks out of the nest so that it alone benefits from the yellowheads' parental care. The cuckoo leaves the nest after about 30 days (which is 8 — 10 days longer than yellowhead chicks). The adult yellowheads continue to feed the cuckoo for at least two weeks. Cuckoos have a significant effect on yellowhead breeding success. In the Eglinton Valley in Fiordland in 1984–85 they caused an estimated 7.5% drop in yellowhead breeding success.

The yellowhead is closely related to the whitehead of the North Island, but the latter is faring much better. Soon after European colonisation of New Zealand, the whitehead suffered a dramatic decline which prompted Buller to prophesy its extinction.³ Happily the whitehead recovered and is now common in native forest, scrub and some exotic forests south of Auckland. It has so far failed to recolonise north of Auckland.

The brown creeper, another close relative of the yellowhead, has also survived relatively well and is still common in native forest and scrub throughout the South Island. It too has invaded some exotic forests.

Perhaps the key to the yellowhead's failure to thrive lies in its relatively narrow habitat requirements. Yellowheads are today primarily birds of tall beech forests and they have been unable to colonise exotic forests or survive in regenerating forest and scrub. The least we can do to ensure their survival is to stop logging their forest homes and commence a major research programme to protect the bird. 🦜

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Employed by Wildlife Service and Lands and Survey, Graeme Elliott worked on yellowheads for two years. Now he is a student at Victoria University working towards a PhD on yellowheads, and partly supported by a RF and BPS 1986 QE II Scholarship.

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Silencing the Stihls in the Ahaura

By Gerard Hutching

FOR SALE

12,000 cubic metres of virgin rimu forest, growing on top terrace of an outstanding sequence of podocarp-beech forest river terraces, unrivalled in the region. Site adjacent to the Ahaura River gorge, inland from Greymouth. River is ranked as one of the five exceptional South Island rivers on scenic and recreational grounds. Forest is home to large populations of kaka and parakeet (birds increasingly rare elsewhere.)

Though the letter that the Forest Service sent to the Kopara Sawmilling Co in December last year in which it offered the above Sale Area 628 for sale was couched in more prosaic terms, conservationists knew what effect logging would have on these magnificent forests. Trees more than 500 years old and more than 30 metres high, part of a vital wildlife corridor allowing birds to migrate from the Southern Alps to lowland forests, would be destroyed in minutes, undoing the work of centuries.

Further north at Giles Creek and Slab Hut Creek, a separate beech woodchipping sale would endanger the wildlife corridor linking the Paparoa range and the Southern Alps at two key points. This galvanised the conservation movement into action in a desperate attempt to salvage the fragile corridor.

The Ahaura Gorge forests had been earmarked for reserve by the Wildlife Service in 1976 and 1977, and supported by the DSIR in 1981. It was part of a reserve package that conservationists had been pressing for — others include Mt Harata, Tawhai, Doctors Hill, Oparara, Ngakawau, Atbara-Nile and the Paparoa National Park. In addition, some of these reserves are also referred to as "wildlife corridors", allowing birds to travel from one forest to another.

The following account is by no means exhaustive, but highlights the key moves taken by conservationists to rescue these magnificent forests.

August 26 and October 10, 1985 — Letters sent to the Forest Service sought an assurance that there would be no "pre-emptive" strike against the recommended — Ahaura Gorge reserve. No assurance

The Ahaura River has carved a deep gorge through a sequence of six forested terraces. Logging has here cleared the forest right to the top terrace edge. Photo: Kevin Smith.

Kevin Smith.

was forthcoming however.

November 1 1985 — Reserve proposal sent to Forests Under-secretary David Butcher. Later Butcher is to say that he was unaware of the corridor's existence until it was too late.

December 13, 1985 — The Forest Service writes to the Kopara Sawmilling Co, advising it would sell them 12,000 m³ out of the proposed Ahaura Reserve alongside the Ahaura River. By April, Butcher makes the astounding admission that this offer was "the prize cock-up of the lot."

December 18, 1985 — The Government announces that an estimated 30,000 beech trees from North Westland-Buller will be sold for woodchipping in the first year. The upshot, says Guy Salmon, is that forests will be devastated, wildlife killed and most of the jobs created will be in Japan. This separate sale will later involve conservationists in rescue attempts on two wildlife corridors just north of the Ahaura Gorge — Giles Creek and Slab Hut Creek. Figures released later by the Forest Service point to the economic futility of beech woodchipping. It expects to lose \$43,000 in its one year operation, but NFAC show even this figure is unrealistic, and that the real loss might amount to \$1.7 million.

December 20, 1985 — Then-Society President Dr Alan Edmonds sends a strongly worded telegram to the Government, protesting at the woodchip sale and the Ahaura Gorge (Sale Area 628) sale. "Conservation and recreation groups appalled by this shattering of mutual trust. Request immediate announcement of compensatory reserves or review of decision." Fortunately for the Government the Christ-



Inset: Logging started last February in Sale Area 628, the highest of the six Ahaura Gorge terraces, and involved clearfelling of all merchantable trees — mainly rimu, the olive green tree in this aerial photo. Photo: Kevin Smith.

Kevin Smith.

mas break intervenes, and no action is taken.

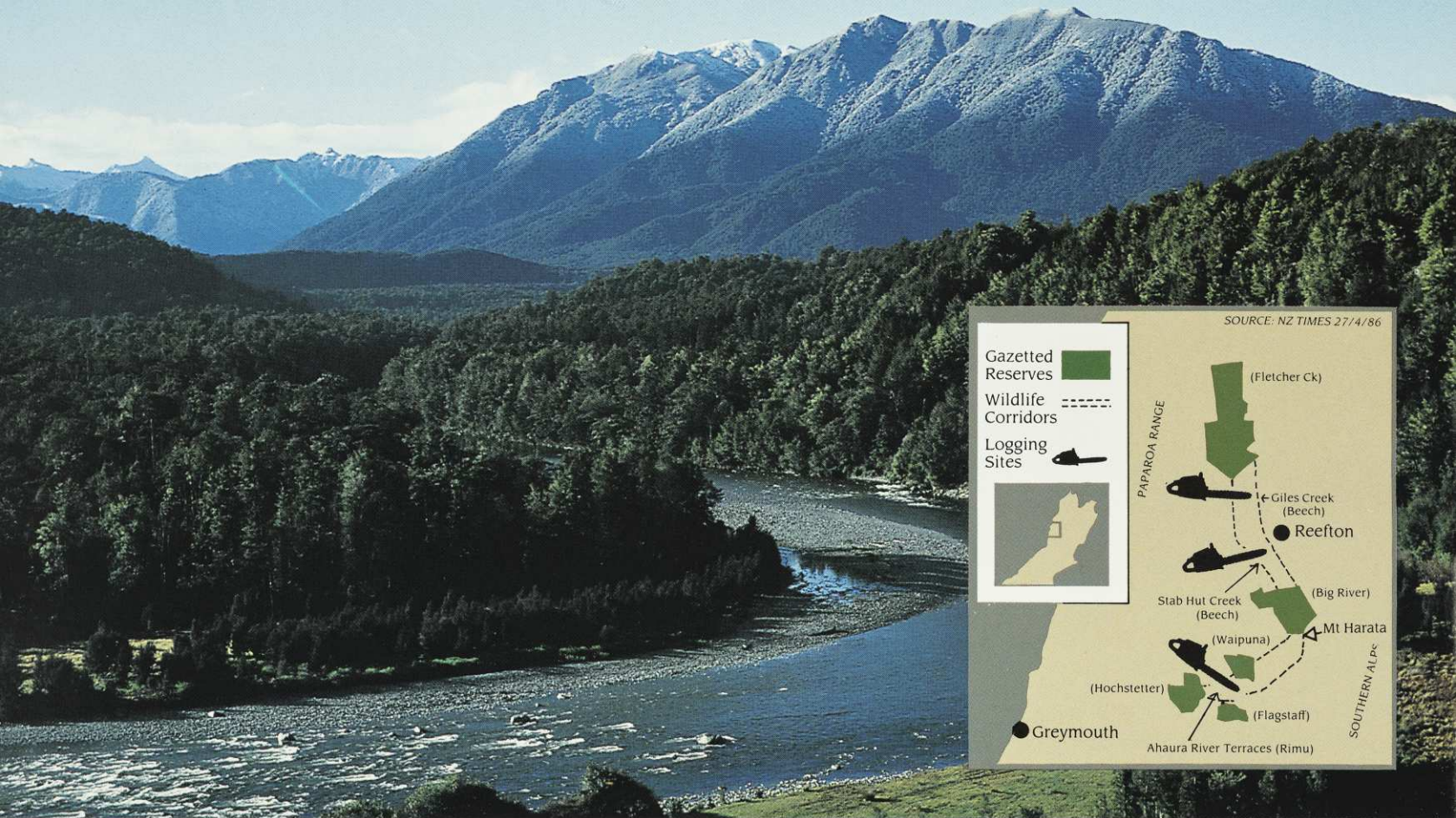
February 3, 1986 — Forest and Bird gears up for a major public battle to pull the logging gangs out of the wildlife corridors/ proposed reserves. West Coast Forest and Bird branch releases a statement charging the Forest Service with being "needlessly provocative" in allowing the Ahaura Gorge and Doctors Hill (near Hokitika) logging. The Forest Service says it is simply following plans approved by the Government.

March — Attention focuses on the upcoming JFC Easter gathering, this time held in Murchison. Conservation Under-secretary Philip Woollaston, who is to play a pivotal role in the drama, is invited to the gathering. On a tour with a busload of conservationists, Woollaston helps push a huge log aside blocking access to view woodchipping in the wildlife corridor.

April 10 — Conservation Director Gerry McSweeney sets out a detailed proposal to Woollaston with alternative logging sites for the three key remaining controversial sites — Giles Creek, Slab Hut Creek and the Ahaura Gorge. This was the first of a number of letters sent to the Government over the following six weeks.

April 23 — The Government announces a halt to logging at the Giles Creek and Slab Hut Creek wildlife corridors. No job losses will occur as the beech logs will now be obtained from "environmentally less sensitive areas." The Ahaura Gorge is the remaining immediate large problem.

April 24 — An 800-strong meeting in Christchurch calls on the government to halt the Ahaura logging. Speaking at the meeting, David Butcher says the Forest and



Mt Harata rises 1374m above the Grey River Valley, and forms part of the forested wildlife corridor linking the Southern Alps with the Paparoa Range. Forests on its slopes are zoned for logging but are now proposed as an ecological reserve. This would protect the most extensive area of red beech forest on outwash gravels in North Westland, which is home to a huge range of native birds including the rare yellowhead. Photo: Kevin Smith.

Wildlife Services are working together to ensure that logging techniques are not inconsistent with a viable wildlife corridor but on questioning admits that the gorge forest is being clearfelled.

April 27 — Butcher makes the celebrated "prize cock-up" admission in the *New Zealand Times*, and describes the logging at three points of the wildlife corridor as an "unfortunate accident." He believes the Forest Service does a good job "by and large," and that the best he can hope for regarding millers and environmentalists is that both will be "moderately unhappy."

May 3-4 — During a visit to the Ahaura Gorge, Gerry McSweeney, Kevin Smith and

conservationists from Westport, Greymouth and Christchurch find a large forest gecko lying on top of a huge felled rimu. The gecko normally lives in the high tops of the rimu. Parakeet and kaka are abundant in virgin forest around the logging site.

May 17 — Minister of Forests Koro Wetere is told that, although the blame for the Ahaura Gorge logging lies with the Forest Service and the Government, Forest and Bird is prepared to make a contribution of \$5000 to assist with re-location costs. The offer is conditional upon the gang being removed completely from Sale Area 628.

May 21 — The *Dominion* informs the pub-

lic about the Society's \$5000 offer as the lobbying intensifies.

May 22 — Gerry McSweeney appears on Radio New Zealand's *Tonight Show* and in a 10-minute interview with host Paddy O'Donnell tells a wide audience why the Society is prepared to pay \$5000 for the forest.

May 23 — The media pressure continues with a *Morning Report* item on the subject. Meanwhile, a rimu is still being cut down every few minutes. The Forest Service argues that there is not enough timber outside Sale Area 628 to meet the mill's legal requirements.

Recently the new Director-General of Conservation said that he wished to avoid "grumbling greenies" fighting past battles. Unfortunately for Mr Piddington the battles are not over; fine environment like the Ahaura Gorge forests is still being senselessly destroyed. In Christchurch and on the West Coast there is currently a huge glut of building grade rimu selling cheaper than fast-growing radiata pine. The Coast mills are creaming off their rimu cut for high quality decorative grades and sawmill burners are flat out burning the waste.

This crisis will continue until 1990 when long-term legal commitments end to mills whose present cut is far above the sustainable production of native and exotic forests. The options are unpalatable and compromise inevitable. If the sawmill contracts were broken, astronomical compensation would have to be paid — clearly impossible for a Government already beleaguered by its deficit.

The timber must therefore be found, but only from logging damaged or lower valued forests, thus avoiding proposed re-

serves and their linking corridors. The reserves and corridors need full legal protection now, not in 1990. Unfortunately, the operative management plan for North Westland fails to protect many of these key areas repeatedly identified for protection by the Wildlife Service and the DSIR. It ignored the vast majority of public submissions which supported their protection; last minute rescue bids like Ahaura are the consequence. Even now the Ahaura forests have no legal protection. They are only temporarily safe and could again be sought for logging.

However, every crisis provides positive lessons. The Ahaura Gorge experience shows that one can save a valuable area and safeguard sawmill jobs. Timber supply and demand information now gathered by the Joint Campaign on Native Forests shows that all the proposed reserves and wildlife corridors in the North Westland can be protected yet jobs retained until exotic supply replaces natives from 1990 onwards. This information has now been shared with the West Coast United Council

who have begun meetings with conservation groups to explore common ground.

For too long both the United Council and the Government have been captive to official claims that timber supplies were inadequate to allow creation of reserves as well as meet mill commitments. Like Sir Humphrey on *Yes Minister*, such officials can always find insurmountable problems with others' ideas. Until an independent analysis is made of such claims they remain unchallenged. Fortunately, an outside analysis was made in the case of the Ahaura.

Today the deep waters of the Ahaura wind seaward, cutting their scroll shape down the 10,000-year-old glacial terrace sequence of the gorge — without the accompaniment of the Stihl chainsaws and the crash of forest giants. Instead, rafting, canoe and jet boat tours of the gorge herald a new era; the Coast's booming tourist industry, with a turnover of \$100 million a year, is poised to take over as the region's biggest revenue earner. 🐾

Gerry McSweeney, Conservation Director

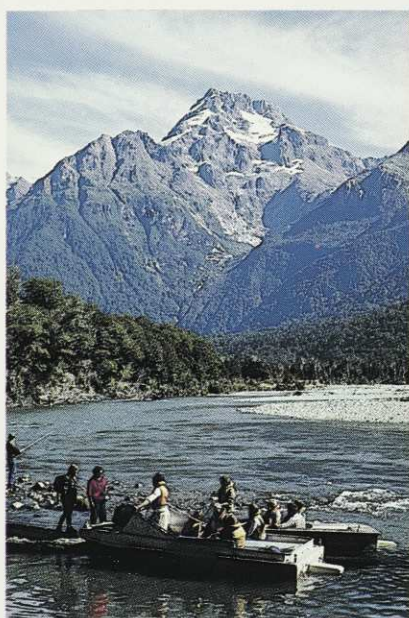


Protests against the logging included this vigil by West Coast and Canterbury conservationists, and finally met success with the May 27 Government decision to halt the logging. Sadly, in the last weeks prior to that decision, there was an orgy of tree felling in the proposed reserve. About 300 rimu — enough to supply the mill for more than two months — were frantically felled before the Government called a halt. Photo: Simon Hepplethwaite.

May 26 — The Joint Forestry Campaign furnishes Philip Woollaston with the information which shows that there is more than enough timber outside the Ahaura. Using the Forest Service's own figures, it identifies 62,500 m³ of podocarp timber outside the proposed reserve in Hochstetter forest in largely cutover areas which could be used. During the beginning of this week, the Forest Service, Wildlife Service and Woollaston meet several times with the Society.

May 27 — The Forest Service agrees to move the gang out of Sale Area 628 to the area suggested by conservationists at a cost they estimate of \$40,000. Philip Woollaston says he knows of no other log sale proposals from planned reserves or wildlife corridors. The Government asks the Forest Service to bring millers, environmentalists and officials together to identify where timber can be obtained with least conflict to meet legal commitments to sawmills until 1990.

Several weeks later Woollaston announces no compensation is payable to the company as earlier asserted because costs were recovered from within the Forest Service. 🐦



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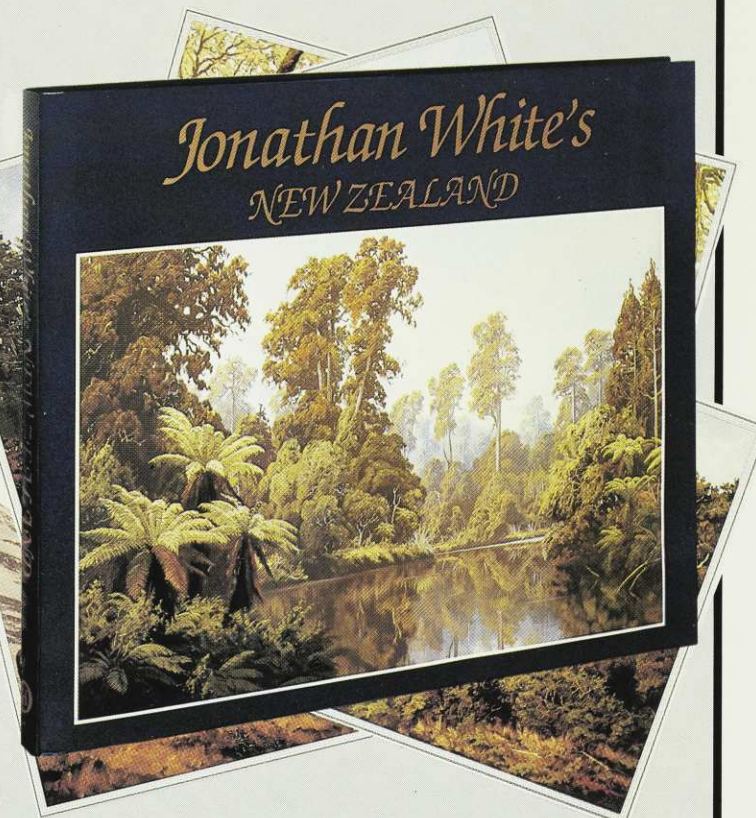
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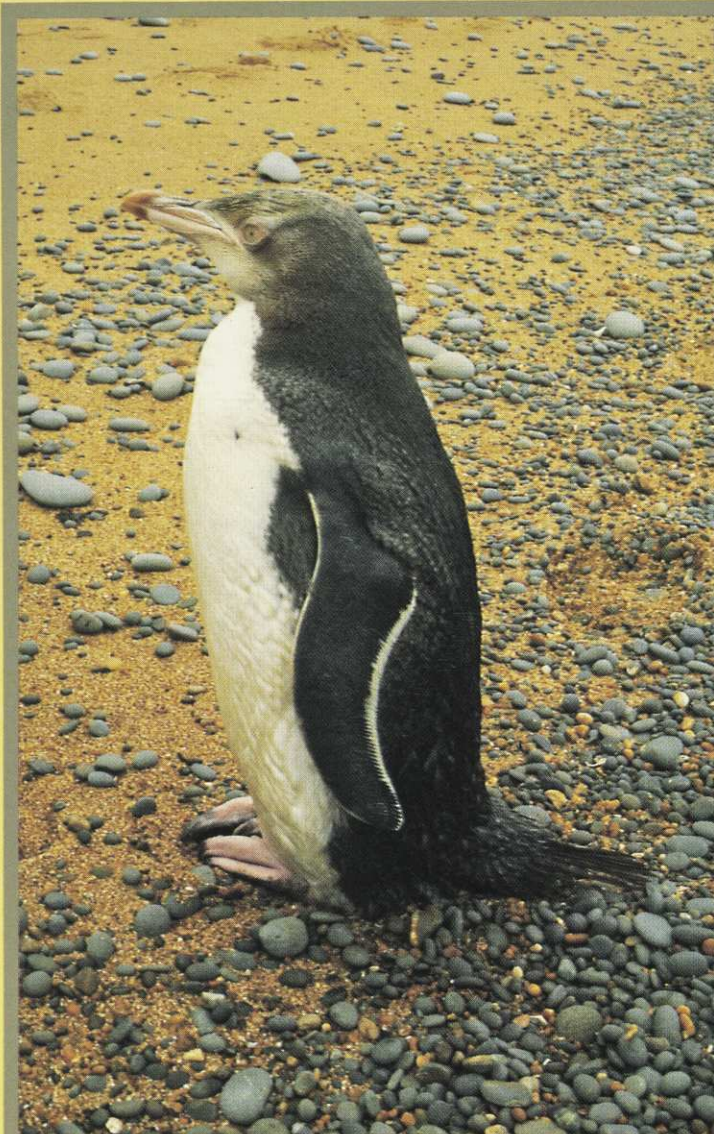
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Branching out in WAITAKI

by Earle Norris, Chairman, Waitaki Branch, Royal Forest
& Bird Protection Society



Top: The yellow-eyed penguin — hoiho — is not only running out of room to live, but also food. However the fledgling Waitaki branch has adopted a practical approach to the problem. Using \$300 from our penguin fund, the branch has brought a Para swimming pool where the starved birds are nursed back to health. This yellow-eyed was photographed on Bushey Beach. *Photo: Earle Norris*

Bottom: The large Otago skink is currently found only from Middlemarch to the Lindis Pass, and much work is being done by Wildlife Service on its habitat requirements. *Photo: Graeme Loh*

Top: Waitaki branch members tramping up Upper Canyon Creek, investigating some of the retired land from the Canyon Creek gorge.

Photo: Earle Norris

Bottom: A short tussock grassland area in the Upper Waitaki, near Otematata — the sort of area that is being considered for reservation.

Photo: Gerry McSweeney

During Conservation week, 1984, a small group of 20 members and other interested people met in the Oamaru Intermediate School with Dr Gerry McSweeney to discuss the formation of the Waitaki Section. At that time Oamaru was the largest remaining centre of population in New Zealand without a branch or section. It was fortunate that two people — Ross Babington and Annette Officer — were willing to take the key positions of Chairperson and Secretary, and so the Waitaki section was born. An active committee gathered around these people and soon programmes involving walks and talks were being organised.

Why had North Otago been without a branch for so long?

Perhaps it was because the nearest extensive indigenous forest was at Ohau, 150 km away, and the area was seen as dry, developed and uninteresting. Closer to Oamaru there are smaller remnant forests such as the Wainakarua Bush to the south and Kelceys Bush to the north. However, the committee soon discovered that the lack of forests was made up in other ways.

South from Oamaru Harbour, headlands and bays interrupt the continuous shingle beach lying to the north. This coastline is rich in bird life, and only three kilometres from the Chief Post Office is Bushey Beach, the habitat of a colony of 10 to 12 yellow-eyed penguins. One of the section's early well-attended field trips was to Bushey Beach with Dr Chris Lalas, a scientist with special interest in these birds. Several were seen on that occasion, the birds having just completed their moult. Here the yellow-eyed penguin breeding habitat is under ngaio, flax and boxthorn scrub. It is remarkable that they survive there, considering the accessibility to people, dogs and feral cats. Since that visit, members have taken an active interest in the birds living there and in December 1985 a "Friends of Bushey Beach" scheme was launched in conjunction with Jim Caldwell, a branch member, and Mr G. Hall, superintendent of Parks and Reserves, Oamaru.

Penguin patrol

The scheme involves members and interested people being involved in an honorary capacity, patrolling and supervising the area, and generally keeping an eye on the welfare of the penguins.

One of the critical times is the "moult period" in late summer and early autumn when the birds come ashore for about six weeks. They do not feed during this period, and are susceptible to stress if frightened or disturbed. Often they will stand on the beach and allow a close approach, which makes them particularly vulnerable.

The interest taken by members and Borough Council staff appears to be having some results. This year, for the first time, the small colony produced five chicks, three of which survived to adulthood.

Just recently, however, a new problem has arisen — starving penguins. There are several theories as to the cause. These are: depletion of available feed because of intense squid boat fishing off the coast; a change in fish migration because of an un-

usually warm season and thus warmer waters; successive severe easterly storms which have stirred up fish feeding and breeding grounds off the coast. Perhaps all contribute to this problem which has not previously been observed. It appears that the rarest penguin in the world may have to contend with more than dwindling coastal forests. Fortunately Bushey Beach is now in the process of being made into a scenic reserve; the area has been fenced and regular trapping is taking place. All going well, the feeding problem should be temporary and improved habitat will see an increased yellow-eyed penguin colony at Bushey Beach.

(A recent letter from Annette Officer describes how the starving penguins are faring: "Most of the sick and injured birds are taken down to Janice and Bob Jones at Moeraki. The Jones are doing a marvellous job, feeding the penguins twice daily — it is amazing to see their fast recovery, and back to sea they go." — Ed.)

Boatman's harbour blue penguins

Just around the corner at Boatman's Harbour, and in the disused Council quarry, is a large colony of little blue penguins. Their survival was placed at risk when some birds were accidentally destroyed by a fire lit by workmen employed by the Borough Council as a cleaning-up operation in the quarry. The Council claimed the quarry was to be re-opened to repair breaches in the breakwater; therefore they decided to fence off the quarry where about 40 little blue penguins have nested for a number of years.

The sight of 40 or 50 little blue penguins paddling up and down outside the fence in the evenings caused widespread concern among members and the general public. Following an approach by Mr Hall, the branch applied for a grant of \$2500 from the Minister for the Environment's Environment Council Grant Scheme to improve habitat, create trial nesting boxes, and fence to protect an area of Boatman's Harbour, immediately adjacent to the quarry. In the meantime, Councillor Helen Stead, who was sympathetic to concern about the fate of the penguins, arranged TV coverage.

Representatives of the branch met the mayor and some councillors. We agreed to alter the fence at the south-east end of the quarry, so some nesting habitat could be made available to the birds again, provided our branch met the cost. We were fortunate that the Salvation Army Works Skills Trust were able to provide people to help erect the fence.

The branch also obtained a grant of \$300 from the Colin Jones Trust and with \$100 from its own funds employed Robin Johnstone, a zoology graduate from Otago University, to research the feasibility of moving the penguins from the quarry to Boatman's Harbour. The results suggest this would be a very difficult, labour intensive operation. The best plan seems to be to provide good habitat at Boatman's Harbour. At present this site is being developed under the supervision of committee member Harold Coker and the fence

has just been completed using our Environmental Grant.

High country giant lizards

Early this year a field trip to Macrae's Flat was led by Graeme Loh, a wildlife officer and executive councillor from Dunedin. This area is significant because both the grand skink (*Leiolopisma grande*) and the Otago skink (*Leiolopisma otagenense*) are found here. These very large lizards are restricted to Otago. Although deteriorating weather made photography and observation difficult, the sun did shine for about half an hour — enough to bring out a 200 mm grand skink and a 300 mm (about maximum size) Otago skink. These skinks, although fully protected species, are mainly restricted in the area from Middlesmarch to Lindis Pass. Research into these lizards' habitat requirements is urgently needed to find out how much unmodified tussockland they need to survive.

Shortly after this visit the branch held a camp at Omarama in the Mackenzie basin and explored the Ahuriri Valley. Lex Perriam, Senior Ranger for the Forest Service, was the guide, and members had a useful discussion with Ron Williamson, runholder of Birchwood Station, concerning problems of access, retirement of eroded Class 7 and 8 land and wetland protection. The Ahuriri is a unique area; above the Birchwood Homestead it is outstanding. Six hundred hectares of the upper valley floor is Unoccupied Crown Land which is likely to be added to the Birchwood Station pastoral lease despite opposition from conservation and recreation groups, including our Society.

It is possible to travel by vehicle to near Canyon Creek on the forestry road when conditions are good. Members had lunch at the top of the canyon and from there had a superb view into Upper Canyon Creek — Mt Barth area, which is part of the 5000 ha retired from Birchwood Station. All were convinced of the need to preserve the upper valley in full public control.

On the Sunday the group paid a visit to the Tara Hills Research Station near Omarama and had a useful discussion on high country issues with the officer-in-charge, Malcolm Douglas, and Lands and Survey Ranger, Fred David.

Future conservation and education

The branch has a link with the Oamaru Intermediate School Environmental Group. The children there are at present propagating in their shadehouse ngaio and coastal *Hebe elliptica* cuttings for planting out at Boatman's Harbour, as part of the penguin recovery project.

The branch has also given strong support to national conservation issues such as stopping woodchipping and protecting nature in the high country. We have contacted our local MP, Jim Sutton, frequently on these issues.

There seems little doubt that the field trips, talks and issues in the North Otago region, some of which have been described above, have contributed to the rapid development of the Waitaki Branch.



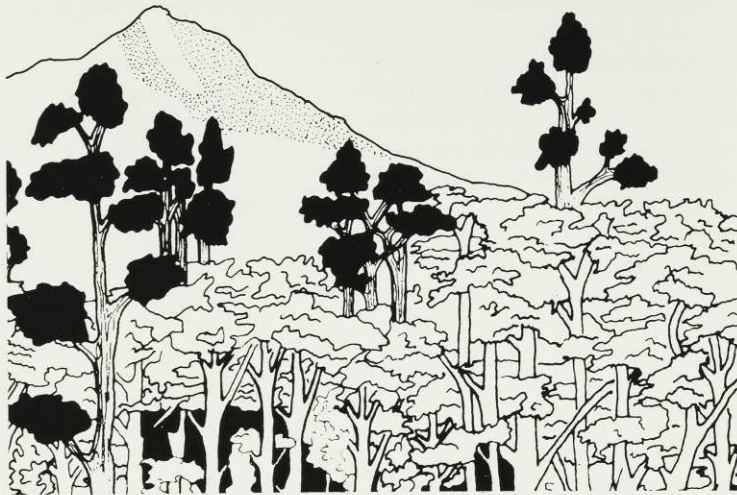
The Waitaki branch's involvement with conservation issues runs from the sea to the mountains. In the high country members confront such problems as this: insensitive track making at 1524 m on Longslip Station in the Upper Waitaki Basin.

Photo: Allan Evans

Branch status was achieved in one year, and since then there has been a further 46 percent increase in membership, bringing the total to 203. There is still a lot to do. For example, a possible future project may be the planting of mountain beech trees around the shores of Lake Ohau, following a successful pilot scheme carried out by Lands and Survey. The penguins will need attention for a long time yet and we're only just starting to discover the wonders of the tussocklands and forest remnants of inland North Otago, and . . . and . . .

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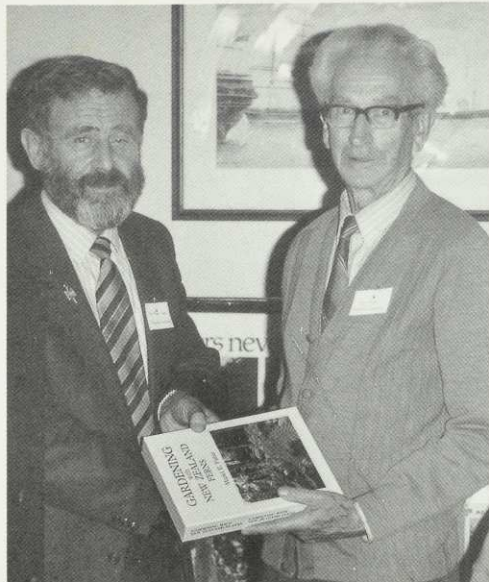
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Left: Life member Audrey Eagle with the prestigious Loder Cup, presented to her at the Walter Scott Reserve at Pirongia. The cup was awarded for her work on New Zealand plants, culminating in the publication of the two authoritative volumes *Eagle's Trees and Shrubs of New Zealand*. Photo: George Dawick.

Right: New President Dr Alan Mark presents retiring executive councillor Reg Janes (Tauranga) with a small token of appreciation for his long service to the Society.

New Forest and Bird President

The new President of the Royal Forest and Bird Protection Society is Dr Alan Mark of Dunedin. Dr Mark was elected unopposed to the position at the Society's Council meeting in Wellington, replacing Dr Alan Edmonds who has been President for the last two years. Dr Mark is the 11th President since the Society was formed in 1923.

Dr Mark has been on the Society's executive for eight years. He is professor of Botany at the University of Otago, a member of the National Parks and Reserves Authority, chairman of the Guardians of Lakes Manapouri and Te Anau and is on the Land Settlement Board. In 1975 he was awarded the Loder Cup for work in conservation and is author of the book *New Zealand Alpine Plants*.

J.S. Watson Conservation Trust Grant (1987)

The Society, as trustees for the J.S. Watson Conservation Trust, invites applications from individuals or groups for financial assistance for conservation projects starting or current during the year ending 31 May 1988. The trust was established to support "the conservation of the flora and fauna and natural features of New Zealand, the advancement of knowledge in these matters by way of research, literary contribution, essay, articles or other effort and generally the education of the public to give them an understanding and a love of the earth on which they live." A total of \$5000 is available for 1987, and at the sole discretion of the Trustee, this may be awarded in whole or in part to one or more applicants, or held over for a subsequent year. Further details and application forms may be obtained from the Secretary, RF & BPS, PO Box 631, Wellington. Applications close 30 November, 1986.

Subscription & G.S.T.

The subscription year for 'Forest & Bird' now runs from 1st January to 31st December. Renewal notices will be sent out in September 1986 for the calendar year 1987. These subscriptions will be subject to 10% Goods & Services Tax.

All people joining or renewing membership between now and 1st January will receive free membership until then.

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Lenz Reserve Management Plan

The Otago Branch, in co-operation with the Southland and Otago branches is preparing a management plan for the Society's Lenz Reserve in the Catlins. It will describe and make policies for: flora, fauna, wild animals, logging history, accommodation, recreation etc.

You are invited to forward your comments for consideration in the preparation of the draft. A draft plan should be released next year for a further round of comments. Address your submission to: The Secretary, RF & BPS, Otago branch, 362 Moray Place, Dunedin.

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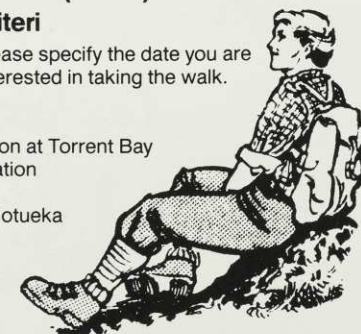
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Council meeting urges forest and high country protection.

The Society's 63rd Annual General Meeting and Council Meeting were held at the Shaw Saville Lodge in Wellington on the 21 June. Councillors passed resolutions on three key conservation issues on which Government is poised to make decisions.

The Society's Council made a last minute plea to secure reserves in Buller, and to have the Department of Conservation manage high country public lands. It also unanimously re-affirmed its opposition to the Department of Conservation having any responsibility for native timber logging.

The 100-strong Council represents 48,000 members from 50 branches and sections throughout the country.

New Society President Dr Alan Mark urged the Government to keep its election promises on the Buller region.

"They must give legal protection to the natural treasures which have been proposed for reserves such as the Oparara, Ngakawau, Atbara-Nile and the long-promised National Park at Punakaiki.

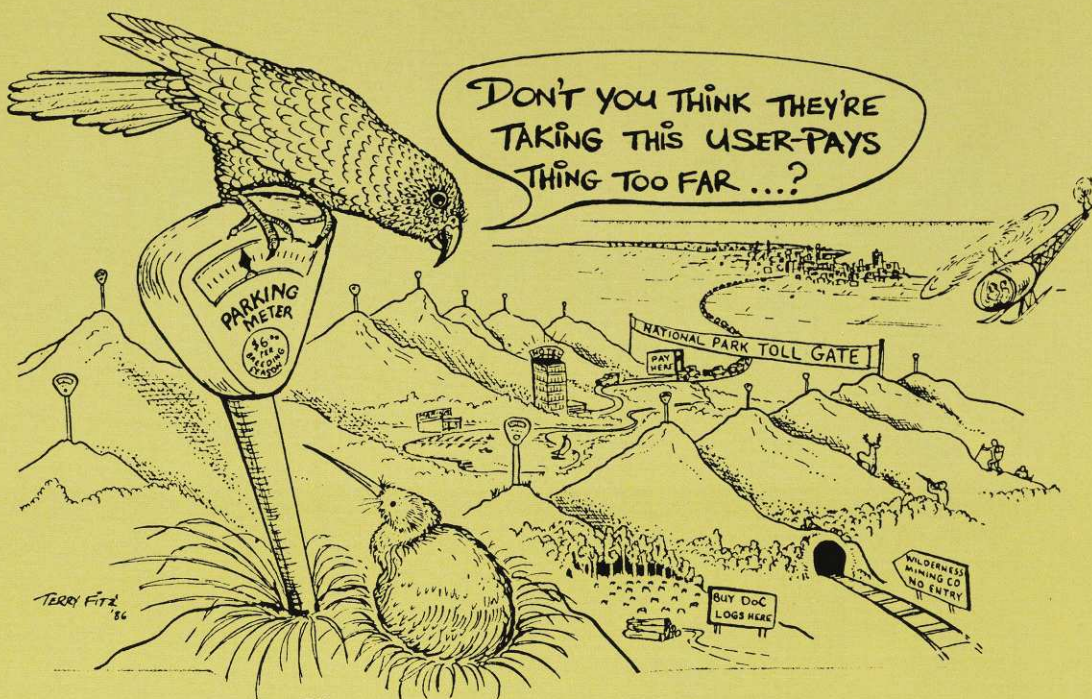
"Sawmilling in the region must be reduced to the level of unsubsidised yield and jobs be safeguarded by encouraging alternatives such as tourism, especially by providing tracks and a visitor centre at Karamaea," Dr Mark said.

The Council unanimously supported efforts to protect nature on the publicly-owned high country pastoral lease lands which make up 2.7 million hectares, or 10 percent of New Zealand's land area.

"It's absurd to give the responsibility for these extremely important lands to an independent and commercially-minded Land Development and Management Corporation (LDMC). Such a move would be an economic and environmental disaster. The LDMC is seeking a \$6 million subsidy to take over pastoral lease management. They are also talking about major rental increases, sale of land for tourist ventures and pushing for maximum pastoral production — inevitably at the expense of natural values.



Outgoing Society President Dr Alan Edmonds (left) and Conservation Under-secretary Philip Woollaston share an amusing moment before Mr Woollaston gets down to the serious business of his speech to the Council meeting.



"Many high country farmers share our concerns and certainly the Minister of Conservation, Russell Marshall, believes the high country lands should be placed in the stewardship division of the Department of Conservation.

"However, an earlier Cabinet suggestion was the lands would go the Land Development and Management Corporation. Since then officials have shown such a move could be unworkable. Cabinet must now review its earlier suggestion," Dr Mark said.

Referring to its third resolution, Dr Mark said councillors feared the Department of Conservation (DOC) would become a "resurrected" Forest Service if it were involved in native timber production. There was a long discussion on this subject by Councillors who also heard the Sanderson Memorial address by Conservation Under-secretary Philip Woollaston which touched on possible advantages of DOC having native logging responsibilities. However our councillors were united against such a move. The problems that would be created included a loss of accountability and political control, a confused aim for the new department and a loss of transparency — the very things that restructuring sought to avoid. It would also inevitably lead to conflict between the conservation movement and the department conservationists had championed for so long.

"Any responsibility for logging is incompatible with DOC's role. Those few small areas zoned for sustained yield management have been identified and largely agreed on between foresters and the conservation movement. They should be allotted to the Forestry Corporation with appropriate conditions on the title to prevent over cutting and other environmentally unacceptable activity," Dr Mark said.

User pays — or loser pays?

Treasury have set very strict controls on any future spending on Parks and Reserves. We understand funding is likely to be maintained at the present, woefully inadequate level. But by 1990 Treasury expects Parks and Reserves (and in fact all of DOC) to recover 20% of their gross expenditure from fees, concessions etc.

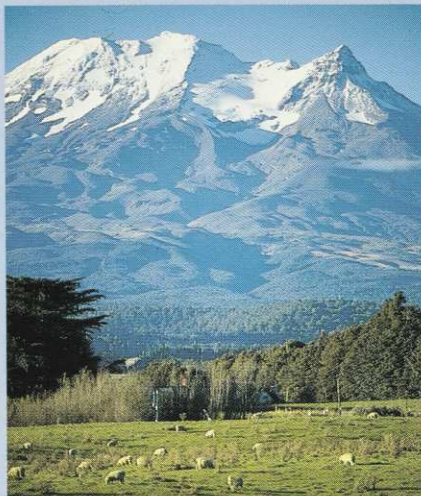
Certain principles should guide us on this issue:

- Nature conservation will never be totally self-funding. Heritage protection has a range of benefits — many for future generations which can never be economically costed and charged.
- Indirectly nature conservation is already contributing enormously to the national economy with clean water, recreational and spiritual opportunities and as the basis of our \$1.2 billion tourist industry.
- Free public access to Parks and Reserves is every New Zealander's birthright. Services may be chargeable — huts, nature walks etc, although there should not be double charging of taxpayers. Revenue sharing of the government's GST earnings from overseas tourists (perhaps \$120 million annually) is one funding mechanism for visitor facilities in Parks.

It seems inevitable that there must soon be a showdown with Treasury over the funding of the new Conservation Department — particularly if vital programmes like the Protected Natural Area scheme, coastal zone conservation and private native forest protection are to get off the ground. WE WELCOME YOUR COMMENTS ON THIS IMPORTANT FUNDING ISSUE.

Gerry McSweeney, Conservation Director

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Venturetreks

Kotuku

by BRIAN MOORE

The magnificent elegance of the White Heron in flight, faithfully captured by leading New Zealand artist Brian Moore.

LIMITED EDITION

There are approximately 150 true white heron or Kotuku in New Zealand, which for the most part of the year can be found from North Cape to Bluff. Once a year however, they return to their nesting colony at Okarito, near Franz Josef.

It was with special permission that the artist went on location to the sanctuary at Okarito where he was able to obtain the photos required for a study of the bird in flight.

Drawn entirely in minute dots (a technique known as pointillism) and using a .18mm nib, this fine pen and ink study is the result of 500 hours work. Completing the composition are the kahikatea, native pines which grow particularly tall and lush in this protected area.

The fifth in a series of studies of New Zealand wildlife by Brian Moore, this latest drawing has been reproduced as an edition of only 500 prints. Each print, which is individually numbered and signed by the artist, is of the highest quality and an exact duplicate of the original drawing.



Actual size: Framed (as illustrated) — 815mm x 680mm; Unframed — 750mm 610mm.

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Encl \$ (Rural deliveries for framed prints, please give street name and location, not R.D. no.) Please allow 3 weeks delivery.

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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 15 in six bedrooms, single and double beds, electric blankets, heater and vanity units. Sleeps 24 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.

Bookings 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: Bill Minehan, Private Bag, Hokitika, Ph 734 Whataroa.

Patoka Lodge, Hawke's Bay

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

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

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

For rates send a stamped addressed envelope to the Booking Officer, June Norther, 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 and Christmas and Easter holidays \$10.00 per night. Summer Season 1 November to 31 May) Adults \$8.00 per night Children \$4.00 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.

land. Eight minutes' walk from the Piha store, with right-of-way access to the surfbeach 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 send an addressed envelope to the Booking Officer, Mrs R. Foley, 23 Stoddard Street, Mt Roskill, Auckland. Telephone Auckland 696-769 (evenings).

Books Received

A Park for all seasons: The Story of Abel Tasman National Park

by Andy Dennis; From Mountains to Sea: The Story of Westland National Park, by Craig Potton

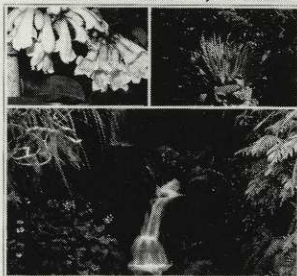
(Department of Lands and Survey and Cobb/Horwood Publications, \$14.95). These 160-page booklets join a growing number of high quality Park handbooks, telling fascinating stories in a lively writing style offset by sometimes brilliant colour photography. The Abel Tasman book reminds us of the value of setting aside scenically spectacular but damaged areas; 44 years after its establishment native trees have now well overtopped the gorse. Westland National Park is enriched by the additions of the lowland forests and coastal areas of South Okarito and South Waikukupa, areas fought for by conservationists in the 1970s and finally given protection in 1982. Few places on earth remain such as Westland where a wilderness runs from the mountains to the sea and it is justly celebrated in this handbook. Both books inspire the reader to get out and explore National Parks.

Early New Zealand Botanical Art, by Bruce Sampson

(Reed Methuen, \$39.95). Devoted to the first 150 years of botanical art, this book highlights some of the less well known artists of New Zealand plants, such as Sydney Parkinson, Emily Harris, Georgina Hetley and Sarah Featon, as well as the better known such as Banks, the Forsters and Cheeseman. 48 full page plates, most in colour.

GARDENING with NEW ZEALAND Plants, Shrubs & Trees

Muriel Fisher E. Satchell Janet Watkins



Revised & Expanded Edition

Gardening with New Zealand Plants, Trees and Shrubs, by Muriel Fisher, E Satchell and Janet Watkins;

Gardening with New Zealand Ferns, by Muriel Fisher

(Collins, \$39.95). These books will need little introduction, especially the former which was first published in 1970 and is now into its sixth revised and expanded reprint. Muriel Fisher now includes a section on sedges and grasses, so popular has the cultivation of these natives become. Both books come together in a slipcase.

EDUCATIONAL HOLIDAYS IN THE SOUTH



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Ubiquitous and ephemeral, fungi have long fascinated both researchers and casual observers alike. Their range of form, size and colour is phenomenal. So too, their ability to appear overnight, as if from nowhere, and transform a dull field or forest floor with their colourful diversity.

What the casual observers see when they pick up a toadstool or mushroom is merely the fruitbody, the part that produces and releases the spores. The true body or *mycelium* of the fungus lies hidden within the soil or wood in which it is growing. Pull a rotting log to pieces and you will see lots of mycelium, the thin white threads that are slowly reducing the log to dust.

Of course, fungi have other fascinating properties too. Some are very toxic and just one or two spoonsful can be deadly. On the other hand, some are edible, ranking among the most highly regarded of culinary delights. One final point of interest; many of our New Zealand fungi have not yet been well researched — there's doubtless many more new species yet to be discovered!

Crinipellis procera. In twigs on forest floor, Silverstream, Lower Hutt. Common in forest litter and easily identified by the thin black stems, up to 15 cm long. Photo: Rob Lucas

Late afternoon sun gives a pleasing effect to this image of a *Xeromphalina tenuipes*.

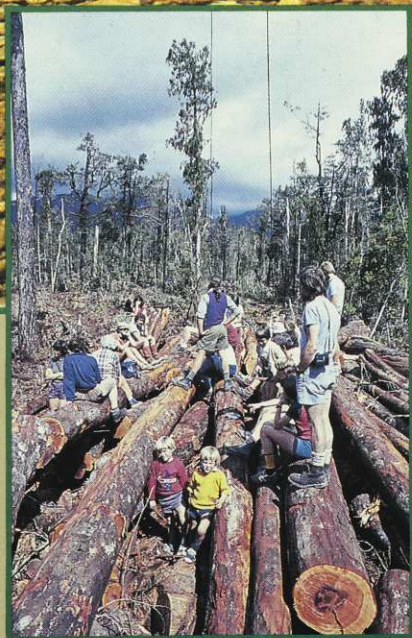
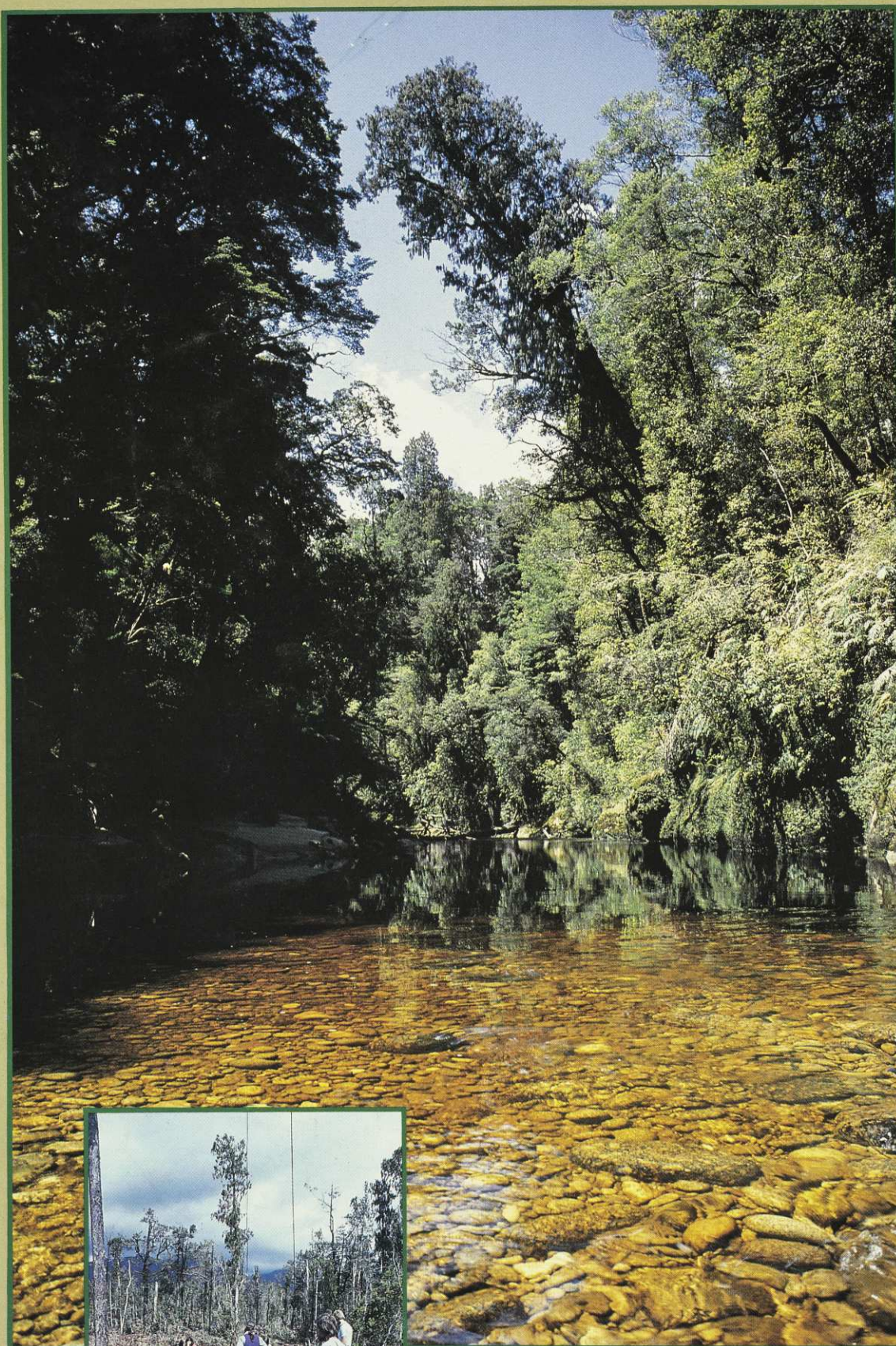
Photo: Syd Moore

Aseroa rubra (the stinkhorn flower). Flies feed on the spore-bearing brown gleba, attracted by its stench. Measures about 6 cm across from tentacle to tentacle. Photo: Syd Moore



Nidula candida. On fallen twigs, Whirinaki forest. The spores of the birds nest fungus are held in pellets within the nest and splashed out by rain drops. Several types of birds nest fungi can be found throughout New Zealand. Photo: Rob Lucas





What future Buller Forests? Buller sawmill contracts expire on July 31, although loggers want the contracts extended. The Government's reserves scientific advisory committee has just supported reserves for the Oparara and Ngakawau basins, Karamea Bluff and Little Wanganui Valley.

Conservationists have campaigned for 10 years for a Paparoa National Park, which has broad community and Government support.

Decisions on all these areas are imminent. Besides the creation of the reserves and the park, there must be a major reduction in logging to an unsubsidised sustained yield level. An exciting future awaits the Buller if the region's booming tourism industry is supported. The Oparara River *Photo: Graeme Loh. Inset: Buller Conservation Group visits logging site in the Awakiri River, Northern Paparoas. Photo: G. McSweeney.*



BEYOND THE ROARING FORTIES

THE STORY OF NEW ZEALAND'S
SUB-ANTARCTIC ISLANDS



BEYOND THE ROARING FORTIES

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By Conan Fraser (Foreword by Sir Peter Scott)

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Beyond the Roaring Forties tells the story of the sealing and whaling days, of doomed efforts to settle or farm the larger islands, and of shipwrecks and the plight of marooned castaways.

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Beyond The Roaring Forties, with its superb photographs and illustrations, is written in a clear and readable style and is the first comprehensive book about New Zealand's subantarctic islands.



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